International Transport Forum

Road Safety Annual Report 2014

Summary

irtad
International Traffic Safety Data and Analysis Group

DECADE OF ACTION FOR ROAD SAFETY 2011-2020

OECD

Road Safety Annual Report 2014

irtad

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Table of Contents

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 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. Its key outputs are the IRTAD database that currently publishes safety data from 32 countries and its annual report on road safety performance. It also conducts regular research and analysis on topics related to safety data analysis (e.g. forecasting, relationship between speed and crash risks, road safety and economic developments).

Currently, more than 70 organisations from 39 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 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 31 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.

In 2013, IRTAD launched the IRTAD LAC database, to support the work of the Ibero American Road Safety Observatory (OISEVI).

Key Messages

- The road fatality count in IRTAD countries was 1.7% lower in 2012 than 2011 whilst mobility, in terms of motorised vehicle-kilometres, remained more or less constant. For ten IRTAD countries the number of fatalities increased in 2012.
- Although the fatality reduction fits into the long-term downward trend, 2012 saw the smallest reduction in ten years. Such a modest rate of improvement is insufficient to meet the UN road safety target. The objective of the UN Decade of Action for Road Safety 2011–2020 is to reduce the projected number of road fatalities worldwide (1.9 million in 2020 on past trends) by 50%.
- Five European countries managed to reduce their annual road fatalities per 100 000 population (mortality rate) to three or less, namely Denmark, Norway, Sweden, the United Kingdom and Iceland.
- The recent favourable developments in the safest IRTAD countries demonstrate the way forward for other countries, exemplifying that progress in road safety is always possible, even for the best performers.
- Preliminary trends for 2013, based on provisional fatality data, show an equally dispersed picture: ten of the countries saw an increase in fatalities, some in excess of 10%; 22 countries managed to reduce their road death toll, nine of them by more than 10% – Austria, the Czech Republic, France, Greece, Lithuania, the Netherlands, New Zealand, Portugal and Switzerland.
- Between 2000 and 2012, the annual death toll in IRTAD countries fell by nearly 40%, i.e. a reduction of more than 45 000 road deaths a year when compared to the level in 2000. This period saw robust road safety strategies with well-defined and targeted measures (such as in the areas of speed management, alcohol and seat-belt use) introduced in many countries for the first time.
- There was, however, limited success in saving lives among vulnerable road users. Reductions in deaths of pedestrians, cyclists and motorcyclists have levelled-off and some increases have been recorded since 2009/10.
- Pedestrians are the largest group of vulnerable road users in most countries and alone account for around 19% of all fatalities in IRTAD countries, following a slightly increasing trend. Close to 40% of all pedestrians killed belong to the age group 65+. The ITF report, “Pedestrian Safety, Urban Space and Health”, sets out strategies to improve pedestrian safety and to promote walking as a healthy alternative and complement to motorised transport.
- The share of fatalities among elderly road users is slowly increasing in many IRTAD countries, reflecting the changing age structure of populations. In 2012, for European IRTAD members, the share of fatalities in the age group 65+ was for the first time in excess of 30%. In Japan, this share is traditionally even higher, at around 55%.
- Cycling is an increasingly popular alternative transport mode for short trips. The increased number of cyclists has been accompanied by a slowing of the rate of improvement, or even an increase in cycling fatalities over the past decade. The ITF report, “Cycling, Health and Safety”, explores options to improve cycling safety and presents a range of good-practice examples.

- Males account for the largest share of fatalities across all modes (including pedestrians), with the lowest shares in Japan (around 65% of all fatalities) and the highest in Europe (more than 75% in 2012).
- Inappropriate behaviour of road users, such as excessive and inappropriate speed, driving under the influence of alcohol and/or drugs and the non-use of safety equipment such as seat belts and crash helmets, remain important contributory factors in fatal crashes and for injuries.
- The use of seat belts continues to differ widely between IRTAD countries, between 39% and 98% on front seats, and between 3% and 97% on rear seats.
- The costs to society of road crashes are substantial and constitute a major burden for economies. Although no common international approach to assess crash costs has been agreed, estimations range from 1 to 3% of GDP, depending on the methodology used, but could grow significantly as research on the consequences of the most severe injuries improves.
- In the quest to reduce serious injuries, IRTAD is encouraging governments to establish systems for the combined analysis of police and hospital data, in order to get a fuller picture of the true extent of the problem. The IRTAD database will be enlarged progressively to host additional information on estimates of serious injuries (with a Maximum Abbreviated Injury Score – MAIS - of 3 and more).

Summary of road safety performance in 2012 and 2013

In **2012** success in reducing road fatalities in the IRTAD member countries was relatively modest, while mobility (in terms of vehicle-kilometres) hardly changed (increase by 0.6% from 2011[1]). At only minus 1.7%[2], IRTAD saw the lowest fatality reduction rate in ten years; the more than 79 000 total fatalities of 2011 were reduced by around 1 300, and ten countries faced an increase in 2012, among them New Zealand (+8.5%), Switzerland (+5.9%) and the United States (+3.3%) (see Table 1).

Preliminary trends for **2013**, based on provisional fatality data in IRTAD Member and observer countries, show an equally dispersed picture: ten of the countries saw an increase in fatalities, in excess of 10% in some cases. 22 countries managed to reduce their road death toll; some by more than 10%, including Austria, the Czech Republic, France, Greece, Lithuania, New Zealand, the Netherlands, Portugal and Switzerland (see Table 2).

Table 1. **Annual evolution in the number of road fatalities**
(Iceland and Luxembourg omitted for small figures)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Argentina					+10.9%	+13.8%	+8.7%	+6.1%	-9.4%	-2.4%	-1.1%	+1.3%
Australia	-4.4%	-1.3%	-5.5%	-2.3%	+2.8%	-1.5%	+0.1%	-10.4%	+3.5%	-9.1%	-5.6%	+1.7%
Austria	-1.8%	-0.2%	-2.6%	-5.7%	-12.5%	-4.9%	-5.3%	-1.7%	-6.8%	-12.8%	-5.3%	+1.5%
Belgium	+1.1%	-9.0%	-10.3%	-4.2%	-6.3%	-1.8%	+0.2%	-11.9%	-0.1%	-10.9%	+2.5%	-10.9%
Cambodia									+4.8%	+5.8%	+4.9%	+3.2%
Canada*	-5.1%	+6.0%	-4.9%	-1.7%	+6.1%	-0.5%	-4.3%	-11.8%	-8.7%	+0.6%	-10.3%	+4.9%
Czech Republic	-10.2%	+7.3%	+1.1%	-4.5%	-6.9%	-17.3%	+15.0%	-11.9%	-16.3%	-11.0%	-3.6%	-4.0%
Denmark	-13.5%	+7.4%	-6.7%	-14.6%	-10.3%	-7.6%	+32.7%	+0.0%	-25.4%	-15.8%	-13.7%	-24.1%
Finland	+9.3%	-4.2%	-8.7%	-1.1%	+1.1%	-11.3%	+13.1%	-9.5%	-18.9%	-2.5%	+7.4%	-12.7%
France	+1.0%	-6.2%	-20.9%	-7.7%	-4.9%	-11.5%	-2.0%	-7.4%	-0.0%	-6.6%	-0.7%	-7.8%
Germany	-7.0%	-1.9%	-3.3%	-11.7%	-8.2%	-5.0%	-2.8%	-9.5%	-7.3%	-12.1%	+9.9%	-10.2%
Greece	-7.7%	-13.1%	-1.8%	+4.0%	-0.7%	-0.1%	-2.7%	-3.7%	-6.2%	-13.6%	-9.3%	-13.8%
Hungary	+3.3%	+15.3%	-7.2%	-2.3%	-1.4%	+2.0%	-5.4%	-19.2%	-17.3%	-10.2%	-13.8%	-5.2%
Ireland	-1.0%	-8.5%	-10.9%	+11.6%	+5.9%	-7.8%	-7.4%	-17.5%	-14.7%	-10.9%	-12.3%	-12.9%
Israel	+17.5%	-3.0%	-13.6%	+4.9%	-6.4%	-7.3%	-5.7%	+7.9%	-23.8%	+12.1%	-3.1%	-22.9%
Italy	+0.5%	-1.6%	-6.0%	-6.7%	-5.0%	-2.6%	-9.5%	-7.9%	-10.3%	-2.9%	-6.2%	-5.4%
Japan	-3.3%	-4.2%	-7.3%	-4.3%	-6.7%	-8.3%	-8.8%	-9.2%	-3.9%	-0.4%	-5.1%	-4.9%
Korea	-20.9%	-10.8%	-0.1%	-9.0%	-2.8%	-0.8%	-2.5%	-4.8%	-0.5%	-5.7%	-5.0%	+3.1%
Netherlands	-8.2%	-0.6%	+4.2%	-21.8%	-6.7%	-2.7%	-2.9%	-4.5%	-4.9%	-16.6%	+1.7%	+2.9%
New Zealand	-1.5%	-11.2%	+14.1%	-5.4%	-7.1%	-3.0%	+7.1%	-13.3%	+5.2%	-2.3%	-24.3%	+8.5%
Norway	-19.4%	+13.5%	-9.6%	-8.5%	-13.6%	+8.5%	-3.7%	+9.4%	-16.9%	-1.9%	-19.2%	-13.7%
Poland	-12.1%	+5.3%	-3.2%	+1.3%	-4.7%	-3.7%	+6.5%	-2.6%	-15.9%	-14.5%	+7.2%	-14.8%
Portugal	-10.0%	+0.2%	-7.7%	-16.3%	-3.6%	-22.3%	+0.5%	-9.1%	-5.0%	+0.9%	-4.9%	-19.4%
Slovenia	-11.5%	-3.2%	-10.0%	+13.2%	-5.8%	+1.9%	+11.4%	-27.0%	-20.1%	-19.3%	+2.2%	-7.8%
Spain	-4.5%	-3.1%	+1.0%	-12.2%	-6.3%	-7.6%	-6.8%	-18.9%	-12.5%	-8.7%	-16.9%	-7.6%
Sweden	-6.3%	-4.0%	-0.6%	-9.3%	-8.3%	+1.1%	+5.8%	-15.7%	-9.8%	-25.7%	+19.9%	-10.7%
Switzerland	-8.1%	-5.7%	+6.4%	-6.6%	-19.8%	-9.5%	+3.8%	-7.0%	-2.2%	-6.3%	-2.1%	+5.9%
United Kingdom	+0.5%	-0.5%	+2.2%	-7.9%	-1.0%	-1.1%	-7.2%	-13.5%	-11.6%	-18.5%	+2.9%	-8.1%
United States*	+0.6%	+1.9%	-0.3%	-0.1%	+1.6%	-1.8%	-3.4%	-9.3%	-9.5%	-2.6%	-1.6%	+3.3%

Source: IRTAD.
*provisional data for 2012

1 For the 19 countries which provided mobility data for the given years.

2 For the 31 countries listed in Table 1, it does not include data from new member and observer countries for which data are currently under review. For a full list of IRTAD countries, including observers, see Page 533 for reference.

Table 2. **Preliminary trends for 2013, based on provisional fatality data**
(compared to the same period in 2012)

Country	Trend	Period	Country	Trend	Period
Argentina	↔	Provisional annual fatality data	Italy		Provisional data for motorways and state roads show a decrease in the number of fatalities.
Australia*	↘↘	Provisional annual fatality data	Japan	↳	Final annual fatality data
Austria*	↘↘↘	Final annual fatality data	Korea*	↘↘	Final annual fatality data
Belgium	↘↘	Provisional annual fatality data	Lithuania*	↘↘↘	Final annual fatality data
Cambodia	↔	Final annual fatality data	Luxembourg	↗↗↗	Final annual fatality data
Canada			Malaysia	↔	Provisional annual fatality data
Chile*	↗↗	Provisional annual fatality data	Netherlands* (real data see country rep.)	↘↘↘	Final annual fatality data
Colombia	↱	Provisional annual fatality data	New Zealand*	↘↘↘	Final annual fatality data
Czech Republic*	↘↘↘	Provisional annual fatality data	Nigeria*	↗↗	Provisional annual fatality data
Denmark	↗↗↗	Provisional annual fatality data	Norway*	↗↗↗	Provisional annual fatality data
Finland	↱	Provisional annual fatality data	Poland*	↘↘	Final annual fatality data
France*	↘↘↘	Provisional annual fatality data	Portugal*	↘↘↘	Provisional fatality data January to September
Germany*	↘↘	Provisional annual fatality data	Serbia	↳	Final annual fatality data
Great Britain	↳	Provisional fatality data 12months gliding to September	Slovenia	↳	Final annual fatality data
Greece*	↘↘↘	Provisional annual fatality data	Spain*	↘↘	Provisional annual fatality data
Hungary	↳	Final annual fatality data	Sweden	↘↘	Final annual fatality data
Iceland	↗↗↗	Provisional annual fatality data	Switzerland*	↘↘↘	Final annual fatality data
Ireland*	↗↗↗	Final annual fatality data	United States*	↳	Provisional fatality data 12months gliding to September
Israel	↱	Final annual fatality data			

Source: IRTAD.

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

* Change significant at the 5% level.

Table 3. **Road safety trends**

Road Fatalities									
Recent data					Long-term trends	Average annual change[1]			
Country	2012	2011	2010	Change 2012-2011	Change 2012-2000	2010-2001	2000-1991	1990-1981	1980-1971
Argentina	5 104	5 040	5 094	1.3%	-	-	-	-	-
Australia	1 299	1 277	1 353	1.7%	-28.5%	-2.7%	-1.7%	-3.9%	-1.0%
Austria	531	523	552	1.5%	-45.6%	-5.9%	-5.0%	-2.5%	-3.9%
Belgium	767	861	840	-10.9%	-47.8%	-6.1%	-2.7%	-1.3%	-2.8%
Cambodia	1 966	1 905	1 816	3.2%	-	-	-	-	-
Canada	2 104[p]	2 006	2 237	4.9%	-27.5%	-2.3%	-2.6%	-3.3%	-0.2%
Chile[a]	1 980	2 045	2 074	-3.2%	-10.3%	0.2%	-	-	-
Colombia[a*]	5 922	5 528	5 502	7.1%	-9.6%	-1.6%	-	-	-
Czech Republic	742	773	802	-4.0%	-50.1%	-5.5%	1.2%	0.8%	-4.9%
Denmark	167	220	255	-24.1%	-66.5%	-5.7%	-2.2%	-0.5%	-6.1%
Finland	255	292	272	-12.7%	-35.6%	-5.0%	-5.1%	1.8%	-7.8%
France	3 653	3 963	3 992	-7.8%	-55.3%	-7.8%	-2.5%	-2.1%	-2.8%
Germany	3 600	4 009	3 648	-10.2%	-52.0%	-7.0%	-4.4%	-	-
Greece	984	1 141	1 258	-13.8%	-51.7%	-4.4%	-0.4%	2.8%	3.0%
Hungary	605	638	740	-5.2%	-49.6%	-5.6%	-6.1%	4.7%	-1.3%
Iceland	9	12	8	-25.0%	-71.9%	-11.5%	1.9%	0.0%	2.0%
Ireland	162	186	212	-12.9%	-61.0%	-7.1%	-0.8%	-2.0%	-0.2%
Israel	263	341	352	-22.9%	-41.8%	-4.5%	0.4%	-0.2%	-4.0%
Italy	3 653	3 860	4 114	-5.4%	-48.3%	-5.9%	-1.5%	-2.2%	-1.9%
Jamaica[a]	260[p]	307	319	-15.3%	-22.2%	-1.4%	-3.1%	-	-
Japan	5 237	5 507	5 806	-4.9%	-49.7%	-5.9%	-3.6%	2.8%	-6.7%
Korea	5 392	5 229	5 505	3.1%	-47.3%	-4.2%	-4.5%	8.7%	5.6%
Lithuania[b]	301	296	300	1.7%	-53.0%	-9.1%	-6.5%	2.6%	-
Luxembourg	34	33	32	3.0%	-55.3%	-8.3%	-1.0%	-3.7%	1.5%
Malaysia[b]	6 917	6 877	6 872	0.6%	14.6%	1.8%	-	-	-
Netherlands	650	661	640	-1.7%	-44.3%	-5.7%	-1.0%	-3.0%	-5.0%
New Zealand	308	284	375	8.5%	-33.3%	-2.1%	-3.7%	1.0%	-1.4%
Nigeria[c]	6 092	6 054	6 052	0.6%	-28.1%	-	-	-	-
Norway	145	168	208	-13.7%	-57.5%	-3.1%	0.6%	-0.2%	-4.2%
Poland	3 571	4 189	3 908	-14.8%	-43.3%	-3.8%	-2.5%	2.1%	-
Portugal	718	891	937	-19.4%	-65.0%	-7.3%	-4.5%	0.3%	3.5%
Serbia[c]	688	731	660	-5.9%	-34.4%	-7.1%	-6.4%	0.9%	-
Slovenia	130	141	138	-7.8%	-58.6%	-7.5%	-4.2%	-1.0%	-1.6%
Spain	1 903	2 060	2 478	-7.6%	-67.1%	-8.5%	-4.6%	3.9%	1.9%
Sweden	285	319	266	-10.7%	-51.8%	-7.8%	-2.5%	-0.2%	-3.9%
Switzerland	339	320	327	5.9%	-42.7%	-5.5%	-3.7%	-2.2%	-3.8%
United Kingdom	1 802	1 960	1 905	-8.1%	-49.7%	-6.8%	-3.1%	-1.3%	-2.8%
United States	33 561[p]	32 479	32 999	3.3%	-20.0%	-2.7%	0.1%	-1.1%	-0.3%

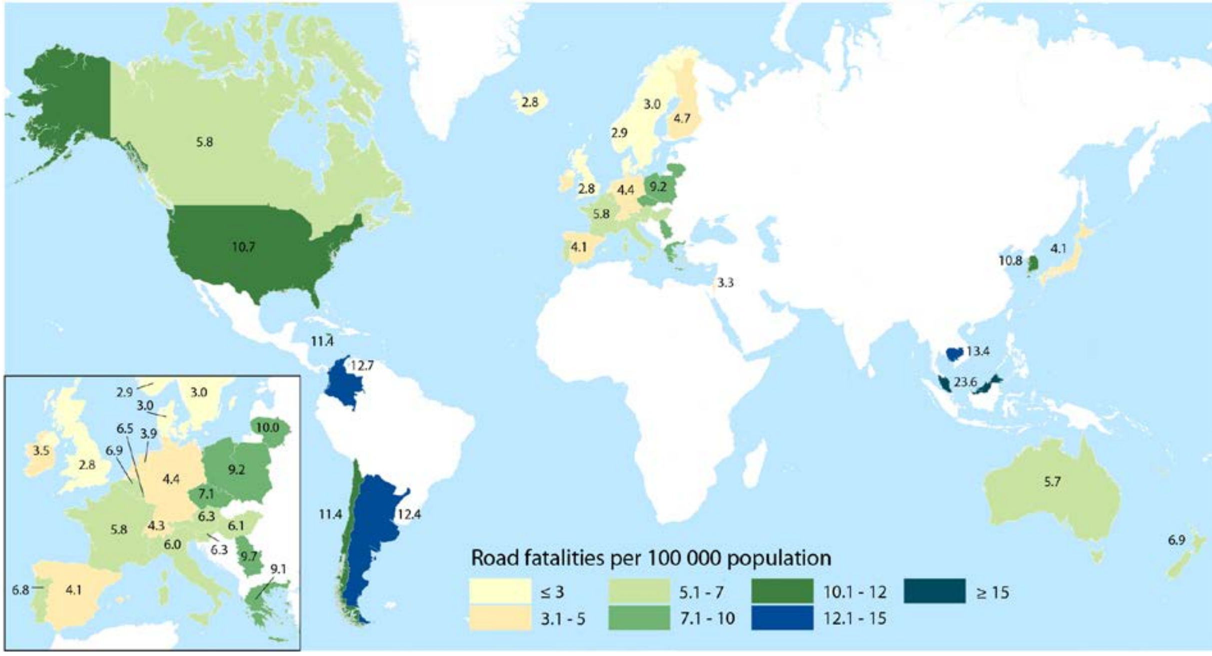
Source: IRTAD
Police-recorded fatalities (except the Netherlands for 2000 onwards: real data, see country report). Death within 30 days.
For recent methodology changes in calculation of the fatality data in Austria, Spain and Portugal, see country reports.
a=IRTAD LAC b=accession country. Data are under review. c=observer. Data not reviewed by IRTAD. p=provisional data for 2012.
*Information provided by CFPV not validated by the Government of Colombia.

[1]Geometric mean: $1-(\Sigma Fatalities_{EndYear}/\Sigma Fatalities_{StartYear})^{1/n}$ n...Number of years (n=9 for period 2001 to 2010)

Five countries now at 3 or less fatalities per 100 000 population

2012 nevertheless saw some significant successes: a record number of countries managed to reduce the number of road fatalities per 100 000 population to three or less, namely Iceland, United Kingdom, Norway, Denmark and Sweden (see Figure 1). These countries may serve as role models for other countries, showing that further progress in road safety is always possible, even for the best performers.

Figure 1. **Road fatalities per 100 000 population in 2012 in IRTAD member and observer countries**



Source: IRTAD.

Success since 2000

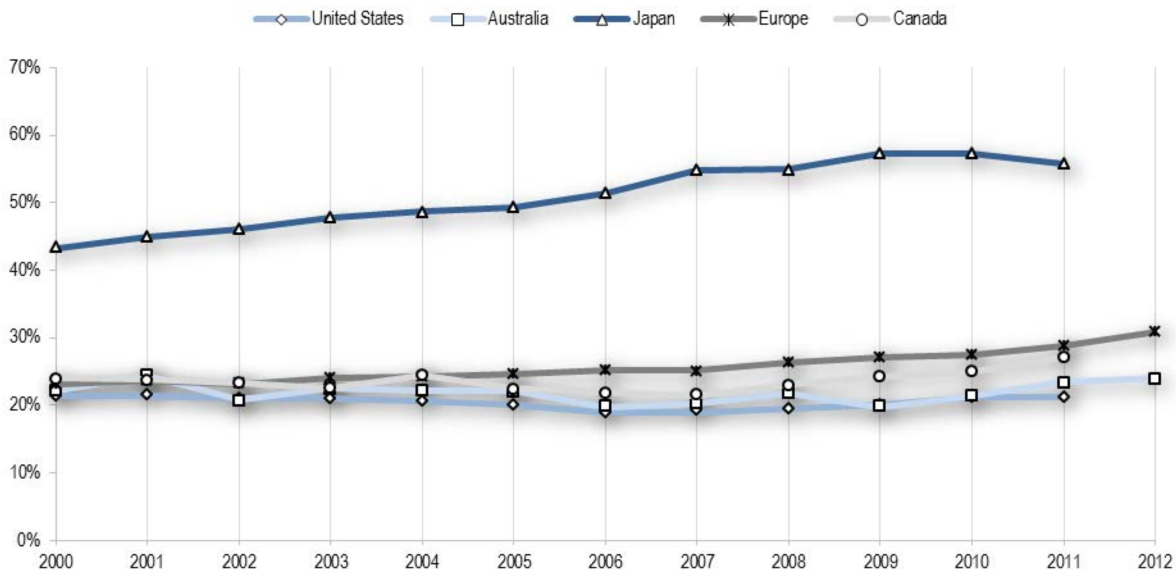
Success in improving safety levels over the decade since 2000 continues to be unequally spread, both across countries and across transport modes. The highest fatality reductions since 2000 were achieved in Spain (-67.1%), Denmark (-66.5%) and Portugal (-65.0%), whereas least success was recorded for the United States (-20.0%) and Australia (-28.5%)[3] as well as in a number of observer countries (see figure 9).

3 Iceland not listed here because of small numbers.

Share of elderly road user fatalities increasing

The share of fatalities among elderly road users is on a slow increase in many IRTAD countries, reflecting the changing age structure of populations and a trend to stay mobile for longer. In 2012, for European IRTAD members the share of fatalities in the age group 65+ was, for the first time, in excess of 30%. In Japan, this share is traditionally much higher, now around 55%. The share of the elderly among the population varies substantially at 14% in the United States, Canada and Australia, 18% for Europe and 23% for Japan, indicating that the chance of surviving a road crash is significantly reduced for elderly road users. In many IRTAD regions the elderly population has continuously grown since 2000 – by more than 10% in the United States, Canada, Europe and Japan.

Figure 2. **Road fatalities in the age group 65+ in selected IRTAD countries/regions**
(% of all fatalities)

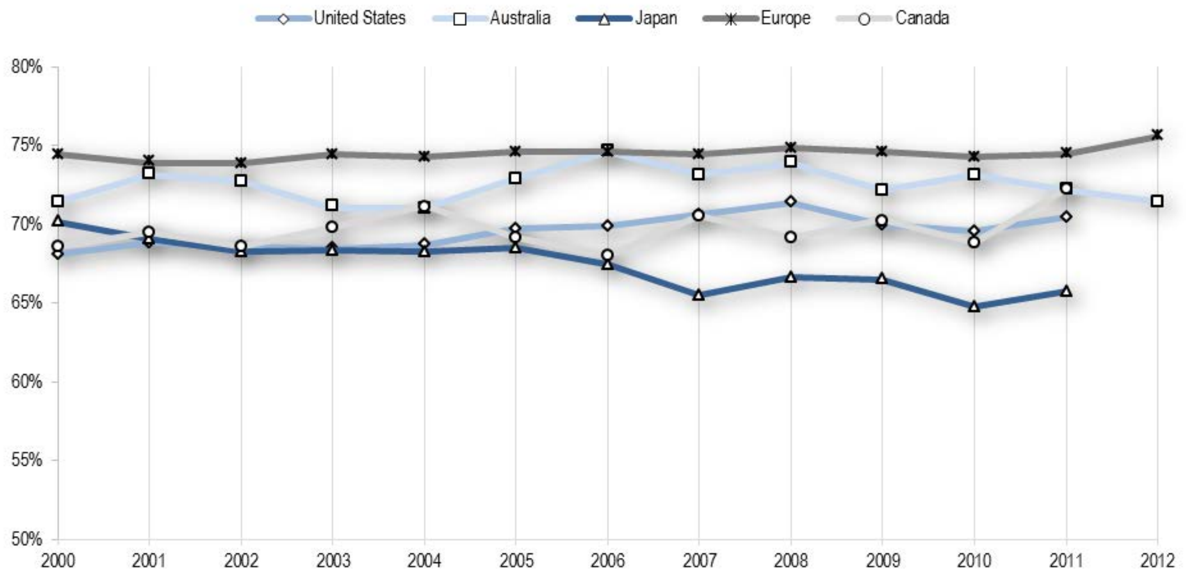


Source: IRTAD.

The majority of fatalities are male

Males account for the largest share of fatalities across all modes (including pedestrians), with the lowest shares in Japan (around 65% of all fatalities) and the highest in Europe (more than 75% in 2012). Except for Japan, slight increases in the share of male fatalities are noted in several OECD regions since 2000, such as North America and Europe (see Figure 3**Error! Reference source not found.**). The percentage of males in the general population in the regions observed ranges from 48.7% in Japan to 49.8% in Australia, with no obvious trend in the observation period.

Figure 3. **Share of male road fatalities in selected IRTAD countries/regions**
(% of all fatalities)

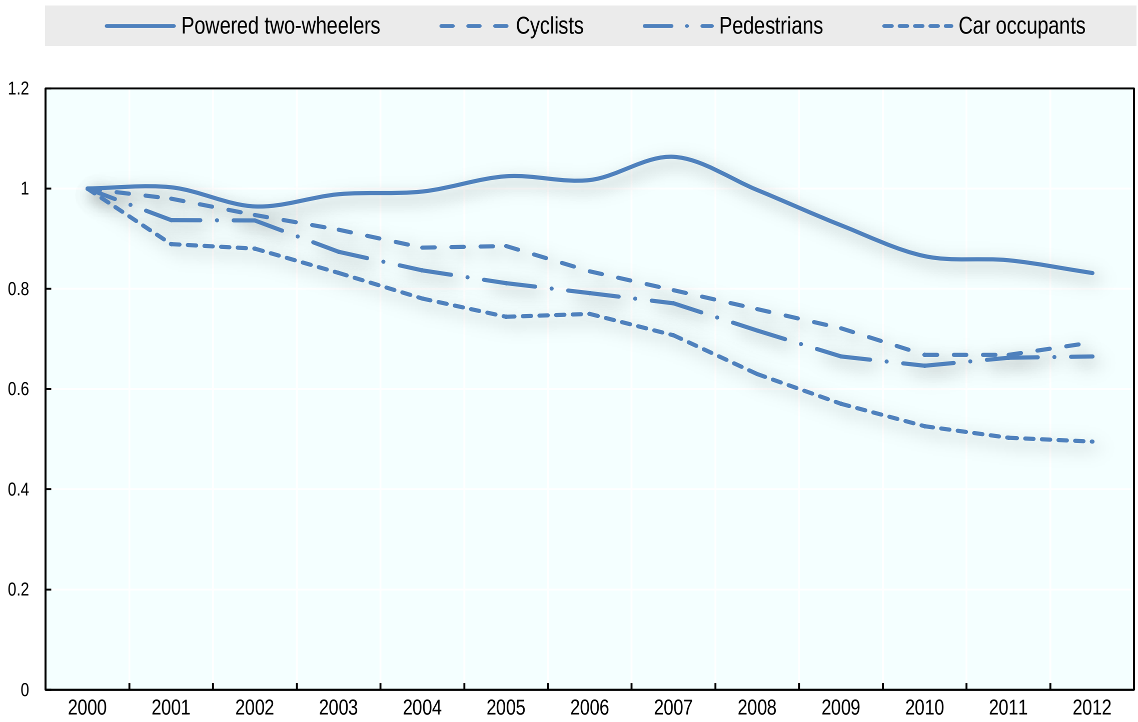


Source: IRTAD.

Only moderate safety improvements for vulnerable road users

Since the year 2000, there has been, however, less success in saving lives among vulnerable road users than amongst car occupants: reduction in deaths among pedestrians, cyclists and motorcyclists have levelled-off and some increases have been recorded since 2009-10. Fatalities among car occupants were reduced by 50% between 2000 and 2012, whereas decreases were only 34% for pedestrians, 31% for cyclists and 17% for motorcyclists – the latter after an initial increase until 2007.

Figure 4. **Development of fatalities in IRTAD countries by road user type**
(2000 = 1)

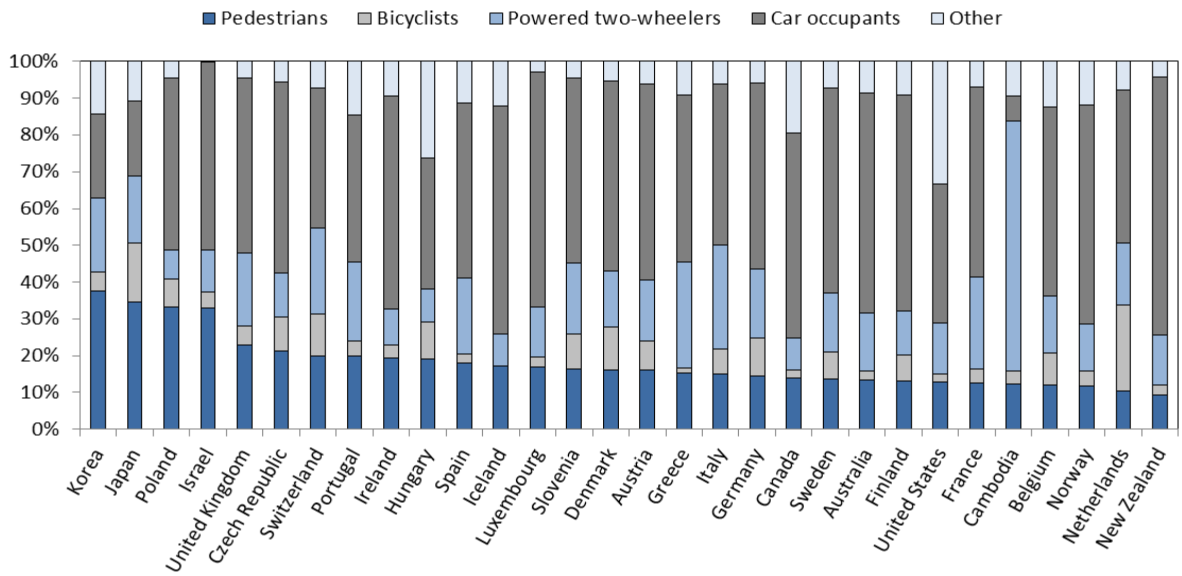


Source: IRTAD.

Pedestrian safety

Pedestrians are the largest group of vulnerable road users in most countries and account for around 19% of all fatalities in IRTAD countries. Close to 40% of all pedestrians killed belong to the age group 65+; this share has constantly increased from less than 34% in 2000, indicating the changing safety requirements of an ageing society which will have to be met by our transport system. The highest shares of pedestrian fatalities were recorded in Korea, Japan, Poland and Israel (see Figure 5**Error! Reference source not found.**). Pedestrian safety continues to be one of the major road safety issues around the world, especially in lower income countries.

Figure 5. **Fatalities (average 2008-2012)**
Share of different road user categories



Source: IRTAD.

As the comparatively poor improvements in pedestrian safety have become a concern at OECD level, the Joint Transport Research Centre of OECD and the International Transport Forum (JTRC) convened an international expert group and published a report entitled "Pedestrian Safety, Urban Space and Health in 2012"[4]. The report sets out strategies to provide a safe walking infrastructure - both from the urban stages of urban development projects and in on-going transport investment – and to promote walking as a healthy alternative and complement to motorised transport.

[4] http://internationaltransportforum.org/jtrc/safety/PUSH/index.html

The 9 key messages of the JTRC Research Report "Pedestrian Safety, Urban Space and Health in 2012":

1. Walking is the most fundamental form of mobility. It is inexpensive, emission-free, uses human power rather than fossil fuel, offers important health benefits, is equally accessible for all – except those with substantially impaired mobility – regardless of income, and for many citizens is a source of great pleasure. Yet walking presents challenges to society's least robust individuals.

2. The vitality of a city is closely linked to people being out and about on foot for many purposes. Beyond walking for access to goods and services, these other activities in the urban space are collectively termed "sojourning". Walking and sojourning are at the heart of urban life and contribute to liveable, attractive, prosperous and sustainable cities.

3. Walking is, however, the neglected transport mode and, despite being at the start and end of all trips, is rarely captured in government statistics on mobility and is often neglected in planning and policy development.

4. Public institutions representing specifically the interests of pedestrians – including the socially disadvantaged members of society who rely heavily on walking – are rare.

5. Walking and public transport are interdependent elements of sustainable urban mobility. Walking is facilitated by a well-connected network with pedestrian-friendly infrastructure and well-designed urban space.

6. Pedestrians are among the road users most vulnerable to traffic injury. It has become highly challenging, especially for older and young people, to cope with the complex, sometimes hostile, traffic conditions that characterise today's cities and towns.

7. Pedestrians suffer severe trauma from falls in public spaces and in traffic collisions while crossing streets. The magnitude of the consequences of falls is known to be underestimated. Older people have an elevated risk of severe injury and death from both falls and traffic collisions.

8. Lowering motorised traffic speeds reduces the frequency and severity of crashes, especially those involving pedestrians. Reducing speed also contributes to smoother traffic flow, and enhances in many ways the liveability and sustainability of cities.

9. Motorisation has contributed to urban sprawl, and cities have evolved to accommodate car use, with many negative impacts on life and social cohesion. Changes are required now to manage the preponderant role of motorised traffic in industrialised countries. This is also urgent in low- and middle-income countries, which are now moving rapidly towards much higher levels of motorisation.

Cycling safety

Cycling is an increasingly popular alternative transport mode for short trips – for economic and ecological reasons, and – not least – as a means to improve health. The increasing number of cyclists has coincided with a tailing-off of cycling safety improvement over the past decade. Cyclists currently represent around 5% of all fatalities in IRTAD countries, with an increasing trend since 2010. This prompted the JTRC to convene an international expert group. Their research report, "Cycling, Health and Safety", was published in 2013[5]. The report monitors international trends in cycling, safety and policy, and explores options that may help decision-makers design safe environments for cycling. The safety impacts of a wide range of pro-cycling measures are examined in detail and a range of good-practice examples presented.

The 11 key recommendations of the JTRC Research Report "Cycling, Health and Safety"

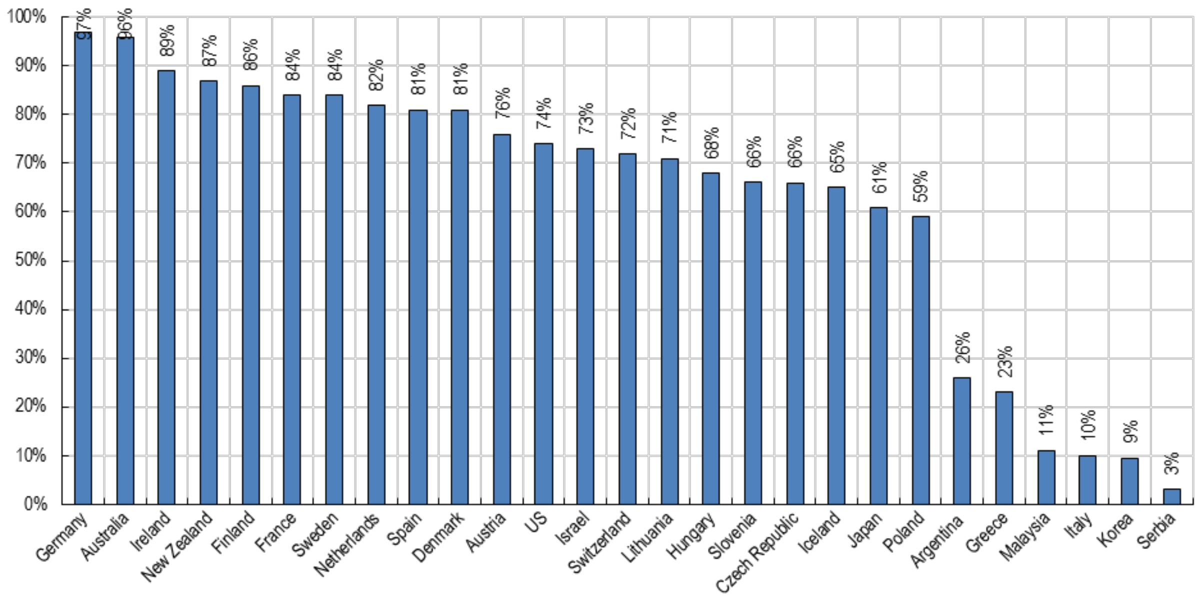
1. Where it does not reduce the quality of cycling networks, bicycle facilities should be located away from road traffic when feasible – especially for sections where cars are accelerating (hills, long straightaways).
2. Insufficient evidence supports causality for the "safety in numbers" phenomenon – policies increasing the number of cyclists should be accompanied by risk-reduction actions.
3. Efforts must be made to harmonise definitions of bicycle accident terminology so as to be able to make reliable international comparisons on cyclist safety.
4. National authorities should set standards for, collect or otherwise facilitate the collection of data on non-fatal cycling crashes based on police reports and, in either a systematic or periodic way, on hospital records.
5. National authorities should set standards for, collect or otherwise facilitate the collection of accurate, frequent and comparable data on bicycle usage.
6. Speed management acts as "hidden infrastructure" protecting cyclists and should be included as an integral part of cycle safety strategies.
7. Cyclists should not be the only target of cycling safety policies – motorists are at least as important to target.
8. Cycle safety policies should pay close attention to intersection design – visibility, predictability and speed reduction should be incorporated as key design principles.
9. Authorities seeking to improve cyclists' safety should adopt the Safe System approach – policy should focus on improving the inherent safety of the traffic system, not simply securing cyclists in an inherently unsafe system.
10. Authorities should match investments in cycle safety to local contexts, including levels of bicycle usage and account for cyclist heterogeneity.
11. Cycle safety plans should address safety improvement and the improvement of perceived safety.

[5] http://internationaltransportforum.org/jtrc/safety/cycling.html

Use of safety equipment: Seat-belt use

The use of seat belts is regarded as one of the most efficient measures to save lives and reduce crash injury severity for car occupants. Despite the fact that most IRTAD countries have mandatory seat-belt regulations in place, use rates vary widely both between countries and between front and rear seats. For front seats, values typically range between 80% and 100% whereas for rear seats the range is between 3% (Serbia) and over 90% (Germany, Australia) (see Figure 6).

Figure 6. **Seat-belt use on rear seats in IRTAD member countries**
(most recent available data)



Source: IRTAD.

Examples of road safety policy activities in IRTAD countries

The IRTAD Group is not only a platform for collection and analysis of key crash and fatality data but also a forum for exchange of good practices in terms of policy developments, road safety strategies and successful interventions. Therefore, a regular survey is carried out annually among members, regarding progress among all dimensions of road safety management. Detailed information on particular member states can be found in the Country Reports of the IRTAD annual report.

A number of new policy initiatives were implemented. In Europe, for example, alcohol ignition interlocks have entered into legislation in Sweden and Finland; Belgium and Austria have introduced regulations for streets where cyclists have priority; the Netherlands are testing self-reporting of road accidents in a pilot study; France is increasing the use of red light cameras as well as mobile speed cameras. From Malaysia, a set of promising safety initiatives was reported, among them an automated enforcement programme and a customer response-based safety performance check of bus operators. In Canada and the United States, a Fatigue Management Programme for professional drivers was launched.

Figure 7 presents an overview on policy activities in the IRTAD countries.

Figure 7. **Policy activities in IRTAD member countries**

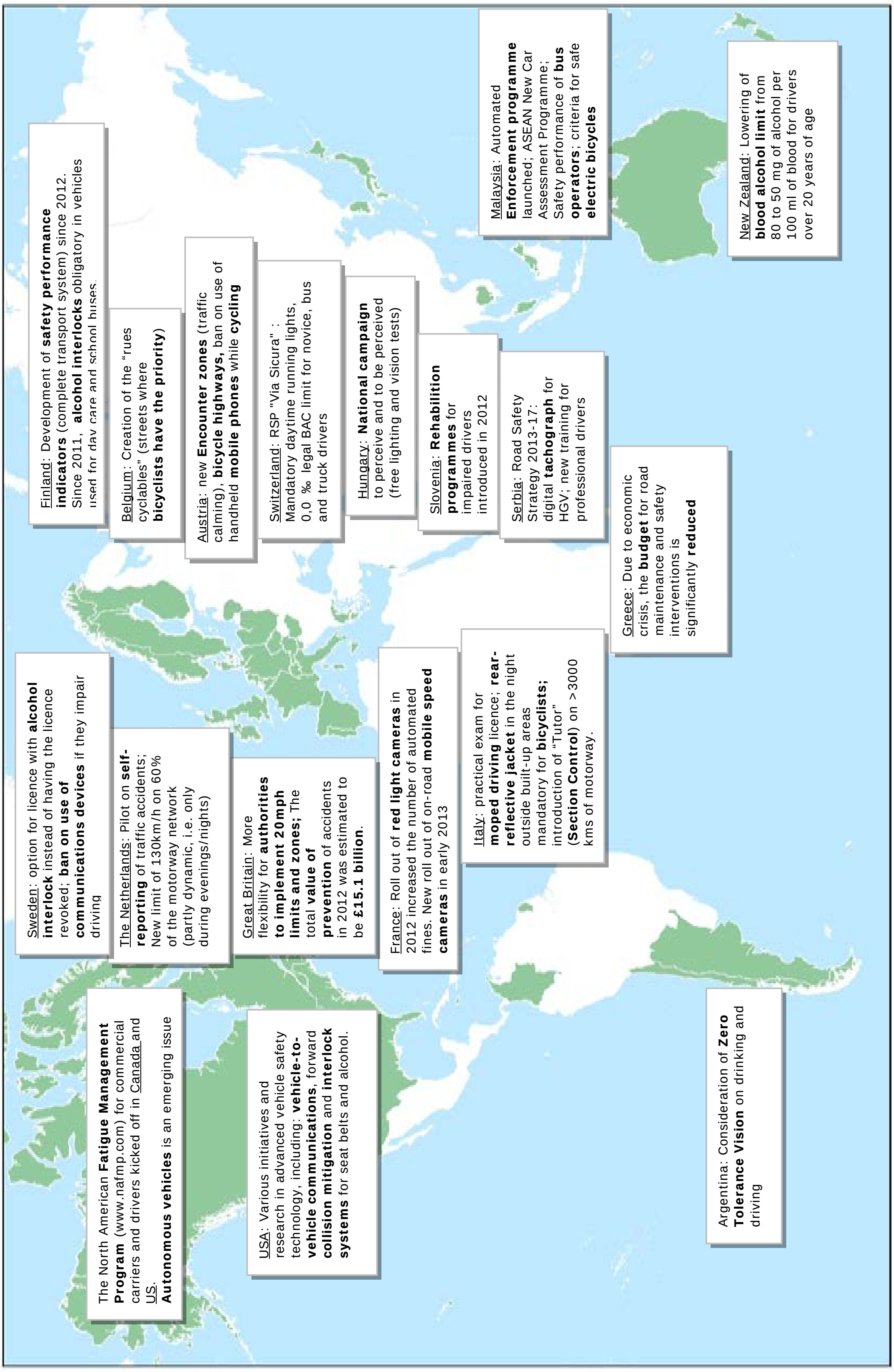
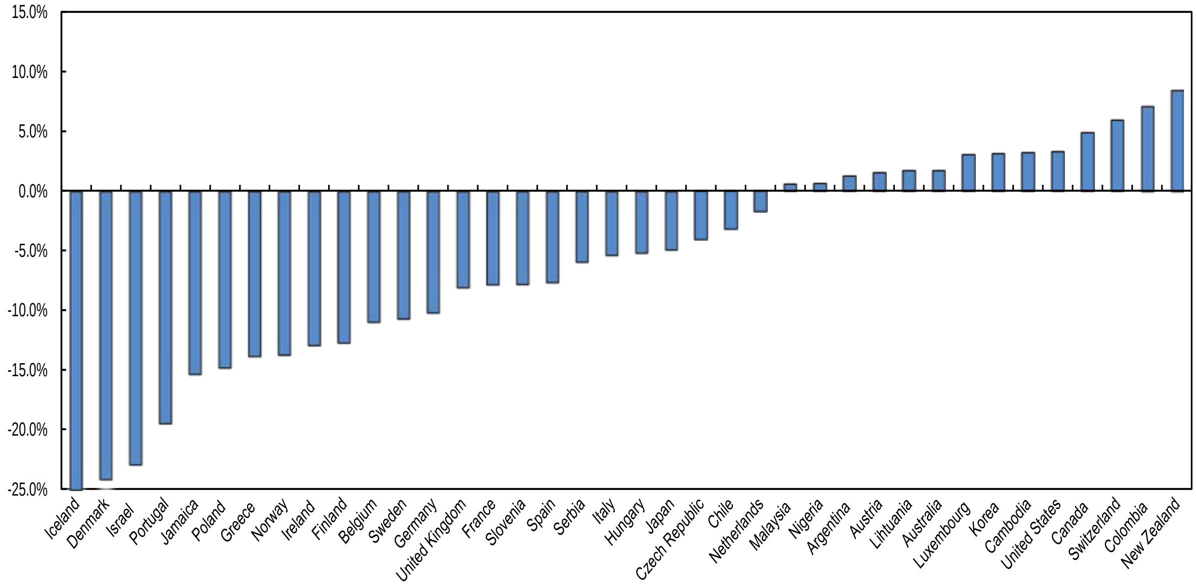
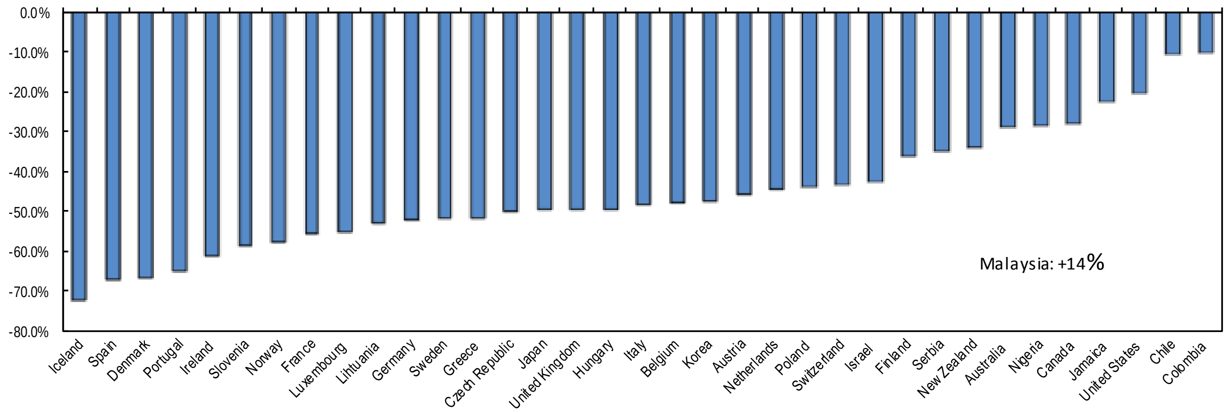


Figure 8. **Short-term change**
Road fatalities: 2012 in comparison to 2011



Source: IRTAD.
Note: provisional data for Jamaica, United States and Canada. Real data for the Netherlands.

Figure 9. **Medium term change**
Road fatalities: 2012 in comparison to 2000



Source: IRTAD.
Note: provisional data for Canada, Jamaica and the United States. Real data for the Netherlands.

Trends in death rates

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

Measuring the mortality rate and fatality risk

To measure road safety performance two different indicators can be used: the number of fatalities or (serious) injuries per head of population (mortality rate resp. morbidity rate) or the number of fatalities or (serious) injuries per distance travelled by (motorised) vehicles (fatality rate or casualty rate). The first indicator is used in the health sector, since it permits comparisons with other causes of injury and death, including infectious diseases. In the transport sector it has been common to use fatalities per distance travelled (e.g. fatalities per million vehicle-kilometres) as a principal indicator. If good data on kilometres travelled is not available a proxy is used: per 10 000 vehicles. Both indicators are used next to each other and they serve different purposes.

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 comparable levels of motorisation. It is, however, not very meaningful to compare safety levels between high-motorised countries and countries where the level of motorisation is low.

Fatalities per billion vehicle–kilometres (or fatalities per billon person-kilometres, taking vehicle occupancy into account). This is the indicator to describe the safety quality of road traffic. 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 fatality figures. Most countries report their vehicle fleet without mopeds.

Fatalities per head of population

Table 4. 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.

Thirteen countries now constitute the league of well-performing countries with mortality rates in terms of road fatalities per 100 000 population of five or less. In 2012, five countries even managed to lower this rate to 3 or less: United Kingdom, Iceland, Norway, Denmark and Sweden (see Figure 10).

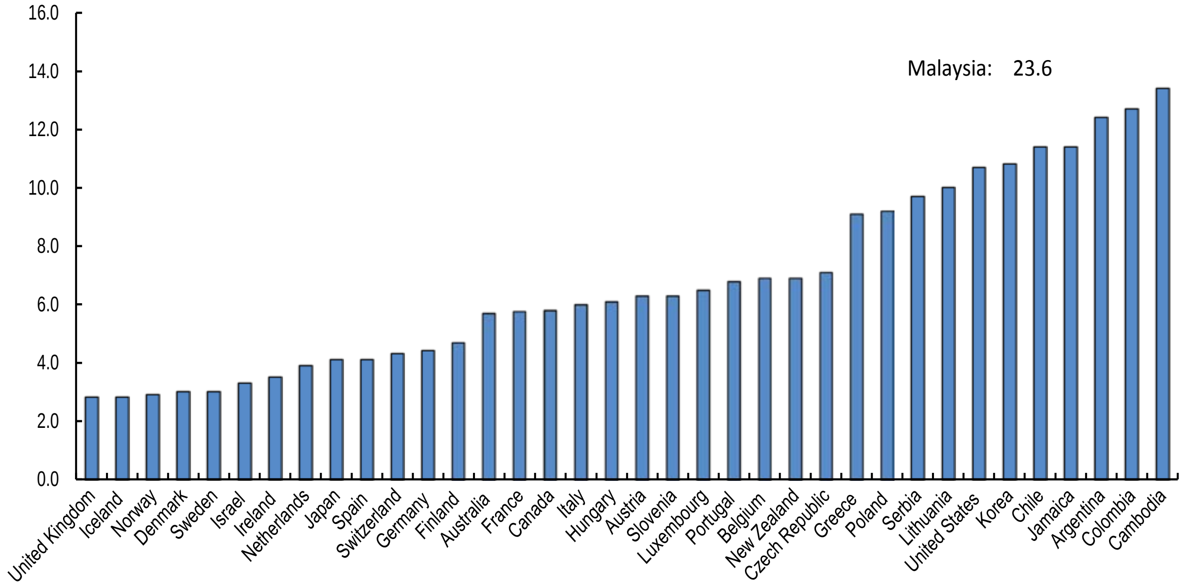
Table 4. **Road fatalities per 100 000 population and per billion vehicle-km**

Country	Killed per 100 000 inhabitants						Killed per billion v-km					
	1970	1980	1990	2000	2010	2012	1970	1980	1990	2000	2010	2012
Argentina	-	14.5	-	-	12.6	12.4	-	-	-	-	-	-
Australia	30.4	22.3	13.7	9.4	6.1	5.7	49.3	28.2	14.4	9.3	6.1	5.6
Austria	34.5	26.5	20.4	12.2	6.6	6.3	109.0	56.3	32.0	15.0	7.3	6.9
Belgium	31.8	24.3	19.9	14.4	7.7	6.9	104.6	50.0	28.1	16.3	8.5	7.7
Cambodia	-	-	-	-	12.7	13.4	-	-	-	-	-	-
Canada	23.8	22.3	14.3	9.5	6.6	5.8[e]	-	-	-	9.3	6.5	5.9[e]
Chile[a]	-	-	15.7	14.3	12.1	11.4	-	-	-	-	-	-
Colombia[a*]	-	-	-	16.5	12.1	12.7	-	-	-	-	-	-
Czech Republic	20.2	12.2	12.5	14.5	7.6	7.1	-	53.9	48.3	36.7	16.2	15.7
Denmark	24.6	13.5	12.3	9.3	4.6	3.0	50.5	25.0	17.3	10.7	5.6	3.4
Finland	22.9	11.5	13.0	7.7	5.1	4.7	-	20.6	16.3	8.5	5.1	4.7
France	32.5	25.4	19.8	13.7	6.4	5.8	90.4	43.9	25.7	15.6	7.1	6.5
Germany	-	-	14.2	9.1	4.5	4.4	-	-	19.7[f]	11.3	5.2	5.0
Greece	12.5	15.1	20.3	18.7	11.1	9.1[p]	-	-	-	-	-	-
Hungary	15.8	15.2	23.4	11.7	7.4	6.1	-	-	-	-	-	-
Iceland	9.8	11	9.5	11.5	2.5	2.8	-	26.5	14.9	13.8	2.5	2.9
Ireland	18.3	16.6	13.6	11.0	4.7	3.5	44.3	28.4	19.2	11.5	4.5	3.4
Israel	17.1	10.8	8.7	7.1	4.6	3.3	87.9	38.8	22.4	12.4	7.1	5.2
Italy	20.5	16.4	12.8	12.4	6.8	6.0	-	-	-	-	-	-
Jamaica[a]	-	-	-	12.9	11.8	11.4[p]	-	-	-	-	-	-
Japan	21	9.7	11.8	8.2	4.5	4.1	96.4	29.3	23.2	13.4	8.0	7.2
Korea	10.9	16.9	33.1	21.8	11.3	10.8	-	-	-	49.5	18.7	18.4
Lithuania[b]	-	-	26.9	17.3	9.2	10.0	-	-	-	-	-	-
Luxembourg	39.0	27.0	18.7	17.5	6.4	6.5	-	-	-	-	-	-
Malaysia[b]	-	-	22.7	25.9	23.8	23.6	-	-	-	26.3	16.2	13.4
Netherlands	24.6	14.2	9.2	7.3	3.9	3.9	-	26.7	14.2	10.0	4.9	4.9
New Zealand	23.0	18.8	21.4	12.0	8.6	6.9	-	-	-	13.6	9.4	7.7
Norway	14.5	8.9	7.8	7.6	4.3	2.9	41.7	19.3	12.0	10.5	4.9	3.3
Poland	10.5	16.9	19.3	16.4	10.2	9.2	-	-	-	-	-	-
Portugal	20.5	29.3	29.3	20.1	8.8	6.8	-	-	-	-	-	-
Serbia[c]	-	-	20.0	14.0	9.0	9.7	-	-	-	-	-	-
Slovenia	36.1	29.5	25.9	15.8	6.7	6.3	166.7	96.1	65.1	26.7	7.7	7.8[e]
Spain	16.2	17.5	23.3	14.4	5.4	4.1	-	-	-	-	-	-
Sweden	16.3	10.2	9.1	6.7	2.8	3.0	35.3	16.4	12.0	8.5	3.2	3.6
Switzerland	26.6	19.2	13.9	8.3	4.2	4.3	56.5	30.9	18.6	10.6	5.2	5.6
United Kingdom	14.0	11.0	9.4	6.1	3.1	2.8	37.4[d]	21.9[d]	12.8	7.4	3.8	3.6[p]
United States	25.8	22.5	17.9	14.9	10.7	10.7[p]	29.6	20.8	12.9	9.5	6.9	7.1[p]

Death within 30 days. Police recorded data (except the Netherlands: real data for 2000 onwards)
For recent methodology changes in calculation of the fatality data in Austria, Spain and Portugal, see country reports.

a = IRTAD LAC
b = accession country. Data are under review.
c = observer. Data not yet reviewed by IRTAD.
d = Great Britain.
e = 2011.
f = 1991 p= provisional.
* Information provided by CFPV not validated by the Government of Colombia.

Figure 10. **Road fatalities per 100 000 population in 2012**



Source: IRTAD.
Note: Provisional data for Colombia, Jamaica and the United States. Canada: data 2011. Real data for the Netherlands.

Since 1970, substantial progress has been made in all countries. In Luxembourg (from 39.0 to 6.5), Switzerland (from 26.6 to 4.3) and the Netherlands (from 24.6 to 4.0), the rate in terms of fatalities per 100 000 population has been divided by more than six.

In the last decade (2000-2012), the rate has been reduced by two in about half of the countries. The greatest improvements were seen in Iceland (-75%), Spain (-71%), Denmark (68%), Ireland (68%), Portugal (-66%) and Luxembourg (63%) as well as for Slovenia, France and Sweden (reduction greater than 55%; see Figure 10).

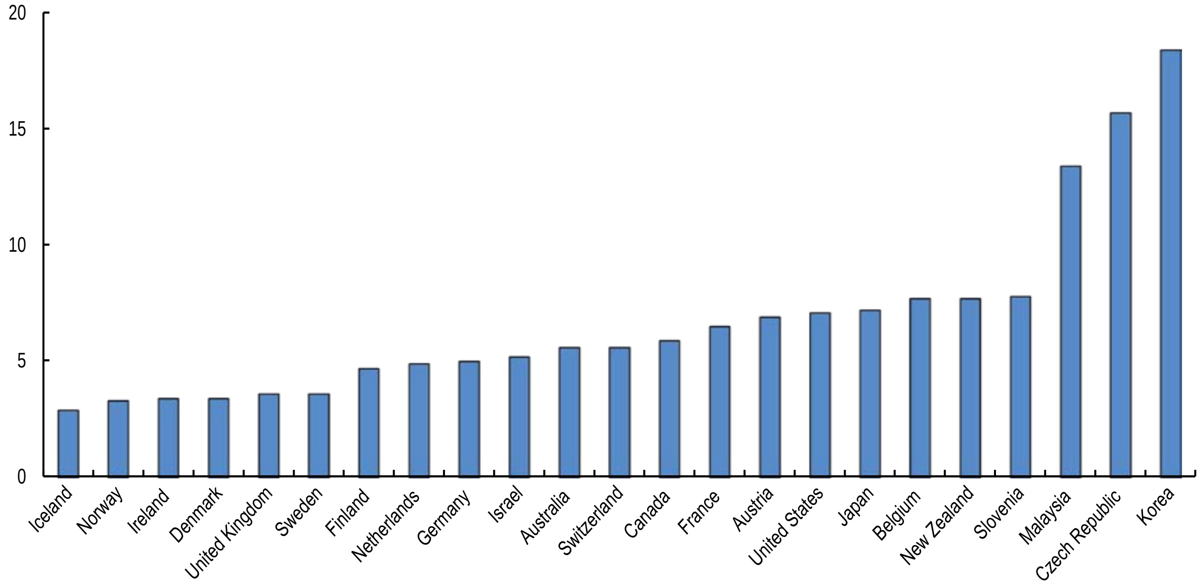
While the mortality rate is useful for comparing the performance of countries with similar levels of development and motorisation, it should not be used as a universal tool to rank all countries.

Fatalities per vehicle-kilometre

Data on risks expressed in terms of deaths per billion vehicle-kilometres are summarized in Figure 11. 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 2012, the best-performing countries recorded less than five deaths per billion vehicle-kilometres; namely, Norway, Ireland, Great Britain, Sweden, Iceland, Finland, Denmark and the Netherlands.

Figure 11. **Road fatalities per billion vehicle-kilometres in 2012**

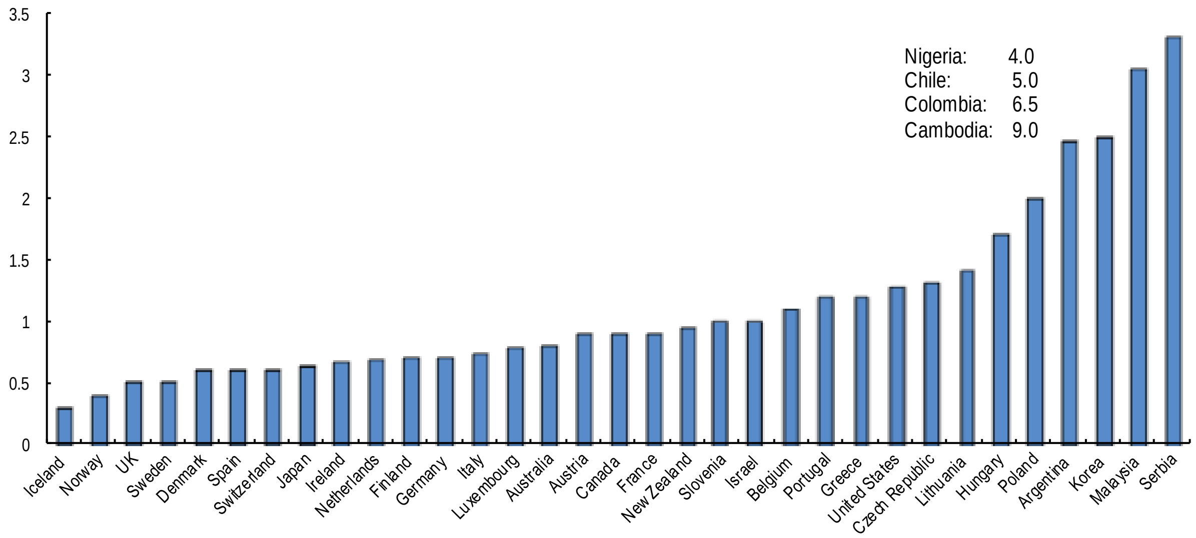


Source: IRTAD
Note: Provisional data for the United States. Canada and Slovenia: data 2011. Real data for the Netherlands.

Fatalities per registered vehicle

Figure 12 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 vehicle may be used as an approximation of exposure in order to describe risks and make comparisons between countries.

Figure 12. **Road fatalities per 10 000 registered vehicles in 2012**



Source: IRTAD.
Note: Ireland: total vehicles; Canada: data 2011; United Stats provisional data; Colombia: incl. mopeds.

The fight against serious injuries

Several IRTAD countries have shown remarkable reductions in road fatalities over the last decades. However, the numbers of serious injuries are usually decreasing at a much slower pace and many survivors of severe crashes will never recover completely. According to data from the German DGU Trauma Registry[1], the number of very severely injured – i.e. persons who are likely to suffer permanent consequences from a crash – did not increase at all in recent years. It goes without saying that severe injury not only entails grave consequences for people's quality of life but also on the economy.

Police records alone are usually inadequate to carry out analysis on the nature and consequences of serious injuries. Moreover, international comparisons are currently unfeasible, as counts and definitions of a "serious injury" vary widely between the member states. The JTRC report, "Reporting on Serious Road Traffic Casualties"[2], outlines options for combined analysis of police and hospital data and devises a common definition of serious injuries on the basis of the Abbreviated Injury Scale (AIS), proposing that an injury at or above a Maximum AIS score of 3 (MAIS 3+) should be defined as serious.

Currently, IRTAD encourages its member states to set up adequate mechanisms for such combined analysis and will gradually enlarge the database to host additional country-wise information on the development of serious injury counts.

Likewise, the European Commission agreed with the EU Member States to provide MAIS3+ data by 2015 and will enlarge the CARE[3] database accordingly. The Commission proposed three potential methods for this procedure:

- Continue to use police data but apply a correction coefficient;
- Report the number of injuries based on data from hospitals;
- Create a link between police and hospital data.

A first analysis for the small number of countries which are already able to provide MAIS3+ data, among them Sweden, the UK, Spain and the Netherlands, shows that in part results vary substantially: the reason behind this is that different versions are currently in use, both of the AIS and the ICD[4], the basis from which the AIS code is often derived. Moreover, results vary according to which of the above methods (or combinations thereof) are used by a country.

Therefore, IRTAD will now join forces together with the European Commission and expert organisations such as FERSI[5] in order to devise harmonised methodologies to produce comparable data on serious injuries in due time; only when their true character and frequency is assessed in a sound and uniform way, can effective road safety management mechanisms be employed (such as target setting, implementation, monitoring and evaluation).

1. http://www.bast.de/DE/Publikationen/Archiv/Infos/2009-2008/10-2009.html
2. http://internationaltransportforum.org/irtadpublic/pdf/Road-Casualties-Web.pdf
3. Community database on Accidents on the Roads in Europe
4. International Statistical Classification of Diseases and Related Health Problems
5. Forum of European Road Safety Research Institutes, www.fersi.org

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 action 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 ongoing policies. More information can be found in the individual country reports that follow.

Table 5. **National road safety strategies and targets**

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	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 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 To achieve downward trends in fatalities and serious injuries.
Chile Road safety plan 2011-2014 Road safety plan 2015-2020 in preparation		-20% road deaths by 2014 in comparison with 2011 level
Colombia National Road Safety Plan 2013-2021 PNSV adjusted by Ministry of Transport (public consultation closed on 30 January 2014, draft plan available)	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%)

Country/Strategy/timeframe	Vision	Targets
Denmark Danish Road Safety Commission National Action Plan 2013-2020	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
European Union Road safety policy orientations 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 5 750 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 Horizon 2020 *(in preparation)*		-50% fatalities by 2020 (under consideration) (based on EU Road Safety target) mid-term target (under consideration) an average annual reduction rate of fatalities of 7%, corresponding to a reduction of 38% in 2017 (with reference to 2010 fatalities).
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
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
Nigeria	Becoming one of the 20th safest roads in the world by the year 2020	Rreduction of road traffic crashes by 50% in 2015 in comparison with 2007 level Reduction by 50% of the number of fatalities by 2020 in comparison with 2010 level (based on UN Decade of Action Plan)
Norway Road Safety Strategy 2014-2024	Vision Zero	Reduction by 50% of the number of fatalities by 2024. No more than 500 fatalities and serious injuries by 2024.
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 Road Safety Strategy 2013-2015 Second period 2008-2015 under review		62 fatalities per million inhabitants in 2015
Serbia *National Strategy 2013-2020 (expected to be approved in 2014)*		
Slovenia National road safety programme 2013 – 2022	Vision Zero no fatalities and no one seriously injured on Slovenian roads	-50 % fatalities by 2022 or less than 35 fatalities per million inhabitants -50 % seriously injured by 2022 or less than 230 seriously injured per million inhabitants
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 Sicura 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 A 5 year road safety strategy for 2011-2015	To ensure that Britain remains a world leader on road safety.	• Action plan has not set quantitative targets as such, but a modelling exercise has been conducted to assess the expected casualty reduction • outcomes framework to monitor progress on road safety, including six key, and a range of other, indicators
United States		Performance targets set through Less than 1.02 fatalities per 100 million vehicle miles travelled in 2014

Legislation on key safety issues

Drink driving, speeding, non-wearing of seatbelts and helmets represent common safety challenges in all countries. Experience has shown that regulation, enforcement and education to modify behaviour on these fronts bring large benefits.

The following tables summarise information on legislation on drink-driving, speed limits, seatbelt wearing and helmet wearing.

Table 6. **Maximum blood alcohol content in 2014**
(Recent changes are written in blue)

Country	General BAC level	Differentiated BAC for novice 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	0.2 g/l for professional drivers will enter into force in 2015
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
Chile	0.3 g/l	
Colombia	0.2 g/l	
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 for 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	0.2g/l for novice and professional drivers
Israel	0.5 g/l	-
Italy	0.5 g/l	0 g/l for novice and professional drivers.
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	0.8 g/l	
Netherlands	0.5 g/l	0.2 g/l for novice drivers (first 5 years)
New Zealand	0.8 g/l. A 0.5 g/l limit will be submitted to Parliament in 2014	0.0 g/l for drivers under 20 years old and for repeating offenders
Nigeria	0.5 g/l	
Norway	0.2 g/l	
Poland	0.2 g/l	-
Portugal	0.5g/l	0.2 g/l for novice and professional drivers (since 1/1/14)
Serbia	0.3 g/l	0.0 g/l for novice and professional drivers and for PTW operators
Slovenia	0.5 g/l	0.0 g/l for novice and 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	0.0 g/l for novice and professional drivers (since 1/1/14)
United Kingdom	0.8 g/l	-
United States	0.8 g/l	0.4 g/l for professional drivers

Table 7. **General speed limits for passenger cars in 2014**

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
Chile	60 km/h	100 km/h	120 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	130 km/h
Finland	50 km/h	100 km/h (summer) 80 km/h (winter)	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	120 km/h
Israel	30, 50, 70 km/h	80, 90, 100 km/h	110 km/h
Italy	50 km/h	90 – 110 km/h	130 km/h. In theory, the motorway operator may decide to increase the limit up to 150 km/h if stringent requirements are met.
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
New Zealand	50 km/h	100 km/h	100 km/h
Nigeria	50 km/h	80 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
Spain	50 km/h	90 or 100 km/h	120 km/h
Sweden	30-40-50 km/h	60-70-80-90-100 k/h	110 km/h or 120 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	*Set by each state*	*Set by each state*	55-80 mph (88-129 km/h) *Set by each state*

Table 8. **Seatbelt wearing rates in front and rear seats, 2012 or 2013**

Country	Front seats		Rear seats	
	Date of application	Wearing rate	Date of application	Wearing rate
Argentina	Yes, 1995	38% (average), 42% (driver)	Yes, 1995	26%, 33% for children
Australia	Yes, 1970s	Around 97%	Yes	Around 96%
Austria	Yes, 1984	89%	Yes, 1990	76%
Belgium	Yes, 1975	86%	Yes, 1991	Unknown
Cambodia	Yes, 2007	16%	No	Unknown
Canada	Yes, 1976-1988	95% (2010)	Yes, 1976-1988	Unknown
Chile	Yes, 1985	80% (driver); 70% (passengers)	Yes, 2006	10%
Colombia	Yes	Unknown	No	Unknown
Czech Republic	Yes, 1966	97%	Yes, 1975	66%
Denmark	Yes, 1970s	94%	Yes, 1980s	81%
Finland	Yes, 1975	87-95%	Yes, 1987	86%
France	Yes, 1973	98.5%	Yes, 1990	84%, 90% for children
Germany	Yes, 1976	97%	Yes, 1984	97%
Greece (2009)	Yes, 1987	77% (driver), 74% (passengers)	Yes, 2003	23%
Hungary	Yes, 1976	87%	Yes, 1993 (outside built up areas), 2001 (inside built up areas)	68%
Iceland	Yes	84%	Yes	65%
Ireland	Yes, 1979	93%	Yes, 1979	89%, 96% 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% (2009-2011)
Jamaica	Yes, 1999	Unknown	Yes, 1999	Unknown
Japan	Yes, 1985	98%	Yes, 2008	61% , 74% for children
Korea	Yes, 1990	88% (driver) on motorways 76% (passengers) on motorways	Yes on motorways, since 2008	9.4% on motorways
Lithuania	Yes	70%	Yes	71%
Luxembourg	Yes, 1975	80% in 2003	Yes, 1992	Unknown
Malaysia	Yes, 1978	91% (driver),83% (passengers)	Yes, 2009	11%
Netherlands	Yes, 1975	97% in 2010	Yes, 1992	82% in 2010
New Zealand	Yes, 1972	96%	Yes, 1979	87% in 2011, 92% for children
Nigeria	Yes, 1997	80%		*< 5%*
Norway	Yes, 1975	95%	Yes, 1985	*No monitoring*
Poland	Yes, 1991	84%	Yes, 1991	59%: 88% for children
Portugal	Yes, 1978	unknown	Yes, 1994	unknown
Serbia	Yes, 1982	70%	Yes, 2009	3%
Slovenia	Yes, 1977	94%	Yes, 1998	66%
Spain	Yes, 1974 outside urban areas, 1992 inside urban areas	91%	Yes, 1992	81%
Sweden	Yes, 1975	98%	Yes, 1986	84%, 96% for children
Switzerland	Yes, 1981	92% (driver); 91% (passengers)	Yes, 1994	72%, 93% for children
United Kingdom)	Yes, 1983	95% in 2009	Yes, 1989 (children); 1991 (adults)	89% in 2009
United States	Primary law in 33 out of 50 states. No law in 1 state	87%	Varies by State	74% in 2011

Table 9. **Helmet laws and wearing rates, 2012 or 2013**

Country	Powered two wheelers		Cyclists	
	Helmet law	Wearing rate	Helmet law	Wearing rate
Argentina	Yes	61% drivers 54% passengers	No	
Australia	Yes		Yes	
Austria	Yes	Nearly 100%	Yes for children up to 12	
Belgium	Yes	Unknown	No	
Cambodia	Yes for the drivers of PTW > 49cc not yet compulsory for passengers			
Canada	Yes		In some jurisdictions	
Chile	Yes	Around 99%	No	
Colombia	Yes, since 1998		No	
Czech Republic	Yes	Nearly 100%	Yes for children up to 18	
Denmark)	Yes	96% (in 2006)	No	
Finland	Yes		Yes since 2003 but not enforced	44%
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	98%	No	52%
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%	No	
Korea	Yes	75%	No	
Lithuania	Yes		Yes for children below 18	
Luxembourg	Yes, since 1976	Unknown		
Malaysia	Yes, since 1973	About 70%	No	
Netherlands	Yes, motorcycles since 1972; mopeds since 1975 Not compulsory on mofas (max. speed 25 km/h)	Riders: 96-100%	No	
New Zealand	Yes		Yes since 1994	92%
Nigeria	Yes	60%		
Norway	Yes	Nearly 100%	No	52% (for cyclists above 12)
Poland	Yes since 1997	Nearly 100%	No	
Portugal				
Serbia	Yes since 2009	94% for motorcyclists 84% for moped riders	No	
Slovenia	Yes		Yes for children up to 14	
Spain	Yes	Nearly 100%	Yes, except in built up areas	
Sweden	Yes	96-99%	Yes for children below 15	60-70% children 30% adults
Switzerland	Yes, motorcycles since 1981; mopeds since 1990	Nearly 100%	No for "regular" bicycles Yes for e-bikes > 25km/h	46% adults 63% for children 88%
United Kingdom	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	

Country reports

Argentina

Source: IRTAD, ANSV

Inhabitants	Vehicles/1 000 inhabitants	Road fatalities in 2012	Fatalities /100 000 inhabitants in 2012
41.3 million	**500**	**5 104**	**12.4**

The National Road Safety Agency of Argentina (ANSV) 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 has been instrumental in guiding ANSV in the improvement of data collection process, conforming to international standards and indicators. In 2013, data from Argentina were validated for inclusion in the IRTAD database.

1. Road safety data collection

Definitions

- Fatalities: deaths within 30 days
- Seriously injured: non-fatal casualty who stayed more than 24 hours in hospital
- Slight injuries: non-fatal casualty admitted in hospital for less than 24 hours

Data collection and analysis

The Argentinean road safety statistical form (Orange Form) was implemented in 2010, together with specifically designed software. This 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 the statistical data is consolidated and processed.

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

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

Since 2010, the ANSV is working with the National Health Ministry to link hospital records and the Statistical Form data. This linking project was started as a pilot in the most populated province of Argentina, in order to collect data based on MAIS 3.

Underreporting is being assessed, comparing police reports with hospital records in provinces where hospital records are available. Underreporting is quite high for slight injury crashes and injury crashes involving pedestrians and cyclists.

2. Most recent safety data

Road crashes in 2012

In 2012, there was a 1.3% increase in the number of fatalities; however, the number of injury crashes decreased by 7.3%.

Provisional data for 2013

According to provisional data and statistical projections, the road fatalities decreased by 0.9% in 2013 in comparison with 2012. Motorcycle injury crashes increased by 21% in comparison with 2012. This type of vehicle was involved in 31% of crashes.

3. Trends in traffic and road safety (2008-2013)

Traffic

Motorisation is growing very fast in Argentina. In the period 2008-2012, the vehicle fleet had its highest growth. The car fleet increased by 29% and the motorcycle fleet by 127%.

In 2012, the car fleet rose by more than 800 000 units in 2012, i.e. a 6% increase in new vehicles compared to 2011. The motorcycle fleet is growing much faster and increased by nearly 700 000 units in 2012, i.e. a 17% growth compared to 2011.

Change in the number of fatalities and injury crashes (2008-2013)

Since 2008, the number of fatalities decreased by 11.4%.

A number of institutional changes occurred since April 2008 which contributed to a political focus on road safety, including:

- The creation of the National Road Safety Agency (ANSV), funded through a 1% allocation from all vehicle insurance fees collected. Since 2008, ANSV has implemented important road safety measures, including: a co-ordinated enforcement programme with all the provinces, permanent speed control and alcohol checks throughout the country, targeted awareness campaigns, etc. During this period the usage of seat belts, motorcycle helmets and child restraint systems more than doubled, European safety standards were adopted for new vehicles, the Government improved the national road infrastructure and road safety became a main issue in educational programmes.
- The creation of the National Road Safety Observatory in charge of investigating, evaluating and providing recommendations on road safety measures to be implemented by decision makers.
- The adoption in 2008 by the President, Cristina Fernandez de Kirchner, of the objective to reduce the number of road traffic fatalities by 50% in five years, taking 2009 as the base year.

- The approval by the World Bank in April 2010 of a USD 50 million loan for the institutional strengthening of the ANSV, including a significant component to support the Observatory.

Rates

Between 2008 and 2012, the mortality rate, expressed in terms of deaths per 100 000 inhabitants, decreased by 14.7% and the fatality rate, expressed in terms of the number of fatalities per 10 000 registered vehicles, decreased by 33.4%.

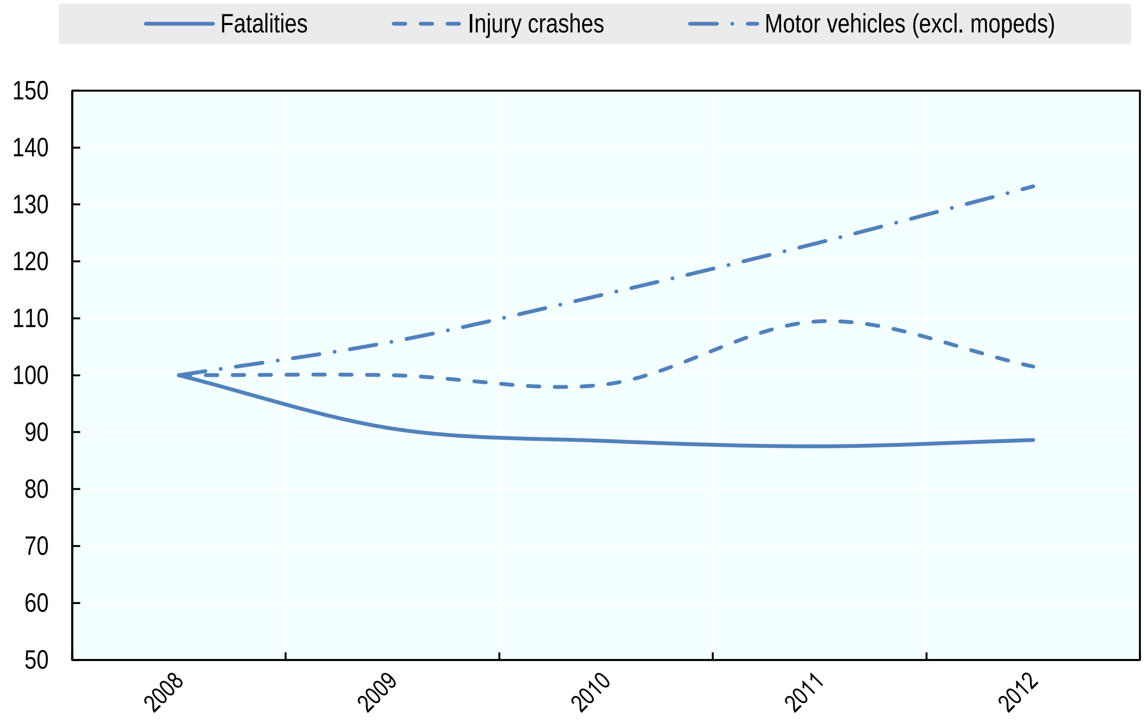
Table 1. **Road safety and traffic data**

					2012 % change from	
	2008	2010	2011	2012	*2011*	*2008*
Reported safety data						
Fatalities	5 759	5 094	5 040	5 104	1.3%	-11.4%
Injury crashes	90 851		99 466	92 235	-7.3%	1.5%
Deaths per 100 000 population		12.6	12.3	12.4	0.3%	-14.7%
Deaths per 10 000 registered vehicles		2.9	2.6	2.5	-6.2%	-33.4%
Traffic data						
Registered vehicles[1] (thousands)		17 716	19 117	20 645	8.0%	
Registered vehicles per 1 000 population		437.2	467.4	500.1	7.0%	

Source: IRTAD

1. Registered vehicles excluding mopeds.

Figure 1. **Road safety and traffic data**
Index 100=2008



Source: IRTAD.

Road users

Detailed data on fatalities for all different user groups are not available.

Nevertheless, data collected by ANSV showed a steady decrease in car occupant fatalities between 2010 and 2012. However, the situation for motorised two-wheelers is worrying, with a 15% increase in fatalities during the same period, while the fleet only grew by 6%.

The safety of powered two-wheelers is a major concern in Argentina. Between 2008 and 2012, the number of crashes involving a PTW more than doubled.

Age

Most traffic fatalities involve road users between 15 and 34 years old. In 2012, this age group 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.

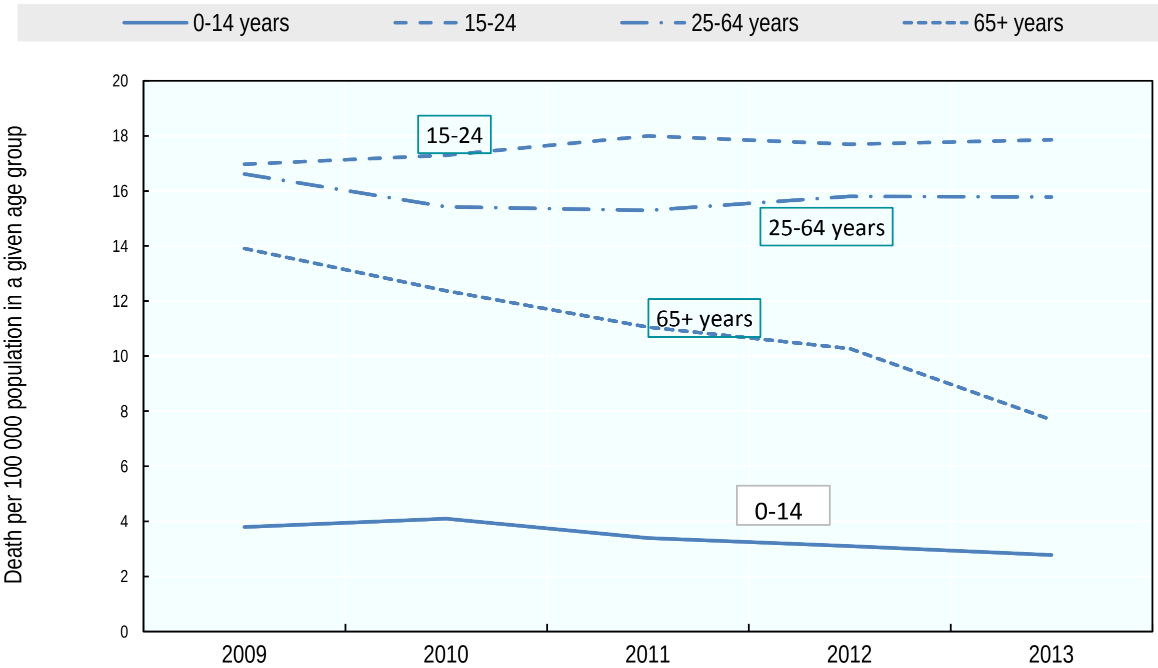
Table 2. **Road fatalities by age group**

				2012 % change over	
Age	2010	2011	2012	*2011*	*2010*
0-5	166	140	130	-7,1%	-21.7%
6-9	108	91	84	-7,7%	-22.2%

10-14	139	117	108	-7,7%	-22.3%
15-17	358	376	373	-0,8%	4.2%
18-20	354	372	369	-0,8%	4.2%
21-24	463	487	483	-0,8%	4.3%
25-64	2.986	2.989	3.118	4,3%	4.4%
>65	519	468	439	-6,2%	-15.4%
Total incl. unknown	*5 094*	*5 040*	*5 104*	*1,3%*	*0.2%*

Source: IRTAD.

Figure 2. **Road death rates by age group**
Fatalities per 100 000 population in a given age group, 2009-2013



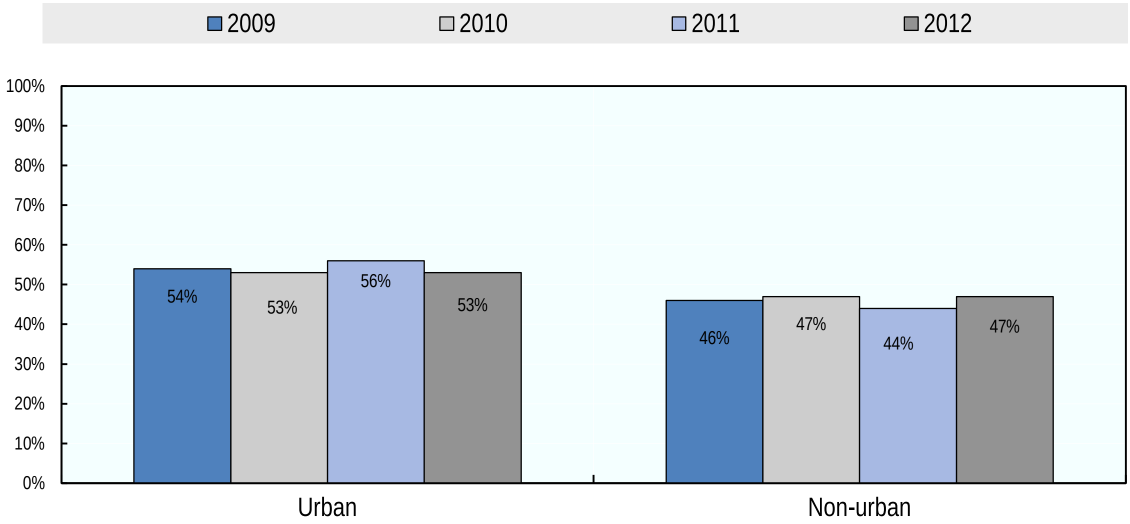
Source: ANSV.

Road type

In 2012, 93% of reported road crashes occurred in urban and suburban areas, accounting for 90% of injured persons and 53% of fatalities. Non-urban areas accounted for 7% of road crashes but 47% of fatalities.

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

Figure 3. **Road fatalities by road type**



Source: ANSV.

4. Economic costs of traffic crashes

Road crashes represent huge costs for society. In 2010, they were estimated at USD 5.2 billion[2], i.e. 1.2% of GDP.

5. Recent trends in road user behaviour

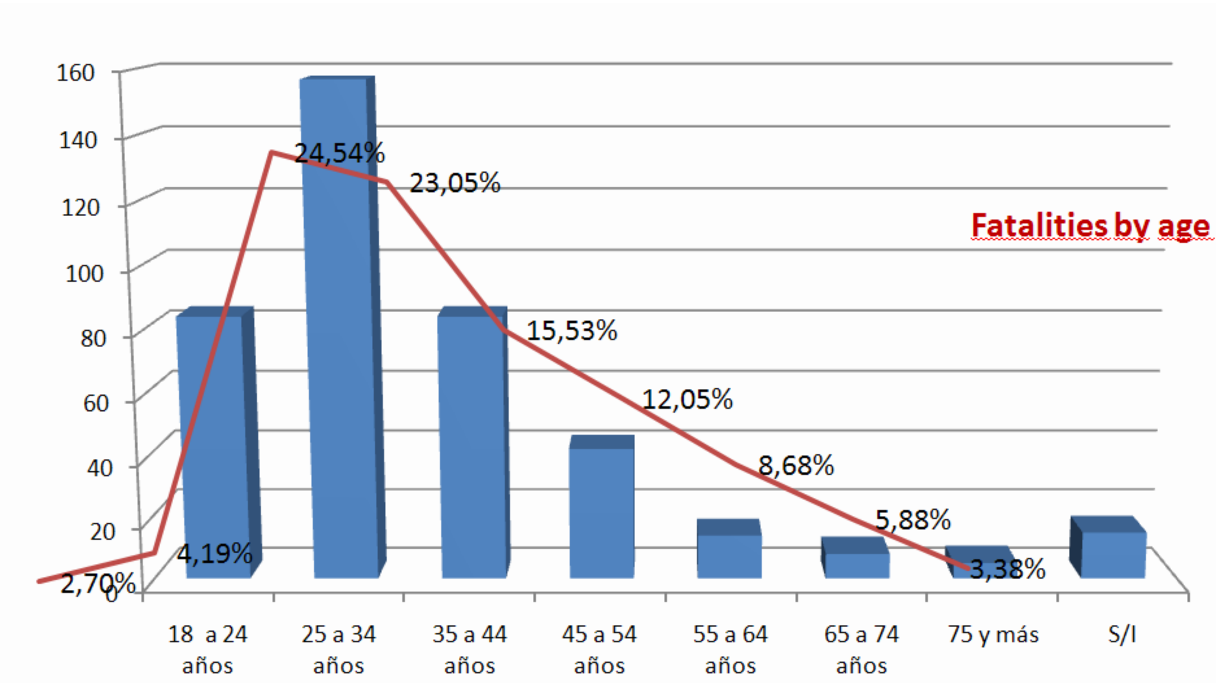
Impaired driving

Drink 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 who 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 blood alcohol level above 0. The distribution of fatalities by age shows a similar trend to the distribution of observed drivers with a blood alcohol level over 0.

2 *Source*: ANSV and PAHO (2012), *Road accident costs in Argentina 2011.*

Figure 4. **Drivers with an alcohol level over 0, by age**



Source: ANSV.

Drugs and driving

The national traffic law prohibits driving while "having consumed illegal or legal drugs that reduce the ability to drive."

The 5th National Study on "The abuse of drugs and emergency medical consultation", carried out by the National Secretariat for Prevention of Drug Addiction and Fighting of Drug Trafficking (SEDRONAR) shows that 22.5% of road casualties treated in emergency areas in 2012 had consumed some type of psychoactive substance[3]. This is a very high proportion and further research is planned on this issue.

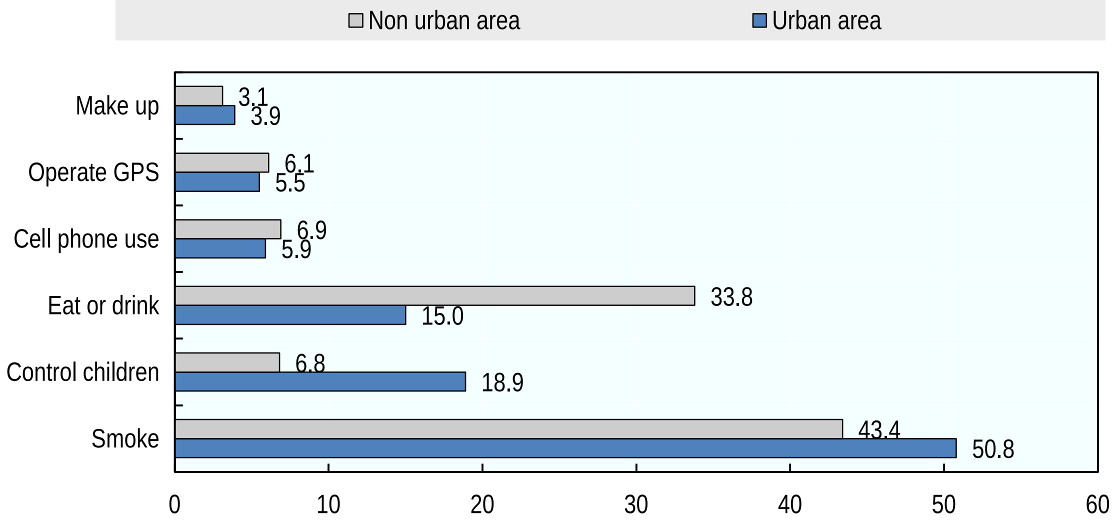
Distraction

The national traffic law prohibits the use of mobile phones, RF devices, DVD players and other similar devices while driving.

A National survey on road user behaviour, conducted in 2013, analysed the distraction factors among car and motorcycle drivers. The results are illustrated in Figure 5.

3. www.sedronar.gov.ar

Figure 5. **Prevalence of distraction factors observed among car drivers**
percentage of positives



Source: ANSV.

Fatigue

National legislation in force requires that professional drivers have an 8-hour rest after every 8 hours of driving. The controls are heavily focused on professional drivers of long-distance public transport.

Based on police officers' reports and post-crash drivers' declarations, it is estimated that 3% of crashes are due to fatigue. The true contribution of fatigue to fatal crashes could in reality be much higher.

Speed

In 2012, based on police records, it was estimated that 11% of fatal crashes were due to speeding.

The table below summarises the main speed limits in Argentina.

Table 3. **Speed limits by road type, 2014**

	General speed limit	Comments
Urban roads	30-60 km/h	Buenos Aires City has a range of 20 to 70 km/h, in 5 categories
Rural 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	

Source: ANSV

Speed surveys were first conducted 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 20%. However, the tendency to respect the braking distance is inversely proportional during the hours of heavy traffic.

Seat belts and helmets

Seat-belt wearing is compulsory in front and rear seats since February 1995. Dedicated child restraint systems are mandatory for children under 4 years old. Table 5 summarises the evolution in the seat-belt wearing rate. While there is some improvement, the wearing rate is very low in comparison to most OECD countries.

In 2012, 68% of car occupants killed were not wearing a seat belt when the crash occurred.

Table 5**. Seat-belt wearing rate by car occupants**

	2011	2012	2013
Front seat			
General	33.3%	37.8%	37.9%
Drivers	39.3%	44%	41.6%
Passengers	29%	34%	36.8%
Rear seats			
Adults	10.8%	18.2%	26.1%
Child restraint system	26.2%	29%	33.7%

Source: ANSV

All riders of two-wheeled motor vehicles are required to wear helmets. In 2012, it was estimated that 61% of motorcycle drivers and 54% of passengers wore a helmet. These figures were respectively 42% and 26% in 2011, highlighting some progress but, at the same time, with major scope for further improvement.

6. National road safety strategies and targets

Organisation of road safety

The National Road Safety Agency, created by law in 2008 under the aegis of the Ministry of Transport and the Interior, is the leading road safety agency in Argentina. The Agency has three important councils and 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.

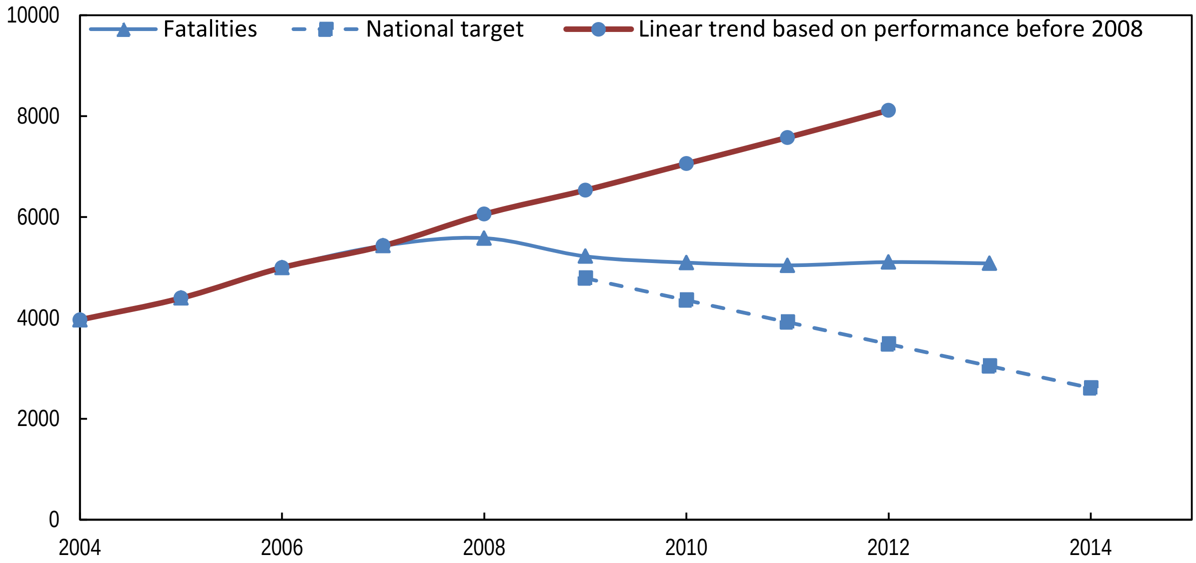
Target setting

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.

Monitoring

The target to halve the number of fatalities between 2009 and 2014 was probably unrealistic in such a short time frame and will not be achieved.

Figure 6. **Trends in road fatalities towards the national target**



Source: ANSV.

7. Recent safety measures (2011-2013)

Legislation

- 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. In 2013, 20 of the 24 provinces had adopted the National Driving Licence. Mendoza, San Luis and Santa Fe, argentine provinces, will be included in November 2014.

Motorcycle Safety Plan

- In 2012, the National Road Safety Agency, in co-operation with the Ministry of Health, motorcyclists' associations and other stakeholders, launched a National Motorcycle Plan: http://observatoriovial.seguridadvial.gov.ar/documentos/plan-motos-2012_.pdf

Driver behaviour

Speed management

- Since 2010, the National Road Safety Agency has implemented electronic speed control devices on national roads, using fixed and mobile radars to increase the geographical coverage of speed controls. In 2013, section control enforcement was tested.

Impaired driving

- In 2013, the Road Safety Observatory proposed an amendment of the law on drink-driving and evaluated the possibility of incorporating a 0-Tolerance Vision on drinking and driving within the present law. The amendment obtained parliamentary status in November 2013, and will come into force during the first semester of 2014.

Education and awareness

- In 2013, the National Road Safety Agency developed a joint road safety campaign, together with the most important oil company in Argentina (YPF).

Vehicles

- An agreement was reached in 2011 with motorcycle manufacturers and importers to implement European standards for new vehicles sold in Argentina (for example, from January 2014, every new car should include ABS and Airbag systems).

Infrastructure

- Risk assessments are being conducted by the National Road Directorate (Dirección Nacional de Vialidad). Special software was developed by the ANSV to undertake a risk-level survey of Argentina's roads. In 2011, 26 852 km of roads were surveyed.

  For more information: http://observatoriovial.seguridadvial.gov.ar/relevamiento-rutas.php?sel=3

8. Recent and on-going research

- Second National Survey on Road safety behaviors and 1st urban survey of pedestrians and cyclists behaviour.

This survey – based on a non-participant observation method – was conducted simultaneously throughout the country during the first week of June 2012. The sample took into account variables such as demographic development, car fleet and gross product by province. Observations focused on pedestrian and cyclist behavior at intersections, the use of distracting devices, compliance with traffic rules, etc.

This survey was complemented by a national public opinion survey about road safety perceptions and the declared use of seatbelts, child restraint systems and helmets. The supplementary public opinion survey shows that Argentineans consider themselves to be individually responsible and mostly attached to road rules, however, they are collectively perceived as irresponsible and negligent. While 84.8% of participants reported they “always” use a seat belt, observations show that only 37.8% effectively use one. When asked about the causes of the low seatbelt usage, the main reason indicated was the lack of awareness. Although there is agreement regarding the importance of child restraints, only 29% of children were observed to be installed in the correct devices.

For more information: http://observatoriovial.seguridadvial.gov.ar/documentos/segundo-relevamiento-nacional.pdf

- Third National Survey on Road Safety Behaviour, with a special focus on professional drivers.

The survey was conducted during the first week of October 2013. The results of this new study will be available in May 2014 at http://observatoriovial.seguridadvial.gov.ar

Useful websites and references

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

Contact

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

Australia

Source: IRTAD, Department of Infrastructure and Regional Development

Inhabitants	Vehicles/1 000 inhabitants	Road fatalities in 2013	Fatalities /100 000 inhabitants in 2013
23.1 million	**743**	**1196**	**5.2**

1. 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 Regional Development (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. 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. Most recent safety data

Road crashes in 2012

The total number of road deaths in Australia increased by 1.7% in 2012 compared with 2011 (1 299 deaths compared with 1 277 deaths). The increase was particularly evident among road users aged between 25 and 39 years (+9.6%) and older people aged 65+ years (+6.1%). By contrast, the number of young children (0 to 5 years) killed in road crashes fell by almost half, from 39 deaths to 20.

In terms of road user types, the overall increase in 2012 was mainly attributable to vehicle drivers (+7.4%) and motorcyclists (+10.3%) – whereas fatality numbers were down markedly for vehicle passengers (-9.1%) and pedestrians (-10.8%). It is also worth noting that daytime crashes, in particular, increased during 2012 (by 7.1%), while night-time crash numbers were down by 2.9%.

Provisional data for 2013

Provisional data show that 1 196 people were killed on Australia's roads in 2013, a significant decrease of 7.9% from the 2012 total. Reductions were recorded within all age groups, except for young children and older road users—fatalities among older people (65+ years) in fact, increased by 12.7% and accounted for nearly a quarter of all deaths in 2013.

The general decline in fatality numbers was reflected across most road user categories; and as occurred in 2012, there was a pronounced reduction in deaths among vehicle passengers (-22.3% compared with -7.5% for drivers). At the same time, however, there was a conspicuous jump in bicyclist fatalities of 51.5% (from 33 to 50 deaths).

3. Trends in traffic and road safety (1990-2013)

Traffic

Between 1990 and 2013, the number of motorised vehicles registered for road use increased by 66%; and the overall traffic volume (vehicle-kilometres travelled) increased by at least 43% (vehicle-kilometres travelled estimates are only available to 2012).

While light passenger vehicles (cars) still account for more than 70% of traffic volume in Australia, there has been a gradual increase in the presence of motorcycles and commercial vehicles: Between 1990 and 2012, the number of vehicle-kilometres travelled by light commercial vehicles grew by 80%; while the growth for articulated trucks was 93% and for motorcycles was 66% (compared with 35% for cars).

Change in the number of fatalities and injury crashes (1990-2013)

Since 1990, there has been an underlying and relatively constant downward trend in road deaths, with an overall reduction in total fatalities of 49%. Key measures contributing to this reduction, particularly over the last decade, have been the implementation of intensive speed compliance measures, progressive introduction of graduated licensing restrictions, targeted safety investment in road infrastructure and continuous vehicle safety improvements.

In contrast to the continuing decline in fatal road crashes in Australia, available hospital data suggests that serious non-fatal crashes have not been reducing over the last decade — and may, in fact, be increasing. Between 2000 and 2011, the number of people hospitalised due to road crashes increased from 26 963 to 34 082, with much of this increase attributable to vulnerable road users (especially motorcyclists and bicyclists).

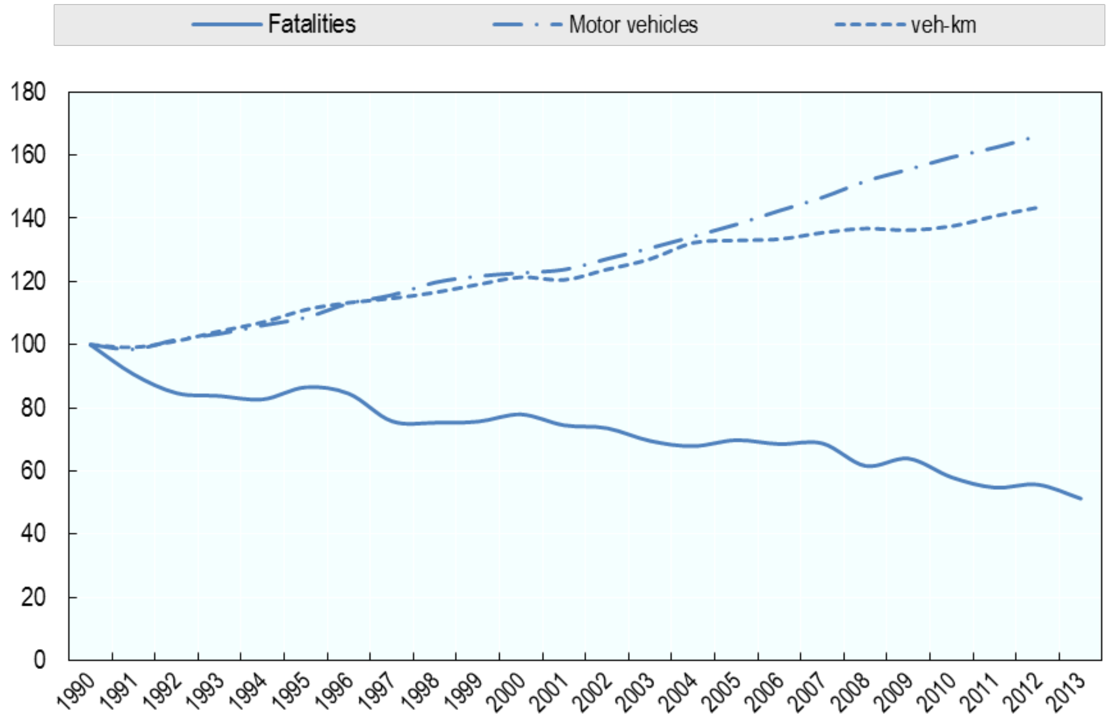
Rates

Since 2010, the rate of annual deaths per population decreased by nearly 16%. All jurisdictions of Australia achieved reductions. The strongest falls were seen in Western Australia, the Northern Territory and Victoria.

Table 1. **Road safety and traffic data**

	1990	2000	2010	2012	2013	2013 % change from 2012	2013 % change from 2000	2013 % change from 1990
Reported safety data								
Fatalities	2 331	1 817	1 353	1 299	1 196	-7.9 %	-34.2%	-48.7%
Injured persons hospitalised	25 008	26 963	32 775					
Deaths per 100 000 population	13.7	9.4	6.1	5.7	5.2	-9.5 %	-45.9%	-62.1%
Deaths per 10 000 registered vehicles	2.3	1.5	0.8	0.8	0.7	-10.3 %	-47.2%	-66.4%
Deaths per billion vehicle kilometres	14.4	9.3	6.1	5.6			-39.5%	-61.1%
Traffic data								
Registered vehicles[1] (thousands)	10 081	12 373	16 061	16 742	17 180	2.6 %	35.3%	66.1%
Vehicle kilometres (millions)	161 511	196 038	222 109	231 655				
Registered vehicles per 1 000 population)	590.7	650.2	729.0	736.7	742.8	0.8 %	14.2%	25.7%

Figure 1. **Road safety and traffic data**
index 100= 1990



Source: IRTAD

Road users

Over the past decade, passenger and pedestrian deaths have decreased at the fastest rates, with driver deaths also falling. In contrast, motorcyclist deaths showed a marginally increasing trend.

1. Registered vehicles excluding mopeds.

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 (-63%) has been considerably larger than that for vehicle occupant fatalities (-51%). 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 38% since 1990. Reduced urban travel speeds and the introduction of compulsory helmet laws for cyclists have contributed to this improvement. The number of cyclists killed rose sharply in 2013 by 52%, though it is too early to determine if this reflects an underlying upward trend. While Australia does not have national exposure data for cyclists, there is some evidence that cycling activity is generally increasing.

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 2013, the annual number of motorcycle deaths in Australia increased by 12%, and as a proportion of total road deaths they increased from 10.5% to 17.9%. Motorcyclists and cyclists are the only road user groups to have shown an increase in fatality numbers over this period. The overall increase in motorcycle rider fatalities can be largely attributed to a growth in motorcycling activity: between 2000 and 2012, the estimated number of motorcycle vehicle-kilometres travelled in Australia increased by 108% (compared with an increase of 18% for all motorised vehicles).

Table 2. **Road fatalities by road user group**

						2013 % change from		
	1990	2000	2010	2012	2013	*2012*	*2000*	*1990*
Bicyclists	80	31	38	33	50	51.5%	61.3%	-37.5%
Motorcyclists	262	191	224	223	214	-4.0%	12.0%	-18.3%
Vehicle occupants*	1 569	1 302	920	870	768	-11.7%	-41.0%	-51.1%
Pedestrians	420	287	170	169	157	-7.1%	-45.3%	-62.6%
Total	2 331	1 817	1 353	1 299	1 196	7.9%	-34.2%	-48.7%

Source: IRTAD

* Includes occupants of all motorised vehicles including trucks.

Age

Road users aged 16 or under currently account for approximately 5.5% of all deaths. This proportion is lower than at any time over the last decade. This group also has had the second highest rate of decline over the decade, with deaths in the 17-25 and 26-39 age groups also falling consistently. In age groups 40 years and over, declines over the decade have been weaker and in the 60-69 and 70+ plus groups, deaths have increased.

These age-related trends are thought to be linked to demographic changes in Australia, particularly the relatively rapid "ageing" source of the population. However, this is an issue that requires further investigation.

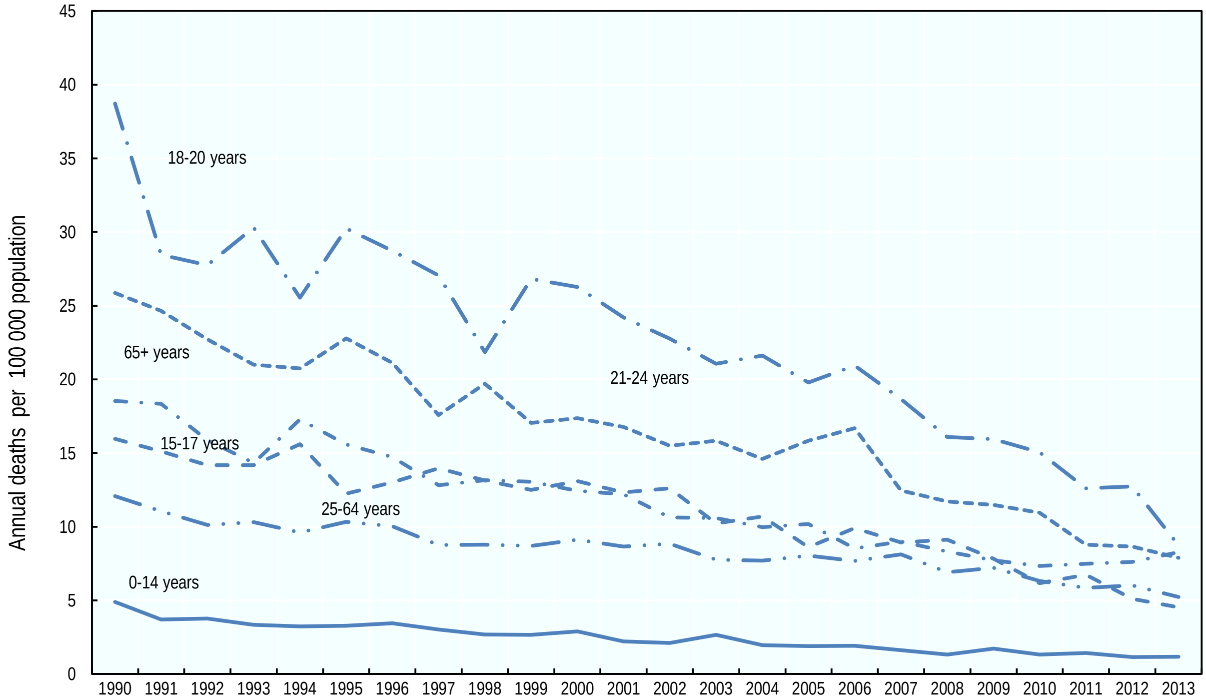
Table 3. **Road fatalities by age group**

						2013 % change from...		
Age	1990	2000	2010	2012	2013	*2012*	*2000*	*1990*
0-5	70	51	26	20	20	0.0%	-60.8%	-71.4%
6-9	55	17	13	13	19	46.2%	11.8%	-65.5%
10-14	59	46	17	17	12	-29.4%	-73.9%	-79.7%
15-17	129	104	53	44	39	-11.4%	-62.5%	-69.8%
18-20	340	204	138	115	80	-30.4%	-60.8%	-76.5%
21-24	278	178	141	114	105	-7.9%	-41.0%	-62.2%
25-64	1 046	923	745	730	644	-11.8%	-30.2%	-38.4%
≥65	351	294	219	245	276	12.7%	-6.1%	-21.4%
Total incl. unknown	*2 331*	*1 817*	*1 353*	*1 299*	*1 196*	-7.9%	-34.2%	-48.7%

Source: IRTAD.

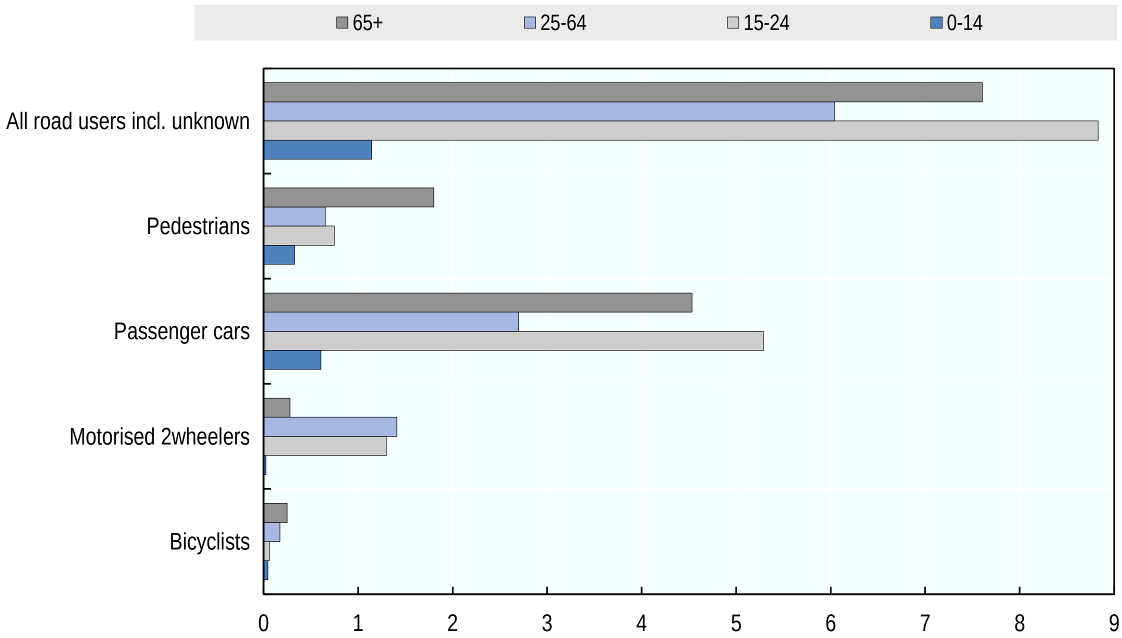
The death rate per population in the age group 18-20 is 70% higher than the total average. The rate for the age group 65+ is also significantly higher than average and has increased over the last few years.

Figure 2. **Road death rates by age group**
Fatalities per 100 000 population in a given age group, 1990-2013



Source: IRTAD.

Figure 3. **Road death rate by age and road user group**
Fatalities per 100 000 population, 2012



Source: IRTAD.

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 in Australia is divided road, and an even smaller proportion is motorway standard.

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

Nearly half (45%) of all fatal crashes occur in high-speed zones with posted limits at or above 100 km/h, while a third (32%) occur on lower speed roads with limits of 60 km/h or lower.

4. Economic costs of traffic crashes

The annual economic cost of road crashes in Australia is an estimated AUD27 billion per annum, based on 2006 data. This estimate is equivalent to 2.6% of the national GDP. A willingness-to-pay methodology was used to value the human losses from road crashes.

Table 4. **Costs of road crashes, 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.

5. Recent trends in road user behaviour

Impaired driving

Drink driving

In Australia, it is illegal to drive a motor vehicle with a blood alcohol concentration (BAC) of 0.05 (g/100ml) or higher. Lower BAC limits apply to truck, bus and taxi drivers (typically 0.02) and to novice drivers (0.00).

All jurisdictions have had considerable success in reducing the contribution of alcohol to road trauma, largely attributable to the combination of intensive random breath-testing programmes and ongoing public education campaigns. While absolute numbers of alcohol-related fatalities have continued to decline over the last decade, it is estimated that around 28% of all fatally injured motorists still have a BAC above the maximum legal limit of 0.05.

This figure varies significantly among jurisdictions, with rural and remote areas of Australia presenting particular challenges for the implementation of effective deterrence measures.

Drugs and driving

While a smaller problem than alcohol, there is evidence that other drugs (both illicit and prescription) are a significant factor in Australian road trauma. It is very difficult to obtain reliable data on drug involvement in serious crashes, though estimates from coronial information have suggested that about 7% of all road deaths involve drug-driving as a factor (excluding cases also involving alcohol).

In recent years, most jurisdictions have introduced random roadside drug-testing programmes, supported by laws that make it illegal to drive a motor vehicle with a prescribed drug present in their blood or oral fluid. These laws currently focus on selected illicit drugs, such as cannabis, methamphetamines and ecstasy.

Distraction

Distracted driving is recognised as a major and potentially growing problem in Australia. Mobile phone use is a particular concern, with self-report surveys consistently finding that about 60% of drivers use a mobile phone while driving. Of particular concern is the significant minority of drivers who admit to reading (32%) or sending (18%) text messages while they are behind the wheel.

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.

Fatigue

There is no definitive measure of fatigue involvement in crashes, though various estimates suggest that fatigue may be a factor in 20% to 30% of fatalities.

Speed

Australia does not have reliable national data on the contribution of speed to serious crashes. Estimates of the involvement of excessive speed based on police crash reports have suggested that speed is a factor in about a third of all fatal crashes – though this is likely to be an underestimate.

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[2]. 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.

The table below summarises the main speed limits in Australia.

2. 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.

Table 5. **Passenger car speed limits by road type, 2014**

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

Source: Department of Infrastructure and Regional Development

Under Australia's National Road Safety Strategy, there have been moves to better align posted speed limits with the objective risk profiles of roads. This has led, for example, to an expansion of lower urban speed zones (typically, 40 km/h) in areas with high pedestrian and cycling activity.

Nationally-coordinated work has recently been undertaken to develop guidelines for speed limits at high-risk locations and to facilitate the adoption of best practice speed limits more broadly.

Over the last 10 years, most Australian jurisdictions have taken steps to strengthen their speed enforcement programmes, particularly through increased use of cameras (both mobile and fixed); in recent years several jurisdictions have introduced, or planned to introduce, point to point (average speed) camera systems – though to date, only on a modest scale.

Most jurisdictions have reviewed their speeding sanctions and several have announced stronger penalties, mainly for high-range offences.

Efforts to facilitate the implementation of intelligent speed adaptation (ISA) have been proceeding through the cross-jurisdictional Australasian Intelligent Speed Assist Initiative. Current work is focused on the development of suitable speed-limit maps and exploration of the potential regulatory role of ISA in managing high-risk drivers. New South Wales has recently introduced an ISA (advisory) app for mobile phones that is available free-of-charge to the public.

Seatbelts and helmets

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

Objective nationwide data on usage rates is not available, but non-national observational surveys and self-report data from national surveys indicate that usage rates for both front- and rear-seat occupants are now in excess of 95%.

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.

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

	2000	2013
Front seat	96%	97%
Rear seats	89%	96%

Source: Department of Infrastructure and Regional Development

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.

6. National road safety strategies and targets

Organisation of road safety

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.

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:

    - o Drink-driving (28 per cent of fatally injured drivers are over the legal limit);
    - o Failing to wear seatbelts (28 per cent of vehicle occupant fatalities are unbelted);
    - o 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 the 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.

Provisional road fatality statistics show that the number of national deaths in 2013 (1 196) was 16% below the strategy baseline average (1 426).

Monitoring

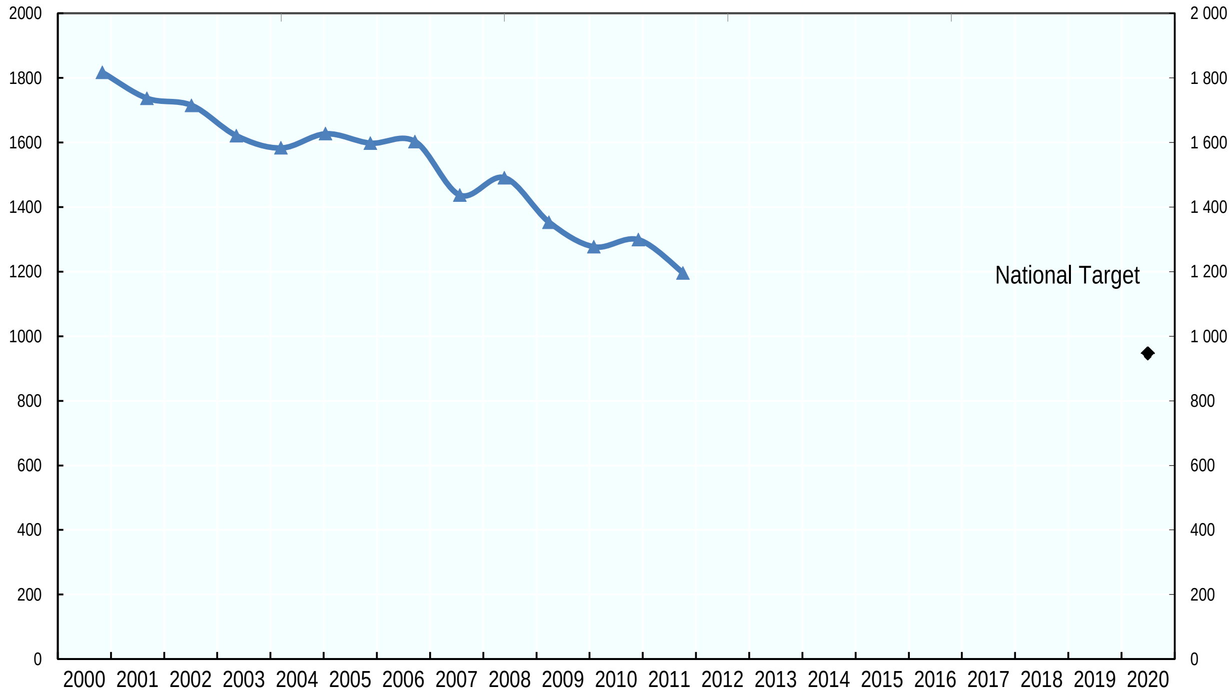
To help monitor the implementation of the national strategy, a range of high-level outcome indicators and more specific Safety Performance Indicators (SPIs) were adopted as empirical measures of progress. The indicators are mainly based on crash data and have necessitated the development of a new national 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 produced on an annual basis. The latest National Road Safety Strategy Implementation Status Report, (published in November 2013) is available from: www.infrastructure.gov.au/roads/safety/national_road_safety_strategy/index

A full review of the national strategy is being undertaken in 2014. This includes an analysis of progress in the first three years and a reassessment of implementation priorities for the next three years.

Figure 4. **Trends in road fatalities towards national target**



Source: Department of Infrastructure and Regional Development

Evaluation of past road safety strategy

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 an 18% 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.

7. Recent safety measures (2011-2013)

Licensing

- Individual states and territories have taken various steps to strengthen their graduated licensing systems (GLS) for novice drivers and, at a national level, cooperative research and policy development work has been initiated to develop a best-practice model of GLS. Victoria released a preliminary evaluation report in 2012, showing very promising results from its current GLS www.vicroads.vic.gov.au/Home/SafetyAndRules/SaferDrivers/YoungAndNewDrivers/VictoriasNewGraduatedLicensingSystem.htm
- Most jurisdictions have introduced licensing programmes and educational activities to address the particular road safety needs of indigenous communities and other disadvantaged social groups. The Northern Territory Government has successfully trialled an innovative programme designed to provide driver training and licensing for people in remote indigenous communities.

Seatbelt laws

Over the last two years, states and territories progressively implemented nationally agreed changes to seat-belt laws, requiring:

- All children aged under 6 months to be in an approved rearward-facing child restraint;
- All children aged at least 6 months and under 4 years to be in an approved child restraint;
- All children aged at least 4 years and under 7 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.

Driver behaviour

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 had recently been completed by 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, with Victoria recently deciding to extend its mandatory interlock requirements to <u>all</u> convicted offenders.

Fatigue

- Fatigue is highlighted as a key road safety problem in the National Road Safety Strategy, and several jurisdictions have initiated major public education campaigns to help address the issue. This is supported by ongoing investment in the creation of rest areas on major arterial traffic routes.

Motorcycle helmets

- The Consumer Rating and Assessment of Safety Helmets (CRASH) programme was developed and introduced by New South Wales and is now run by a consortium of government agencies and motoring organisations. The programme provides helmet buyers with independent and consistent information on the levels of protection from injury in a crash provided by motorcycle helmets and the comfort level of the helmet.

Vehicles

- In November 2013, Australia mandated Brake Assist Systems (BAS) for all new light passenger vehicles and light commercial vehicles.

- In November 2013, Australia extended existing requirements for Electronic Stability Control (ESC) to all new light commercial vehicles.
- Under Phase I of the National Heavy Vehicle Braking Strategy, Australia has mandated Antilock Braking Systems (ABS) for heavy trucks and buses, and ABS or load proportioning brake systems for heavy trailers, from July 2014.
- 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. This work culminated in the adoption of a Global Technical Regulation (GTR) on Pole Side impact (GTR 14), on 13 November 2013, by Working Party 29 (the World Forum on Harmonization of Vehicle Regulations).

- Australian jurisdictions are continuing to work with the Australasian New Car Assessment Programme to expand the coverage and promotion of vehicle safety ratings.

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 programmes in place, targeting the major crash types and vulnerable road user groups.
- The Federal Government has expanded the National Black Spot programme. A recent evaluation[3] of the programme found a 30% reduction in fatal and casualty crashes at treated sites.

8. Recent and on-going research

- *Survey of Community Attitudes to Road Safety (2013), Department* of *Infrastructure and* Regional Development, released in April 2014. www.infrastructure.gov.au/roads/safety/publications/2013/community_att_13.aspx
- Road Safety: Modelling a Global Phenomenon, BITRE Research Report 141, released in February 2014. www.bitre.gov.au/publications/2014/report_141.aspx
- Young Adult Road Safety—A Statistical Picture, BITRE Information Sheet 51, released in October 2013. www.bitre.gov.au/publications/2013/is_051.aspx
- Investigation of Key Crash Types – Run-off-road and Head-on Crashes in Urban Areas, Austroads. https://www.onlinepublications.austroads.com.au/items/AP-R450-14 www.onlinepublications.austroads.com.au/items/AP-R450-14
- Methods for Reducing Speeds on Rural Roads – Compendium of Good Practice, Austroads. www.onlinepublications.austroads.com.au/items/AP-R449-14
- Improving Roadside Safety: Summary Report, Austroads. www.onlinepublications.austroads.com.au/items/AP-R437-14
- Developing Measures to Reduce Unlicensed Driving, Austroads. www.onlinepublications.austroads.com.au/items/AP-R424-13
- Driver Attitudes to Speed Enforcement, Austroads. www.onlinepublications.austroads.com.au/items/AP-R433-13

3. 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*.

Useful websites and references

Department of Infrastructure and Regional Development 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

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Austria

Source: IRTAD, KFV (Kuratorium für Verkehrssicherheit)

Inhabitants	Vehicles/1 000 inhabitants	Road fatalities in 2012	Fatalities /100 000 inhabitants in 2012
8.4 million	734 incl. mopeds 696 exc. Mopeds	531	6.3

1. Road safety data collection

In Austria, crash data are collected by the police. The crash 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). It is believed that this will significantly reduce underreporting rates – especially for less severe road crashes.

However, the change in the crash data collection method means that a direct comparison of counts of injuries and crashes with previous annual figures is not possible from 2012 onwards. This does not apply to the number of fatalities.

Injury severity is assessed by the police at the crash scene, with only occasional feedback from hospitals; it is not possible to link police and hospital data directly on the basis of the present data architecture. The KFV (Austrian Road Safety Board) currently carries out a feasibility study for the Austrian Transport Ministry in order to identify strategies to estimate the number of serious injuries (MAIS 3+) on the basis of data sources such as the HDR (Hospital Discharge Register) and the IDB (EU Injury Database).

2. Most recent safety data

Road crashes in 2012

In 2012, Austria observed a 1.5% increase in fatalities. The share of cyclist fatalities increased for the first time to nearly 10%, which reflects the growing share of bicycle traffic. The share of pedestrian fatalities is fluctuating, but also on a steady upward trend; in 2012 it accounted for more than 15% of all fatalities. In contrast, passenger car fatalities have recently seen a steady downward trend and are now at 52.5%.

Due to the above change in crash data collection a direct comparison of data on injury crashes, or injured road users, with previous years' data is not possible.

Provisional data for 2013

Provisional figures for 2013 suggest a significant reduction in fatalities by around 15%. Due to the above change in crash data collection, detailed year 2013 data are not yet available.

3. Trends in traffic and road safety (1990-2013)

Traffic

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 in Austria, which currently boasts one of the lowest unemployment rates in the EU. The total kilometres driven temporally stagnated between 2008 and 2009. During this time values for HGVs dropped by up to 4.4% and for buses by up to 7.6%. In 2012, mobility again stagnated, with one exception: motorcycles are the only transport mode that flourished irrespective of economic influences (+5% in 2012) and featured by far the highest long-term growth rates, up nearly 350% since 1990.

Change in the number of fatalities and injury crashes (1990-2012)

Between 1990 and 2012, the number of fatalities decreased by 66%. More recently (2000-2012), the number of fatalities declined by 46%. The development of injury crashes was less favourable during this period. It should be noted that, due to the new collection system, injury crash counts for 2012 cannot be compared to previous years.

The last decade was marked by the implementation of the first two integrated road safety programmes. During this time, a number of measures were introduced, such as:

- 2nd phase education for novice drivers after granting the driving licence;
- Section control (i.e. automatic control of average speeds along a stretch of motorway);
- Various awareness campaigns such as in the areas of seatbelt and child restraint use, alcohol and child safety;
- Large-scale roadside testing for alcohol, using alcohol screening devices;
- Penalty point system.

Rates

Since 1990, the death rate per 100 000 population has decreased by 69%, while the number of vehicles per 1 000 population has increased by 44%.

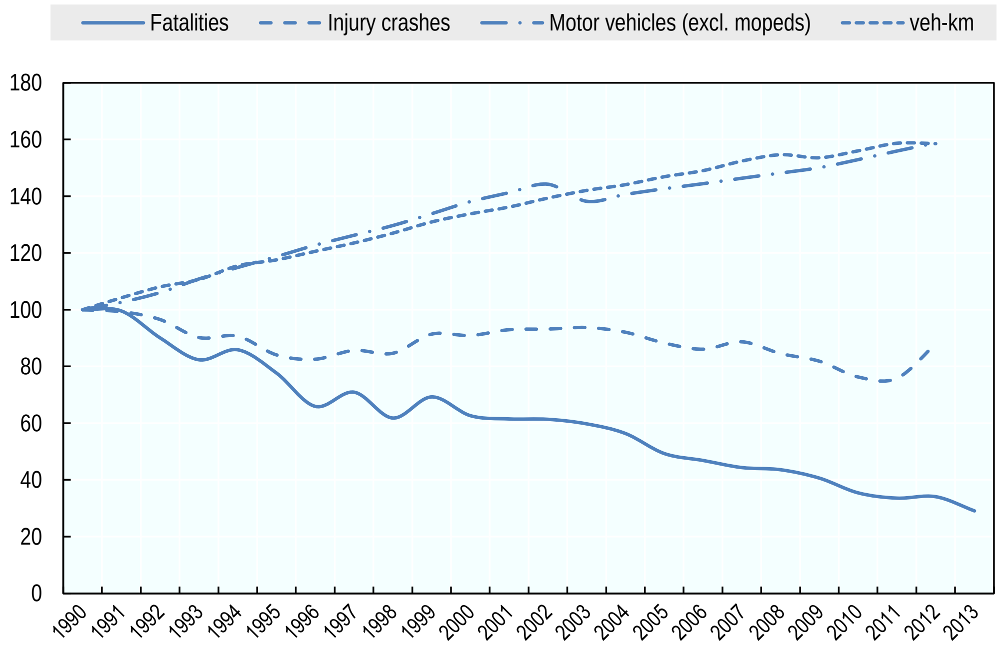
Table 1. **Road safety and traffic data**

						2012 % change from		
	1990	2000	2010	2011	2012	*2011*	*2000*	*1990*
Reported safety data								
Fatalities	1 558	976	552	523	531	1.5%	-45.6%	-65.9%
Injury crashes	4 338	4 126	3 348	3 129	4 831	*	*	*
Deaths per 100 000 population	20.4	12.2	6.6	6.2	6.3	1.1%	-48.4%	-69.1%
Deaths per 10 000 registered vehicles	4.2	1.9	1.0	0.9	0.9	-0.3%	-52.7%	-78.5%
Deaths per billion vehicle kilometres	32.0	15.0	7.3	6.8	6.9	1.6%	-54.1%	-78.5%
Traffic data								
Registered vehicles[1] (thousands)	3 701	5 111	5 659	5 771	5 877	1.8%	15.0%	58.8%
Vehicle kilometres (millions)	4 687	6 144	7 957	7 258	7 185	-0.1%	18.5%	58.5%
Registered vehicles per 1 000 population	484.1	638.7	675.7	686.7	696.1	1.4%	9.0%	43.8%

** due to the new collection system, injury crash counts for 2012 cannot be compared to previous years.*
Source: IRTAD

1. Registered vehicles, excluding mopeds.

Figure 1. **Road safety and traffic data**
1990 = index 100



Source: IRTAD

Road users

Since 1990, all road users have benefited from the improvements in road safety. Since 2003 fatality reductions were highest among car occupants. Car occupant fatalities account for more than half of all road deaths.

The decreasing trend for riders of powered 2-wheelers has now been stagnating since 2010.

In times of significant increases of cycling traffic, municipalities across Austria have embarked into providing additional – and safer – cycling infrastructures. Still, cycling fatality counts have shown the smallest decreases since 1990, and were even increasing since 2010.

Table 2. **Road fatalities by road user group**

						2012 % change from		
	1990	2000	2010	2011	2012	*2011*	*2000*	*1990*
Bicyclists	106	62	32	42	52	23.8%	-16.1%	-50.9%
Mopeds	88	44	18	18	18	0.0%	-59.1%	-79.5%
Motorcycles	112	112	68	67	68	1.5%	-39.3%	-39.3%
Passenger car occupants	913	549	292	290	279	-3.8%	-49.2%	-69.4%
Pedestrians	260	140	98	87	81	-6.9%	-42.1%	-68.8%
Others	78	69	44	19	33	73.7%	-52.2%	-57.7%
Total	*1 558*	*976*	*552*	*523*	*531*	*1.5%*	*-45.6%*	*-65.9%*

Source: IRTAD

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 88.1%.

Young people (15-24) still represent a high-risk group in road safety, with a road mortality rate 40% higher than of the general population. However, this rate shows significant improvement among road users in the 15-39 age group. It is important to note that the mortality for the older age groups (particularly 80+) now exceeds that of young road users (14.6 vs. 10.8 fatalities per 100 000 population in 2012), albeit with a significantly lower number of accidents per person. In 2012 there was a substantial increase in the age group 75+ (now 8.9 fatalities per 100 000 population).

Among pedestrian and cyclist fatalities, the age group 65+ is grossly overrepresented. Due to the physical frailty of elderly persons, crashes that usually would result in injuries more often lead to fatal consequences in this age group.

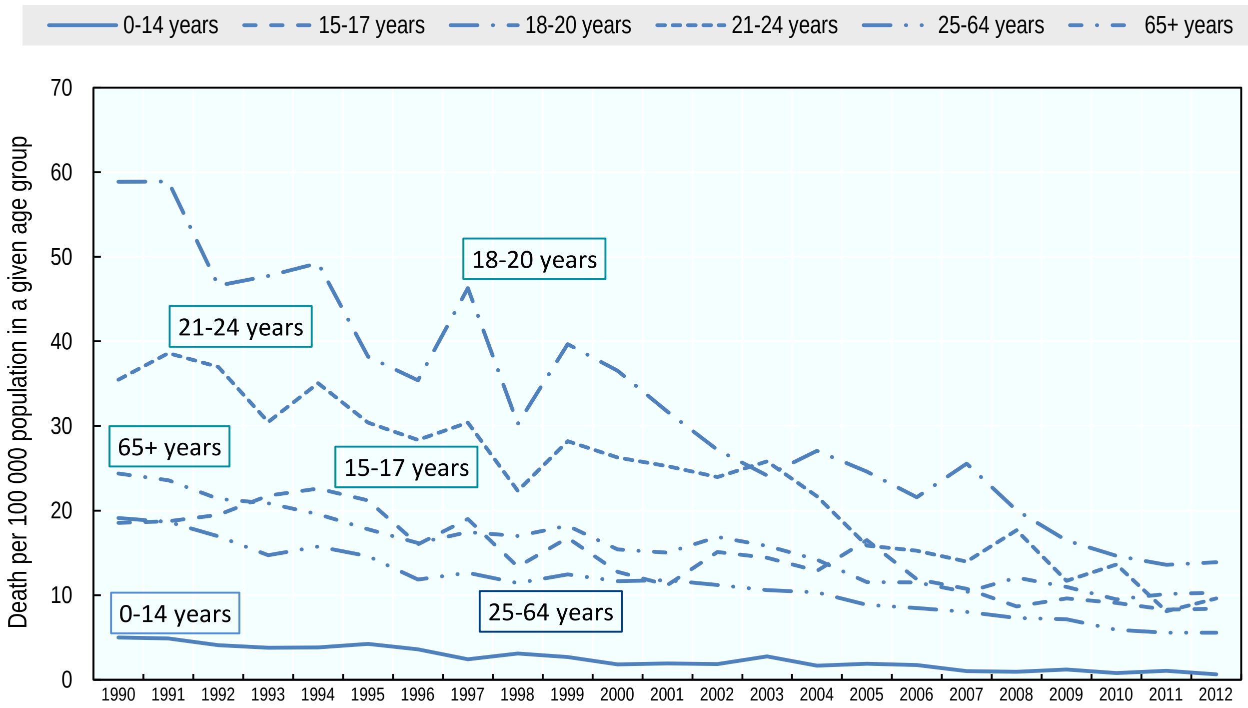
Table 3. **Road fatalities by age group**

						2012 % change from...		
Age	1990	2000	2010	2011	2012	*2011*	*2000*	*1990*
0-5	32	6	5	2	1	n.a	n.a	-96.9%
6-9	16	5	1	7	1	n.a	n.a	-93.8%
10-14	19	14	4	4	6	n.a	-57.1%	-68.4%
15-17	55	37	27	24	24	0.0%	-35.1%	-56.4%
18-20	205	105	45	42	43	2.4%	-59.0%	-79.0%
21-24	186	99	57	34	41	20.6%	-58.6%	-78.0%
25-64	764	518	273	260	261	0.4%	-49.6%	-65.8%
>65	278	190	140	150	154	2.7%	-18.9%	-44.6%
Total. unknown	*1,558*	*976*	*552*	*523*	*531*	*1.5%*	*-45.6%*	*-65.9%*

Source: IRTAD

Figure 2. **Road death rates by age group**

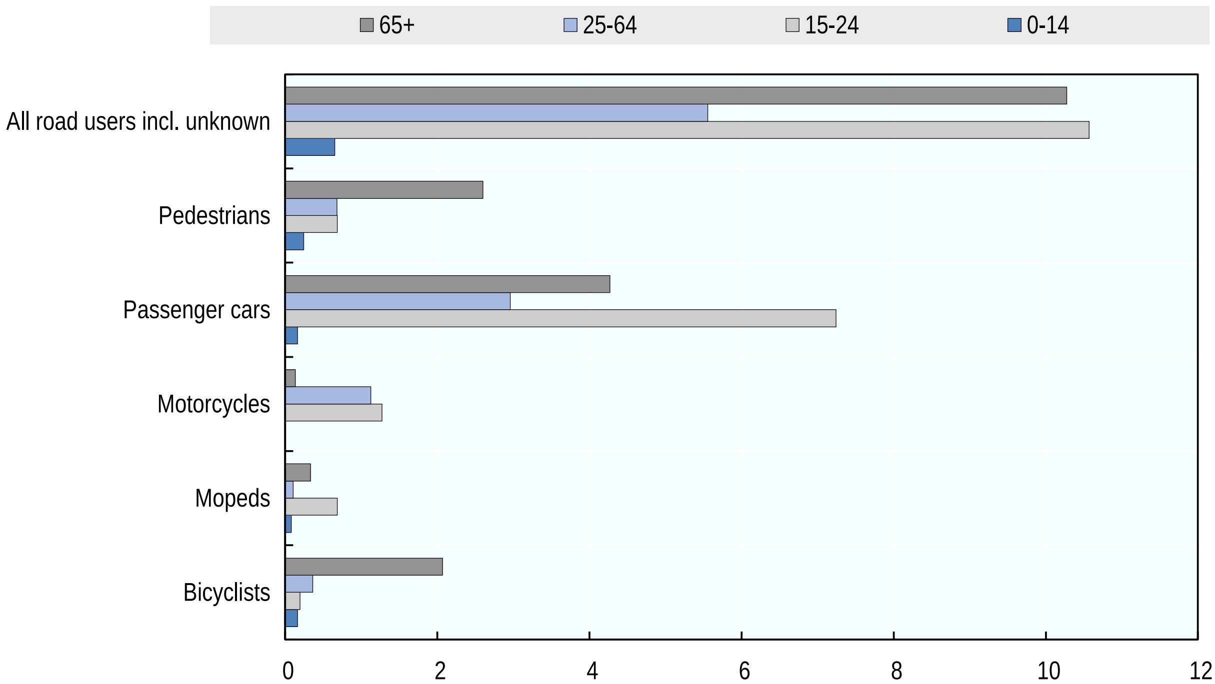
Fatalities per 100 000 population in a given age group: 1990-2012



Source: IRTAD

Figure 3. **Road death rate by age and road user group**

Fatalities per 100 000 population: 2012

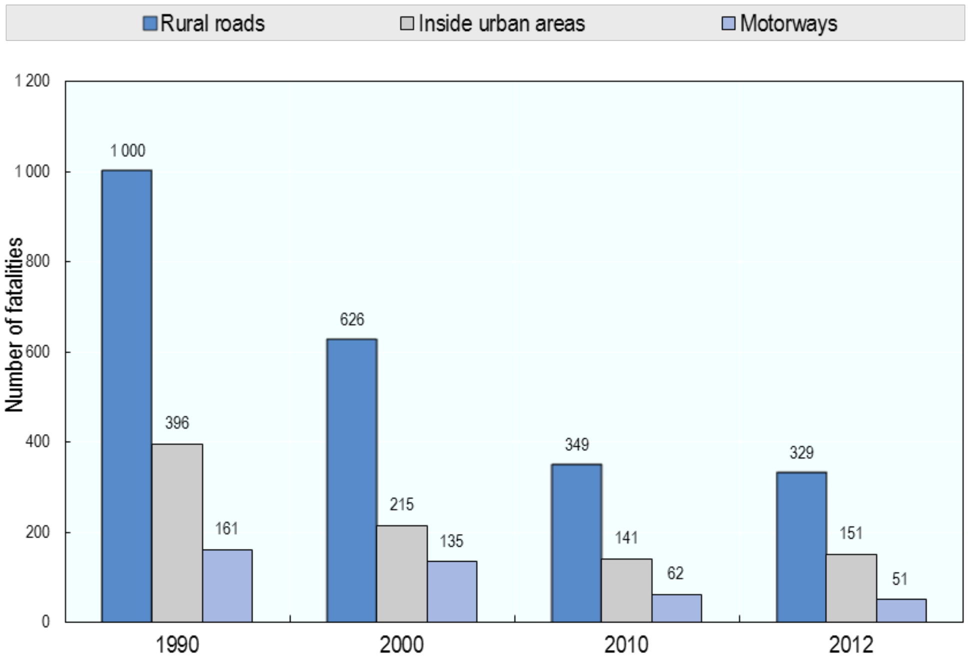


Source: IRTAD

Road Type

In 2012, 62% of fatalities occurred on rural roads, 28% in urban areas and 10% on motorways. In 2012, a slight reduction was achieved on motorways and a significant reduction on regional roads.

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



Source: IRTAD

4. 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[2], the costs of human suffering make up almost half of the crash 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%).

2. Herry, M. et al, (2013) im Auftrag des VSF/bmvit: Unfallkostenrechnung Straße 2012 unter Berücksichtigung des menschlichen Leids https://www.bmvit.gv.at/verkehr/strasse/sicherheit/strassenverkehrsunfaelle/volkswirtschaft.html

Table 4. **Costs of road crashes, 2011**

	Unit Cost (EUR)	Costs (EUR billion)
Fatalities	3 016.194	1.58
Hospitalised people	381.480	4.01
Slight injuries	26.894	0.93
Property / damage costs	8.245	3.58
Total (EUR)		10.09
Total as % of GDP		3.4%

5. Recent trends in road user behaviour

Impaired driving

Drink driving

To define drink driving crashes, Austria uses the definition recommended by the EU project SafetyNet: *Any crash in which any active participant was found with blood alcohol level above the legal limit.*

The maximum permissible blood alcohol content (BAC) level is generally 0.5 g/l (since 1998). For moped drivers younger than 20 years, novice drivers (holding a licence for less than two years), drivers of trucks 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 crash is tested for alcohol. However, it is not permitted in Austria to test a corpse or an unconscious person, therefore the number of unreported cases is believed to be substantial.

Drink-driving remains a predominantly male problem. However, the share of drunk females in alcohol related crashes has been on a steady increase since 2000 (7.7%) and reached 13% in 2012. The share of fatalities in crashes involving an alcohol-intoxicated person decreased from 9.8% to 8.7% in 2012.

Drugs and driving

No specific thresholds for drug concentrations are featured in the Austrian regulations, as a general rule it is not allowed to drive or ride a motor vehicle while under the influence of drugs.

Little is currently known about the prevalence of drugs as a causal factor in accidents. According to subjective assessment of the Austrian police, 4.3% of all injury crashes were caused by impairment due to alcohol, illicit or medical drugs in 2012 [Source: Statistik Austria, 2013].

Distraction

In 2012, about 35% of all road traffic crashes were attributed to inattentiveness or distraction as the main causes for the crash, 24% to priority violation (including by pedestrians) or red light running, 16% to speeding [Source: Statistik Austria, 2013].

In Austria, it is not allowed to drive while using a hand-held mobile phone. However, the use of hands-free devices is tolerated. The use of handheld mobile phones while cycling was banned in 2013.

Fatigue

The share of fatigue as a causal factor in crashes is especially challenging to detect. According to the Austrian Statistics Bureau, based on police assessment, 1.4% of all injury crashes were caused by sleepy drivers in 2012. According to information of the Austrian Ministry of Interior, 2.5% of all fatal crashes were caused by fatigue in 2013. It goes without saying that the real figures may be significantly higher.

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. Over the past decade, a growing number of municipalities have turned to implementing 30km/h zones in residential areas. In 2013, the “Encounter Zone” was introduced in the Highway Code: a new type of infrastructure with 20 km/h speed limit where pedestrians may use whole road, cycling is always allowed in both directions, and cars may be parked on marked spaces only.

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.

The table below summarises the main speed limits in Austria.

Table 5. **Passenger car speed limits by road type, 2014**

Urban roads	50 km/h
Rural roads	100 km/h
Motorways	130 km/h

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. Among fatal car occupants, over the last years close to 40% were not using a seatbelt. This share has been shown a favourable decreasing trend recently.

Table 6. **Seat-belt wearing rate by car occupants**[3]

	1990	2000	2012	2013
Front seat				
General		76%	89%	91%
Urban roads (driver)	63%	70%	89%	91%
Rural roads (driver)	74%	75%	88%	90%
Motorways (driver)	75%	78%	90%	92%
Rear seat				
General		72%	75%	76

Source: KfV, Annual seatbelt surveys

Helmet wearing is compulsory on all motorised two-wheelers and since June 2011 on bicycles for children up to 12 years of age. The helmet wearing rate by riders of motorised two-wheelers is not surveyed regularly and believed to be at practically 100%.

6. 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.

3. Source: Annual seatbelt surveys of the KFV

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[4] 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 crashes by 2020, based on the average for the years 2008-2010
  (Interim targets: -10% by 2015.)

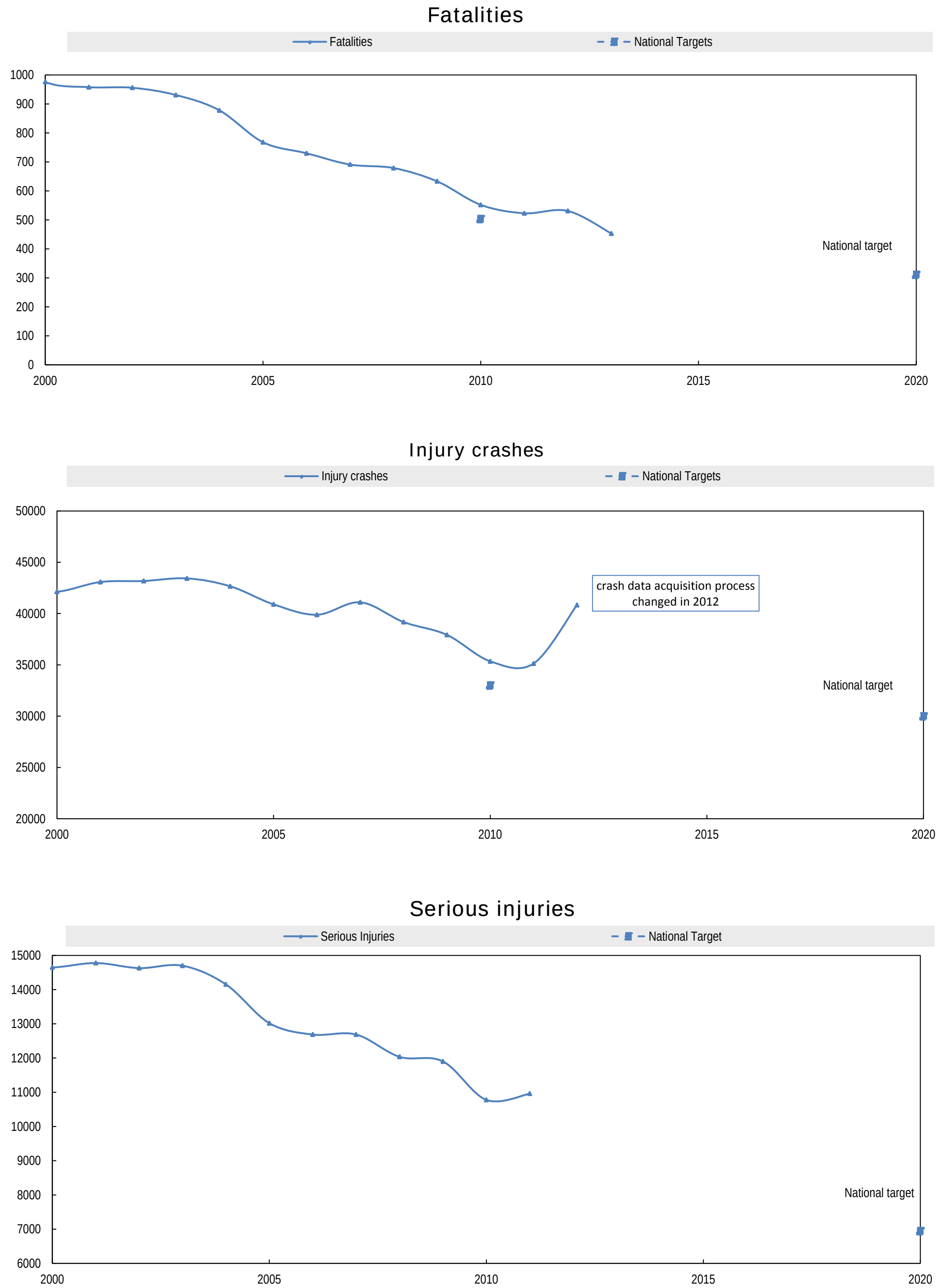
The targets are based on the EU fatality reduction target as well as the ETSC's proposal for a serious injury reduction target.

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 crash statistics, behaviour parameters and safety indicators. Based on this information, measures will be adjusted as required to accommodate changes in road behaviour and accidents.

4. http://www.bmvit.gv.at/en/service/publications/downloads/rsp2020.pdf

Figure 5. **Trends towards national targets**



Source: Kfv

Recent activities of monitoring and evaluation of the road safety performance are published in the annual report "Road Safety in Austria". The 2012 annual report[5] focuses on the Austrian Road Safety Programme 2011–2020, the implementation of the measures planned in its individual areas of intervention and resulting success in reducing the number of accidents, injuries and fatalities. This new structure will also be maintained in the reports that will be published in the coming years.

Evaluation of past road safety strategy

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 crash reduction target (35 348 vs. 33 000) was almost met.

7. Recent safety measures (2011-2013)

Road safety management

- An Austria-wide mobility survey was launched in 2013. This marks the start of regular nationwide mobility surveys.
- Bmvit and the individual federal states plan to set up a speed limit database and an integrated roads database for the entire Austrian road network. Such a database has already been realised for the country's motorway and expressway network.
- A law on a Risk Assessment System for transport companies (i.e. the implementation of Directive 2006/22/EC) was passed in 2013.

Driver behaviour

Enforcement

- Bmvit embraces and is actively supporting the implementation of the EU Directive on the cross-border enforcement of traffic fines. Several ministries have established an inter-ministerial platform and regional government platform to handle the legal and technical issues related to cross-border enforcement.
- Section controls (average speed controls) were extended on sensitive sections of Austrian motorways (tunnels, road works and accident-prone stretches).

Impaired driving

- The number of drink driving checks was further increased in 2012. The Ministries of Transport and Interior have jointly established the legal framework for a pilot test and the potential introduction of alcohol interlock devices. To encourage their use, bmvit plans to subsidize 100 devices.

5. http://www.bmvit.gv.at/en/service/publications/downloads/roadsafety_report2012.pdf

Seatbelt and helmet use

- Since June 2011, bicycle helmets are compulsory for children under 12 years (without penalties); first preliminary evaluation with positive tendencies was carried out in 2012.
- Bmvit and the automobile clubs supported the use of rearward-facing child seats for children up to the age of four, and bmvit has produced a corresponding brochure.
- Bmvit has published a brochure highlighting the benefits of helmets, helmet straps and protective clothing for improving the safety of motorcyclists. The brochure also emphasises the advantages of wearing "garishly" coloured clothing when riding a motorcycle.

Education and awareness

- A new campaign "Children see the world in a different way" ("Kinder sehen die Welt anders" https://www.facebook.com/Kinder.sehen.die.Welt.anders) was launched on all media, including TV and Radio, in June 2013. The aim is to sensitise adults for more consideration and attention for children in road traffic.
- Risk identification training and feedback driving session have been introduced in the second phase of driving instruction for category A driving licences.
- The provisions for the appointment of driving instructors were tightened, the continuous training requirements extended and unified, and mandatory quality assurance measures in the form of regular controls and checks introduced.

Other

- A ban on the use of handheld mobile phones while cycling was issued in 2013.
- The International Congress Mobility and Road Safety in an Ageing Society (19-20 June 2013 at Palais Ferstel in Vienna), organised by KFV, focused on future aspects and solutions of mobility and transport versus safety and quality of life in the context of an ageing society. The main presentations are available for download at: http://www.kfv.at/kfv-austrian-road-safety-board/congress2013/abstractbook-presentations/

Vehicles

- Bmvit has ensured that lorries currently in use are retrofitted with blind spot mirrors through the implementation of the EU Directive.
- Work is underway to ensure that heavy goods vehicles are equipped with compulsory tyre pressure control systems.

Infrastructure

- Level crossings: The Level Crossings Act has been totally reformed and newly enacted. The regulation is expected to reduce the share of passive level crossings (i.e. those without technical safeguarding) substantially.
- A new by-law for safeguarding of level crossings was passed in 2013.
- The Encounter Zone ("Begegnungszone"), was introduced in the Highway Code

- Bicycle highways (“Fahrradstraße”) were introduced in the Highway Code. On these roads, powered vehicles only have restricted access.
- Flexibility on the compulsory use of cycling paths was introduced. Authorities are now entitled to decide whether a specific cycling path is to be used by cyclists voluntarily or mandatorily.
- Motorcycle safety: The individual federal states have received funding from bmvit (Road Safety Fund) to treat accident-prone sections of road and junctions. This so-called “motorcycle safety million” was to be used among other things to install new roadside restraint systems, to remove obstacles on the roadside, to avoid changes in grip on the road surface, to give priority to the removal of grit, and to provide more underride protection/barriers for safety restraint on roads with high motorcycle traffic volumes.

Post-crash care

- The “Virtual Emergency Corridor” (“Rettungsgasse”)[6] was implemented on motorways and expressways, following the German model. Vehicle drivers are now obliged to form an emergency corridor as soon as traffic ceases to progress and congestion is imminent on motorways or dual carriageways, regardless of whether emergency vehicles are approaching or not. Preliminary evaluation of the initiative is currently under way.

8. Recent and on-going research

- The (RSF) which has been established at bmvit, was set up with the aim of promoting and furthering road safety in Austria. Its funding is drawn from the road safety contribution which motorists are required to pay when they order personalised vehicle number plates (currently EUR 200 for 15 years).
- The Austrian Road Safety Fund (RSF) has been issuing thematic calls for tenders since 2010. The respective themes are defined by bmvit in line with RSP goals and current accident statistics trends. Two calls for tenders were issued in 2011, the first with a “Safe · Electric · Mobile” theme and the second with the title “Attention and Concentration on the Roads”. A third call for tenders was issued in spring 2013 on the theme: “Careful · Children ·Consideration”.
- For all RSF projects, reports are available on the bmvit website (in German, with English abstracts). Some examples are listed hereunder.

Alkohol-Interlock zur Qualitätssicherung (Alcolocks for quality assurance in HGV transport)
http://www.bmvit.gv.at/verkehr/strasse/publikationen/sicherheit/vsf/13_alkoholinterlock.html

MERKUR (Road safety impact of the market development of e-bikes)
http://www.bmvit.gv.at/verkehr/strasse/publikationen/sicherheit/vsf/19_merkur.html

Unfallkostenrechnung Straße 2012 (Economic costs of road crashes)
http://www.bmvit.gv.at/verkehr/strasse/publikationen/sicherheit/vsf/16_unfallkosten.html

6. http://www.asfinag.at/documents/10180/14904/de_RG-InfofolderAllgemein-UK.pdf/f6b75bf2-f2ad-40e6-b9d6-ebf72f1ef43a

E-FFEKT - Auswirkungen von E-Kfz auf Fahrdynamik und Verkehrskonflikte (Safety impact of electrification of vehicles on driving dynamics and traffic conflicts)
http://www.bmvit.gv.at/verkehr/strasse/publikationen/sicherheit/vsf/22_effekt.html

Take a Rest (Study & awareness raising on fatigue and road safety)
http://www.bmvit.gv.at/verkehr/strasse/publikationen/sicherheit/vsf/23_tar.html

Seeking – safe e-biking (Analysis of behaviour of e-bike and e-moped riders)
http://www.bmvit.gv.at/verkehr/strasse/publikationen/sicherheit/vsf/25_seeking.html

Useful websites and references

Annual Report: Road Safety in Austria 2012	http://www.bmvit.gv.at/en/service/publications/downloads/roadsafety_report2012.pdf
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

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Belgium

Source: IRTAD, Belgian Road Safety Institute

Inhabitants	Vehicles/1 000 inhabitants	Road fatalities in 2012	Fatalities /100 000 inhabitants in 2012
11.1 million	**624**	**767**	**6.9**

1. Road safety data collection

Definitions

- Road fatality: person who died immediately after the crash or within the next 30 days.
- Seriously injured: person who stays for treatment more than 24 hours in hospital after the crash.

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. At the time of writing, a new procedure is being implemented to take hospital data into account. The presently reported data are, however, not corrected for underreporting in police records.

2. Most recent safety data

Road crashes in 2012

Between 2011 and 2012, there was a strong decline in the number of fatalities in Belgium (-11%), which was a relief after a period of stagnation between 2010 and 2011. It seems that the numbers in 2011 were somewhat elevated (possibly due to the many sunny days in spring and summer and economic circumstances) and in 2012 returned to the trend that had been observed over the last decade (approximately -5% yearly).

The decrease from 2011 to 2012 has been mainly achieved due to fewer deaths among motorcyclists, moped riders and car occupants. The number of pedestrian fatalities was also reduced, while there was an increase in fatalities among van occupants.

Provisional data for 2013

With an estimation of 720 fatalities in 2013, for the second time in a row, there is a strong decrease in the number of fatalities (2011-2012: -11%; 2012-2013: -6.5%).

While all user groups show a reduction in injury crashes from 2012 to 2013, the reduction in the number of fatalities is almost exclusively caused by a strong reduction in fatalities in crashes involving heavy good vehicles (106 in 2012 *versus* 83 in 2013). The decrease from 2011 to 2012 had been mainly achieved due to fewer deaths among motorcyclists and although the number of motorcyclists killed in 2013 is still lower than in 2011, the good results from 2012 could not be replicated.

3. Trends in traffic and road safety (1990-2013)

Traffic

Since 1990, the distance travelled increased by more than 40%. In the same period, the number of vehicles doubled. After a stagnation in vehicle-kilometres between 2007 and 2010, vehicle-kilometres increased again in 2011 and 2012.

Change in the number of fatalities and injury crashes (1990-2012)

Between 1990 and 2012, the number of fatalities decreased by more than 60%, and the number of injury crashes by more than 20%. In recent years (2010-2012), the decrease in the number of fatalities was such that the total change since 2000 amounts to -47%.

Around the time of the Millennium change, road safety became an issue of great public interest in Belgium. While the number of fatalities had been stagnating or even increased in the late 90s, the number of fatalities has declined steadily since 2001, which is also the year of the first national assembly on road safety (Etats généraux de la sécurité routière/Staten Generaal van de Verkeersveiligheid), initiating many improvements in infrastructure, enforcement and education. The reduction in the number of fatalities is even more striking, because between 2001 and 2004 the registration of crashes was revised and strongly improved, which would normally lead to an increase in (registered) fatalities. The decline has been relatively steady since, with small variations that are probably due to the economic situation (decrease in 2008) or meteorological variations (2010-2011).

Rates

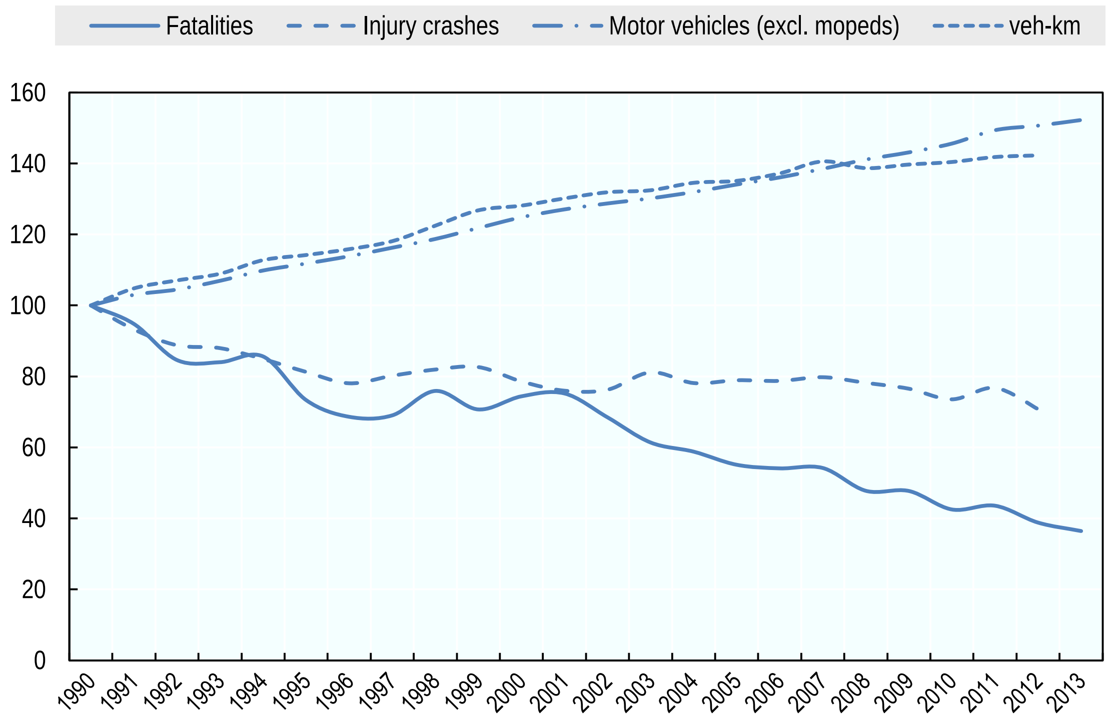
Between 1990 and 2012, the road traffic mortality rate, expressed in terms of deaths per 100 000 population, and risks (expressed in deaths per number of vehicles), decreased by more than 60% and 70%, respectively.

Table 1. **Road safety and traffic data**

	1990	2000	2010	2011	2012	2012 % change from 2011	2000	1990
Reported safety data								
Fatalities	1,976	1,470	840	861	767	-10.9%	-47.8%	-61.2%
Injury crashes	62,446	49,065	45,927	47,946	44,193	-7.8%	-9.9%	-29.2%
Injured persons hospitalised	17,479	9,847	5,984	6,169	5,261	-14.7%	-46.6%	-69.9%
Deaths per 100,000 population	19.9	14.4	7.7	7.8	6.9	-11.4%	-51.8%	-65.2%
Deaths per 10,000 registered vehicles	4.3	2.6	1.3	1.3	1.1	-11.7%	-56.8%	-74.2%
Deaths per billion vehicle kilometres	28.1	16.3	8.5	8.6	7.7	-10.9%	-53.0%	-72.7%
Traffic data								
Registered vehicles[1] (thousands)	4,594	5,735	6,689	6,862	6,921	0.9%	20.7%	50.6%
Vehicle kilometres (millions)	70,276	90,036	98,678	99,659	99,977	0.3%	11.0%	42.3%
Registered vehicles per 1,000 population)	461.8	560.1	617.1	623.8	623.8	0.0%	11.4%	35.1%

Source: IRTAD.

Figure 1. **Road safety and traffic data**
1990 =index 100



Source: IRTAD.

Road users

All user groups, but especially pedestrians, bicyclists and passenger car occupants, have benefited from safety improvements since 1990.

1 Registered vehicles excluding mopeds.

While the number of fatalities for car-occupants, pedestrians, moped riders and bicyclists have shown a more or less regular decline in the last two decades (-60% - -85%), the numbers of fatalities among motorcyclists, and truck and van occupants have shown only a relatively small decrease (20%).

For pedestrians, there has been no progress in the last five years. Motorcycle and moped deaths show strong variations between years, but the general tendency for the last five years is a decreasing one.

Table 2. **Road fatalities by road user group**

						2012 % change from		
	1990	2000	2010	2011	2012	*2011*	*2000*	*1990*
Bicyclists	196	134	70	69	68	-1.4%	-49.3%	-65.3%
Mopeds	110	64	22	20	15	-25.0%	-76.6%	-86.4%
Motorcycles	106	118	102	127	87	-31.5%	-26.3%	-17.9%
Passenger car occupants	1 181	922	444	458	384	-16.2%	-58.4%	-67.5%
Pedestrians	301	142	106	113	104	-8.0%	-26.8%	-65.4%
Others incl. unknown	82	90	96	74	109	47.3%	21.1%	32.9%
Total	*1 976*	*1 470*	*840*	*861*	*767*	*-10.9%*	*-47.8%*	*-61.2%*

Source: IRTAD.

Age

Since 1990, the reduction in fatalities has benefited all age groups, but the most impressive reduction concerns children aged 0 to 14 years (-85%). 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.

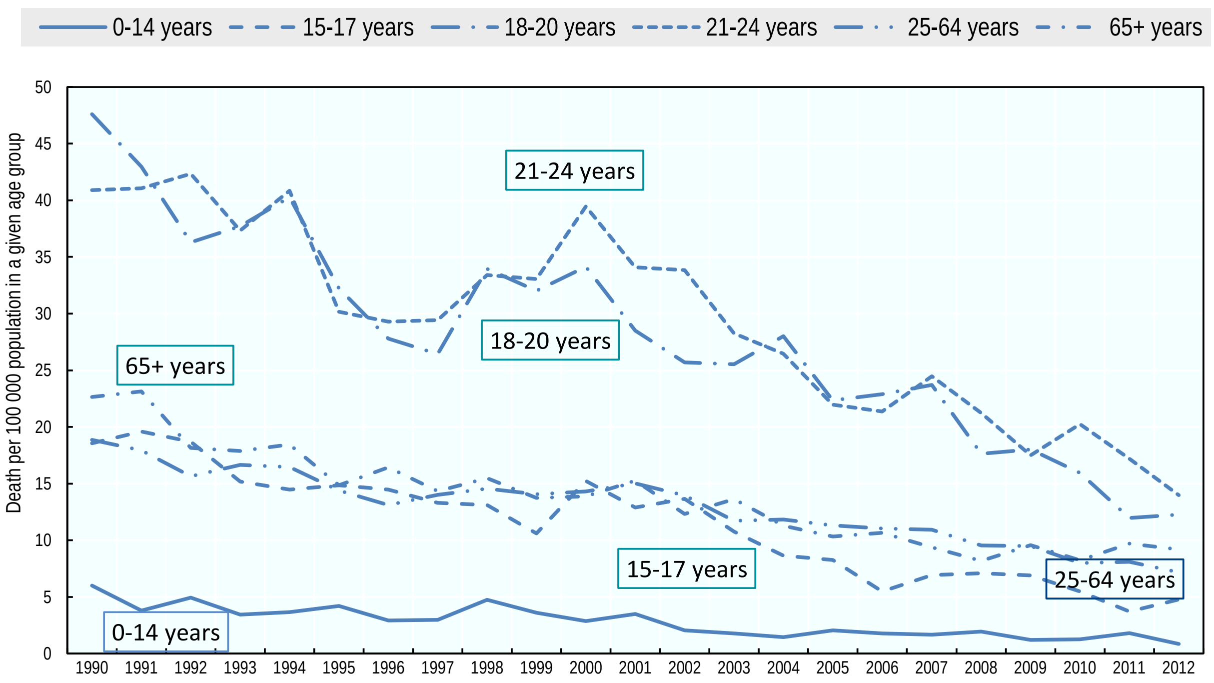
Over the last five years, the number of fatalities among elderly road users aged 65 years and more has stagnated.

Table 3. **Road fatalities by age group**

Age	1990	2000	2010	2011	2012	2012 % change from... 2011	2000	1990
0-5	33	17	8	13	9	-30.8%	-47.1%	-72.7%
6-9	27	12	6	11	2	-81.8%	-83.3%	-92.6%
10-14	48	23	9	11	5	-54.5%	-78.3%	-89.6%
15-17	72	55	21	14	18	28.6%	-67.3%	-75.0%
18-20	202	130	64	49	50	2.0%	-61.5%	-75.2%
21-24	245	198	107	94	78	-17.0%	-60.6%	-68.2%
25-64	992	784	467	479	427	-10.9%	-45.5%	-57.0%
>65	334	238	153	183	177	-3.3%	-25.6%	-47.0%
Total incl. unknown	*1,976*	*1,470*	*840*	*861*	*767*	*-10.9%*	*-47.8%*	*-61.2%*

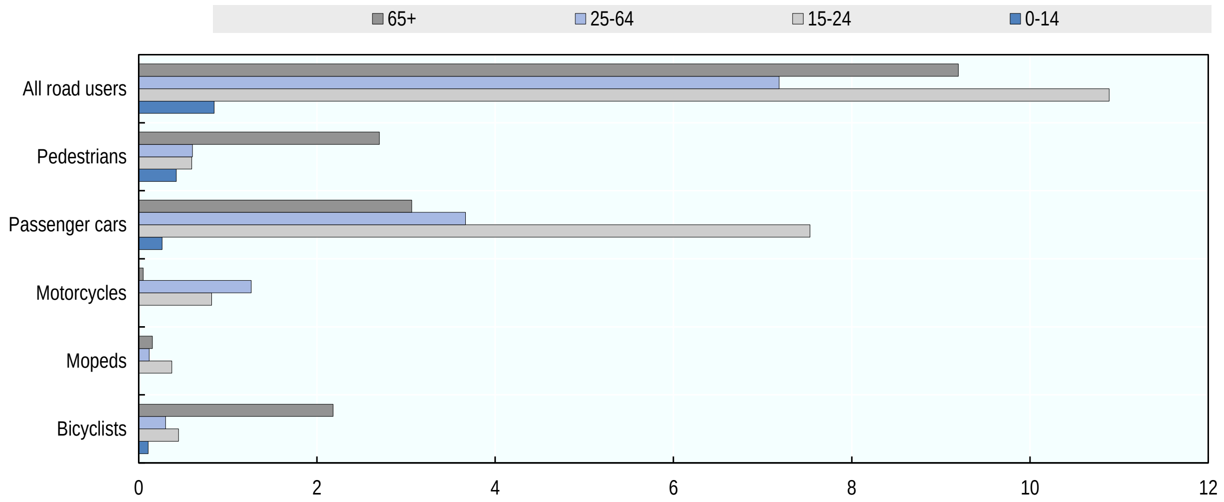
Source: IRTAD.

Figure 2. **Road death rates by age group**
Fatalities per 100 000 population in a given age group, 1990-2012



Source: IRTAD.

Figure 3. **Road death rate by age and road user group**
Fatalities per 100 000 population



Source: IRTAD.

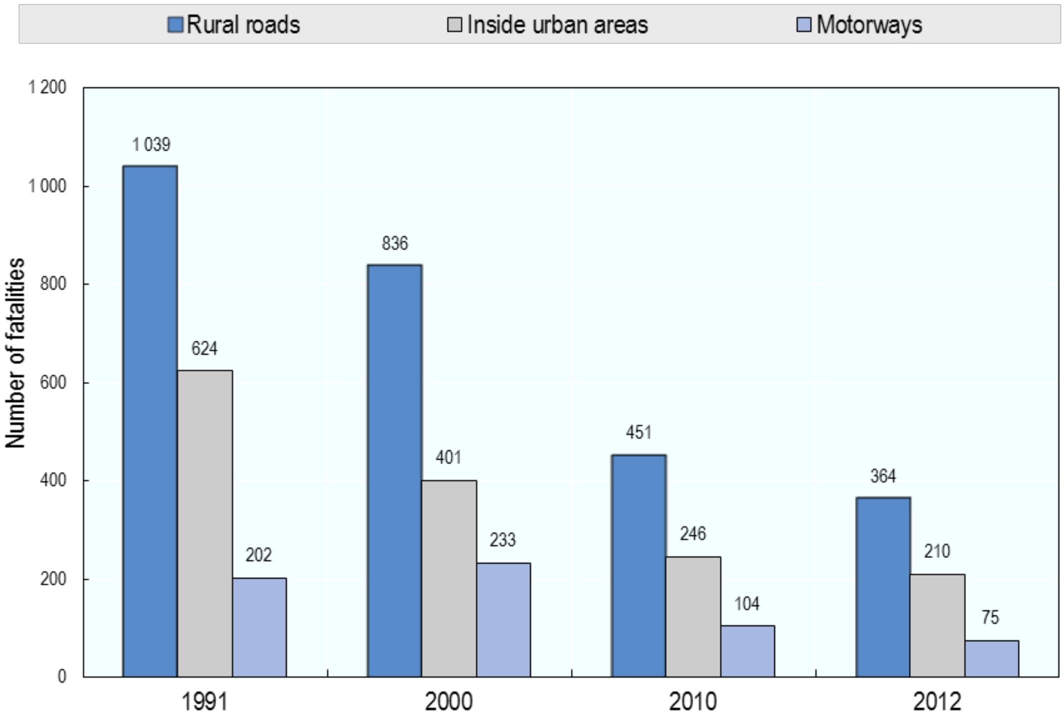
Road type

In 2012, around 48% of fatalities occurred on rural roads, 27% in urban areas and 10% on motorways (2% are unknown). Since 1991, the greatest reduction in fatalities has occurred on rural roads (-65%).

4. Economic costs of traffic crashes

In Belgium there is no recent information on the costs of crashes. The most recently published estimation is based on 2002 crash data (Brabander, B. de. And L. Vereeck (2007), Valuing the prevention of road accidents in Belgium, *Transport reviews*, 27(6). pp. 715-732). Taking willingness-to-pay into account, the authors state "the total costs of road crashes in 2002 are valued at EUR 7.2 billion (2004 prices)", which amounts to 2.7% of the GDP in that year.

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



Source: IRTAD.

5. Recent trends in road user behaviour

Impaired driving

Drink driving

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

An alcohol related crash is defined as a crash involving a driver who was subjected to a test and either refused to be tested or had a blood alcohol concentration of 0.5 g/l or higher. In 2012, 63% of the drivers were subjected to tests of which 10.5% were either positive or refused to be tested.

The prevalence of drivers under the influence of alcohol, which is established in road-side surveys, remains at the relatively high level of more than 2% in a representative sample with respect to time-points and place. At night, more than 7% of the drivers have a BAC above the legal limit. Since 2009 these percentages have not changed.

Drugs and driving

In Belgium there is a *per se* legislation concerning THC or cannabis (1ng/ml), amphetamines (25ng/ml), MDMA or ecstasy (25ng/ml), morphine (10ng/ml), and cocaine (25ng/ml).

Drivers can be checked by the police following a checklist. In case they are suspected of being impaired they are tested for drugs. They can also be tested directly in case the driver carries drugs or admits to having taken drugs or is involved in a crash.

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. No trace of amphetamines ("speed" and / or "ecstasy") was found among the population of examined Belgian drivers.

Distraction

The use of hand-held phones while driving is forbidden. The use of hands-free devices while driving is authorised. In a road-side survey (2013), 2% of drivers were talking on the phone without a hands-free kit. Another 1.2% held the phone in their hand. Drivers of vans and trucks were significantly more often observed with handheld devices than car drivers.

Speed

The table below summarises the main speed limits in Belgium.

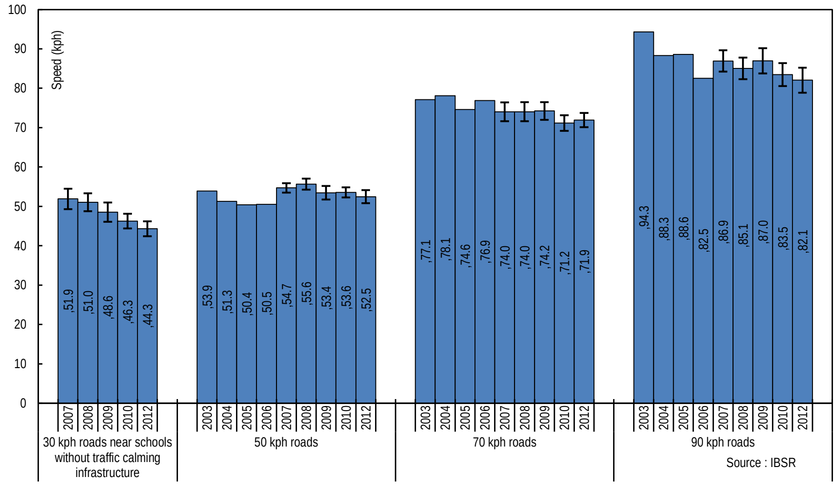
Table 4. **Passenger car speed limits by road type, 2014**

Urban roads	30/50 km/h
Rural roads	70/90 km/h
Motorways	120 km/h

Source: IRTAD.

The figure below presents the evolution of the average speed (free speed on road without specific infrastructure). The average speed has declined on all road categories, except for 50 km/h roads. The average speed still exceeds the legally defined maximum speed on all road categories, except for 90 km/h roads.

Figure 5. **Average speed of passenger cars per road categories 2007-2012**

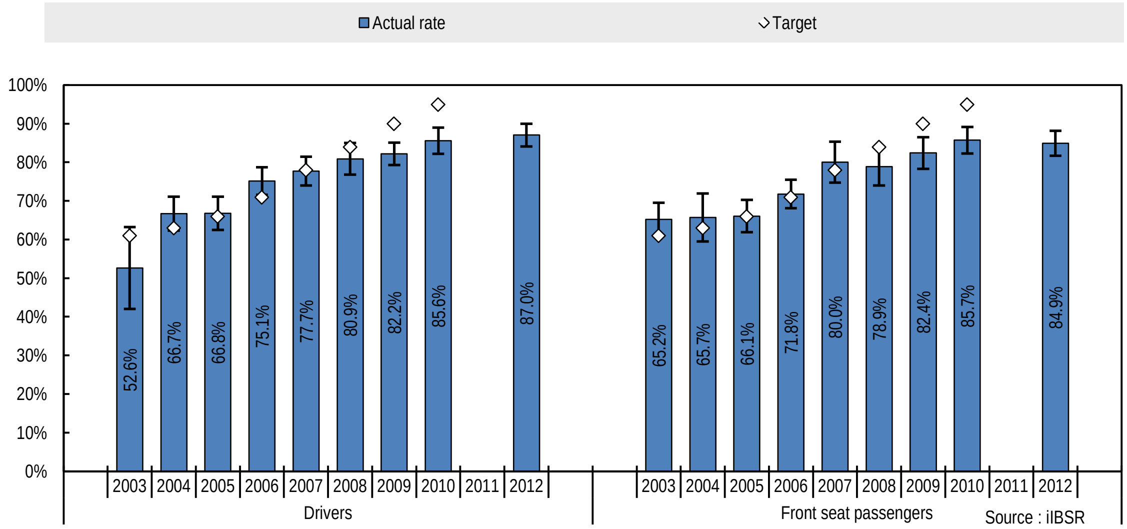


Source: BIVV-IBSR

Seat belts and helmets

Seat-belt use has been compulsory in front seats since 1975 and in rear seats since 1991. The rate of seat-belt use is 87% for drivers and 85% for front seat passengers (in passenger cars). The figure below shows a clear progress in seat belt usage rate between 2003 and 2012. The 2010 target of 95% seat belt usage has, however, still not been met.

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



Source: BIVV-IBSR

Table 5. **Seat-belt wearing rate by car occupants**

	2003	*2012*
Front seat		
General	56.6%	86.4%
Drivers	52.6%	87.0%
Front seat passengers	65.2%	84.9%

Source: BIVV-IBSR

All riders of motorised two-wheelers are required to wear helmets. Motorcyclists (>50cc) also have to wear gloves, boots that protect the ankle and long sleeved/legged jacket and trousers. There is no mandatory helmet-use law for cyclists.

The helmet-wearing rate by riders of motorised two-wheelers is not systematically monitored for the whole country. In Brussels, the observed rate was 99.3% in 2013.

6. National road safety strategies and targets

Organisation of road safety

The Agency responsible for formulating road safety policy priorities in Belgium is the Interministerial 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 intersectoral 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 chairs 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 decided by the Assembly on Road Safety (Etats généraux de la sécurité routière/Staten Generaal van de Verkeersveiligheid) follows the European Commission's 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 licence 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.

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 road safety assembly announced 20 recommendations in order to reach this target (see: www.cfsr.be). The Belgian Government approved these recommendations in 2011.

Target setting

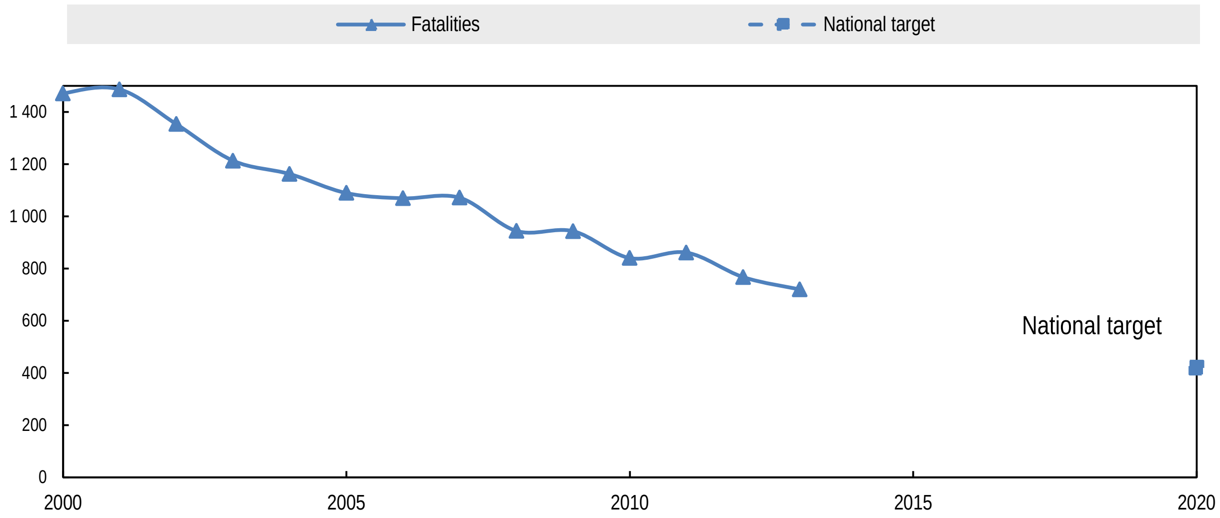
The European target of reducing the fatalities by 50% till 2020 was adopted. This would mean to reach less than 420 road fatalities in 2020. Forecasting based on past development predicts a number higher than 500 fatalities for 2020. Therefore, additional efforts and measures will be required to achieve the target.

Monitoring

Regular monitoring of road safety performance is being undertaken. The results are taken into account by policymakers at the federal and regional levels, but there is no explicit structure for how these are used to define the road safety strategy.

- Output level:
  - A road safety barometer published four times a year. Contains the most recent number of fatalities (excluding those who did not die at the scene). Publication lag is two or three months;
  - Full statistical report based on all police-registered injury accidents. Published yearly. Publication lag 18 months to two years.
- Safety performance level:
  - Representative roadside surveys of driving under the influence of alcohol, speed and seat-belt use (measured every three years; next measurements foreseen in 2015);
  - Representative survey of national opinions on road safety (yearly);
  - Representative survey of road safety attitudes, acceptance of measures and self-reported behaviour.

Figure 7. **Trends in road fatalities towards national targets**



Source: IRTAD.

Evaluation of past road safety strategy

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 (Etats généraux de la sécurité routière/Staten Generaal van de Verkeersveiligheid) 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. With an estimated number of 720 fatalities has been achieved in 2013);

- A decrease by 50% in the number of road fatalities by 2020 compared to 2010 (less than 420 fatalities).

7. Recent safety measures (2011-2013)

Behaviour

Speed management

- The first speed camera system that controls the average speed of road users has been in operation in Belgium since June 2012. Average speed control is extended to three additional sections since March 2013. A first evaluation over nine months of one of these sections has shown a reduction of the mean speed by 5 km/h and a reduction in the number of speed violations by 71% and of severe violation (>10km/h) by 85%. The number of crashes was reduced by 26%[2]. (http://www.uhasselt.be/documents/IMOB/Nieuws%20en%20Agenda/Snelheidscameras-en-trajectcontrole.pdf);

Impaired driving

- Since the end of 2012, penalties for recidivists who commit the same severe traffic offence in a time span of three years, have been increased.

Seat-belt and helmet use

- More severe penalties were introduced at the end of 2012 for non-wearing of seat belts or non-use of child restraint systems.

Enforcement

- Immobilising vehicles by Customs in case of outstanding traffic fines (08/07/2013);
- Enforcement campaigns “winter-BOB”: in six weeks (mid-December 2012-end January 2013), the police controlled almost 300 000 drivers.

Road Safety Campaigns

- Alcohol: BOB (January, February, April and June-July-August 2013, December 2013);
- Speeding: social disapproval targeting 25-39 year old drivers (April and October 2013);
- Survey on Road UNsafety (January 2013);
- Respect: inciting safer driver behaviour and more respectful attitude towards other road users (February 2013);
- Motorcyclists: targeting motorcyclists and other road users (April and May 2013);
- Experience: targeting novice drivers (April 2013 and from June until August 2013); Safety Belt Use (August 2013);
- Focus Back2school and back2business (September 2013);
- Advocacy actions towards young drivers throughout the year (2013-2014).

2. Reference : University of Hasselt (2013), *Effect of traject control on speeding behaviour and road-crashes*

Vehicles

- Upon advice from the Belgian Road Safety Institute it has been decided not to make winter tyres mandatory.

Infrastructure

- Two new signs are added to the Code, namely:
  - Sign B22, which allows cyclists to cross traffic lights in order to turn right when the traffic lights are red or yellow-orange;
  - Sign B23, which allows cyclists to cross traffic lights in order to go straight ahead 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 and does not interrupt the traffic flow (14/02/2012);
  - Evaluation suggests that this rule incites cyclists to cross red lights in other situations, where this is not allowed, as well[3].
- Creation of cycle roads (where bicyclists have priority):
  - On *cycle roads*, 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 on the cycle roads but cannot pass cyclists, and speed can never be greater than 30 km / h (03/02/2012).
  - Evaluation studies showed that the establishment of cycle roads makes sense when the road is predominantly used by cyclists. In that case the usage by cyclists can increase even more and the speed of the cars will be reduced. For roads which are predominantly used by car drivers, this measure is insufficient in itself to make the road more cycle-friendly and it will not change the behaviour of either cyclists or car drivers.

8. Recent and on-going research

Apart from the monitoring activities described above, the following research projects are ongoing or recently finalised and will become available at the web-site of the Belgian Road Safety Institute (French: www.ibsr.be; Dutch: www.bivv.be) during 2014. The web links refer to the French versions. Dutch versions are also available. Unless indicated otherwise, no English versions are available.

- Accidentology:
  - Fatalities on highways (Analysis of fatal victims on highways. Based on police records 2008-2013)
  - Senior people and road safety (Analysis of crash, mobility, and attitude data for elderly people)
  - Road safety pedestrians in Flanders (Statistical and literature study)

3. Source: University of Hasselt, http://www.uhasselt.be/documents/IMOB/Nieuws%20en%20Agenda/Rechtsaf-door-rood.pdf.

- Crashes with children nearby schools (Based on police records)
- Risk of involvement in severe crashes (Based on hospital data and mobility questionnaires. Risks per road-user type and age group)
- Fatal crashes in Brussels (based on police records)
- Black spots in Brussels
- Link between weather and crashes (based on daily data, meteorological and accident data)
- Underregistration of severly injured accident victims (http://ibsr.be/frontend/files/userfiles/files/Sous-enregistrement%20de%20victimes%20de%20la%20circulation.pdf)

- Measurement of road-user behaviour:
  - safety equipment for motorcyclists (road side survey) (http://ibsr.be/frontend/files/userfiles/files/EPI%202RM%20RBC.pdf)
  - hand-held mobile phone use (road side survey)
  - Evaluation of bicycle accidents on one-way roads with counter direction lane for cycles
  - Measurement of the use of child restraint systems (Road side survey on child restraint system (replication of measurement 2011); Measurement of the speed of motorcyclists (road side survey)
  - Excessive speed on Belgian roads (road side survey)
  - Sleepy driving (questionnaire)
  - Cultural attitudes towards road safety (INTRAS, Road safety attitudes of different cultural and social groups)
  - International comparison of attitudes (additional analyses SARTRE4).
- Determinants of behaviour:
  - Influence of social norms and alcohol checks on drink-driving (based on SARTRE data) (http://ibsr.be/frontend/files/userfiles/files/SoPaROI%20_FR.pdf
  - Influence of passengers on driver behaviour (questionnaire on the effect of having a passenger).
- Driving ability and fitness to drive:
  - Validation simulation tests of driving skills (First evaluation of testing driving ability in simulator)
  - Checklist fitness to drive for older people (Development of a Belgian checklist)
  - Impact of texting on driving (simulator).
- Injuries:
  - Seriousness of injuries from crashes (MAIS) (Analysis of type and severity of injuries in hospitalised traffic victims (2004-2011)

  - o Relation between crash types and injuries (Linking injury outcomes to accident types (2009-2011)
  - o Inability to work due to crashes.
- Enforcement:
  - o Profile of recidivists
  - o Reintegration assessment approaches
  - o Testing of consumer oriented alcohol testers (reliability analysis)
  - o Impact of the adjustment of car lights (calculations of the change in lighted surfaces and the chance of blinding lights).
- Road Safety Policy
  - o Benchmarking Belgium
  - o Analysis of the implications of "Safe system" for Belgium
  - o Effect of trajectory control on speeding behaviour and road-crashes (http://www.uhasselt.be/documents/IMOB/Nieuws%20en%20Agenda/Snelheidscameras-en-trajectcontrole.pdf).
  - In Flanders, the Dutch-speaking northern region of Belgium, the Policy Research Centre for Traffic Safety (Steunpunt Verkeersveiligheid) carries out scientific policy research to support the Flemish government. The Policy Research Centre is coordinated by the Transportation Research Institute (IMOB) of Hasselt University, which is the largest transportation research institute in Flanders.

Useful websites and references

BIVV-IBSR(Belgian Road Safety Institute)	www.bivv.be (Dutch) / www.ibsr.be (French)
BIVV-IBSR research reports	http://ibsr.be/fr/presse/etudes-et-statistiques (French) http://ibsr.be/nl/pers/onderzoek-en-statistieken (Dutch)
Statistical report, 2012	http://ibsr.be/fr/presse/etudes-et-statistiques/statistiques-d-accidents (French) http://ibsr.be/nl/pers/onderzoek-en-statistieken/verkeersongevalstatistieken (Dutch)
Road Safety barometer	http://ibsr.be/fr/presse/baromètre-de-la-sécurité-routière (French) http://ibsr.be/nl/pers/verkeersveiligheids-barometer (Dutch)
Federal Commission for Road Safety	www.cfsr.be (French) / www.fcvv.be (Dutch)
Vlaamse stichting verkeerskunde	http://www.vsv.be/nl/home
Conseil supérieur Wallone de la sécurité routière	http://www.cswsr.be/
Instituut voor Mobiliteit Universiteit Hasselt	http://www.uhasselt.be/IMOB-EN
Steunpunt Verkeersveiligheid	www.steunpuntverkeersveiligheid.be/en

Contact

For more information, please contact: info@ibsr.be or info@bivv.be

Cambodia

Source: IRTAD, National Road Safety Committee

Inhabitants	Vehicles/1 000 inhabitants	Road fatalities in 2012	Fatalities /100 000 inhabitants in 2012
14.7 million	**148**	**1 966**	**13.4**

Cambodia joined the IRTAD Group in 2010. It benefits from a twinning programme with Handicap International, Road Safety for All and SWOV (The Netherlands' road safety research centre) 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.

In 2013, following the first phase of the twinning project and an in-depth review of the data, The Netherlands recommended to include data as of 2006 in the IRTAD database.

1. Road safety data collection

Definitions

- Road fatality: A person who died immediately after a crash or within the following 30 days.
- A seriously injured person is defined as a person hospitalised for at least 8 days due to injuries sustained in a crash. At this stage, it is not envisaged to adopt an MAIS-based definition.

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 at provincial level and provide a 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, in the framework of IRTAD twinning. This allows duplicate entries to be automatically identified.

In 2012, almost all (97%) road fatalities were reported by the police. Traffic police reported 52% of injuries, and 51% of injuries were reported by hospital or health centre staff. Only 49 hospitals and 38 health centres provided data in 2012. Therefore, data on serious injuries are not fully reported.

Data as of 2006 have been validated by IRTAD.

2. Most recent safety data

Road crashes in 2012

In 2012, RCVIS reported 1 966 fatalities, a 3.2% increase compared to 2011. On average, road crashes caused more than five fatalities and 15 injuries every day. Motorcyclists are the main victims (68%), followed by pedestrians (11%).

Provisional data for 2013

Provisional data for 2013 show a decrease in the number of road deaths. In 2013, there were 1 950 fatalities, representing a 0.8% decrease compared to 2012.

3. Trends in traffic and road safety (2006-2013)

Traffic

Cambodia is facing a very rapid increase in motorisation. Since 2006, the number of motorised vehicles has multiplied by three. In 2012, only, there was a 14% increase in the number of registered vehicles. Powered two-wheelers account for 80% of the motor vehicle fleet.

From 2006 to 2013, the fatalities rate per 10 000 vehicles decreased rapidly from 18.1 to 7.9. This decrease is due to the huge increase in the number of registered vehicles during the past seven years.

Change in the number of fatalities and injury crashes (2006-2012)

Since 2006, the number of fatalities increased by 52%.

This dramatic increase is explained by 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 2012.

Even though the number of fatalities for 10 000 vehicles decreased by 9% when compared to 2011, due to the rapid motorisation, 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.

In 2013, however, the situation seems to have stabilised. The number of fatalities decreased by 0.8%. However, the number of crashes and injuries increased.

Rates

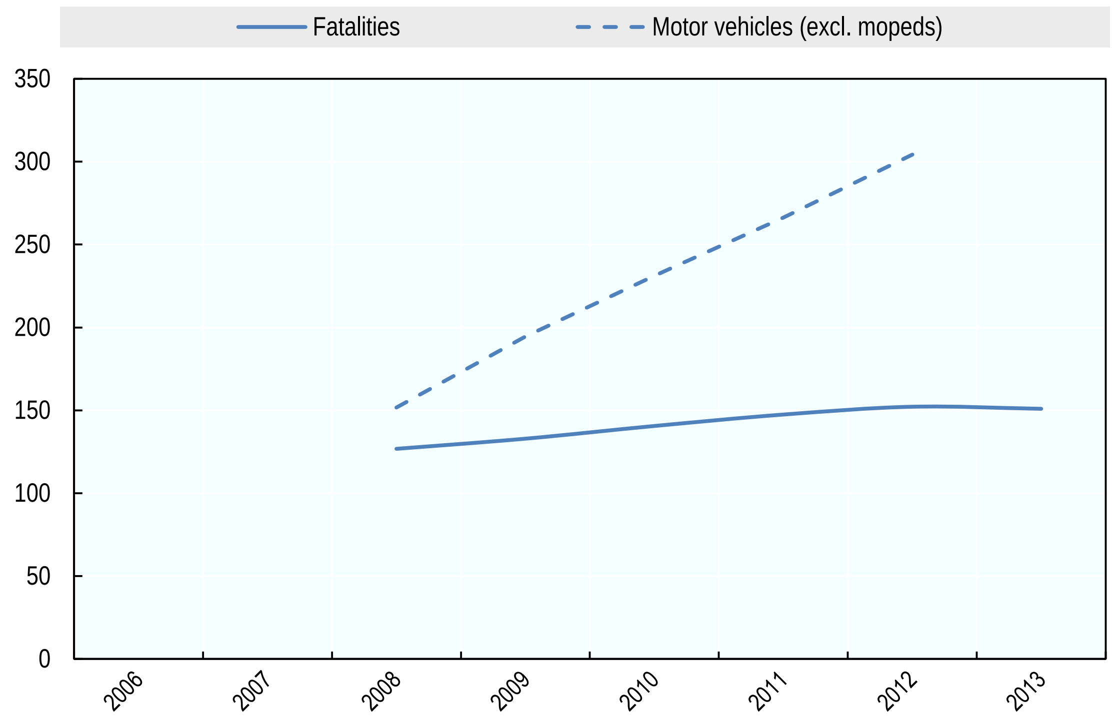
In 2012, the death rate per 100 000 population was 13.4, a slight increase compared to 2011. The death rate per registered vehicle decreased steadily, given the rapid increase in the number of registered vehicles, and reached nine in 2012. This is still very high compared to other IRTAD countries.

Table 1. **Road safety and traffic data**

	2006	2010	2011	2012	2012 % change from 2011	2012 % change from 2006
Reported safety data						
Fatalities	1 292	1 816	1 905	1 966	3.2%	52.2%
Injury crashes		18 287	16 654	15 615	-6.2%	
Deaths per 100,000 population		12.7	13.1	13.4	2.1%	
Deaths per 10,000 registered vehicles		11.0	10.0	9.1	-9.5%	
Traffic data						
Registered vehicles[1] (thousands)	715	1 650	1 904	2 172	14.1%	203.8%
Registered vehicles per 1,000 population)		115.4	131.0	148	12.8%	

Source: IRTAD.

Figure 1. **Road safety and traffic data**
Index 100 = 2006



Source: IRTAD.

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 2012, they represented 80% of the motorised vehicle fleet and 68% of all fatalities.

1 Registered vehicles excluding mopeds.

Pedestrians are the second most vulnerable road users (11% 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 2011, the number of motorised two-wheeler riders killed slightly increased, while the number of cyclists killed in a crash rose dramatically. The situation improved for pedestrians.

Table 2. **Road fatalities by road user group**

					2012 % change from		
	2008	2010	2011	2012	*2011*	*2010*	*2008*
Bicyclists	71	72	51	77	51.0%	6.9%	8.5%
Motorised 2 wheelers	1 107	1 209	1 262	1 340	6.2%	10.8%	21.0%
Passenger car occupants	115	140	144	155	7.6%	10.7%	34.8%
Pedestrians	207	217	254	207	-18.5%	-4.6%	0.0%
Others incl. unknown	138	178	194	187	-3.6%	5.1%	35.5%
Total	*1 638*	*1 816*	*1 905*	*1 966*	*3.2%*	8.3%	20.0%

Source: IRTAD.

Age

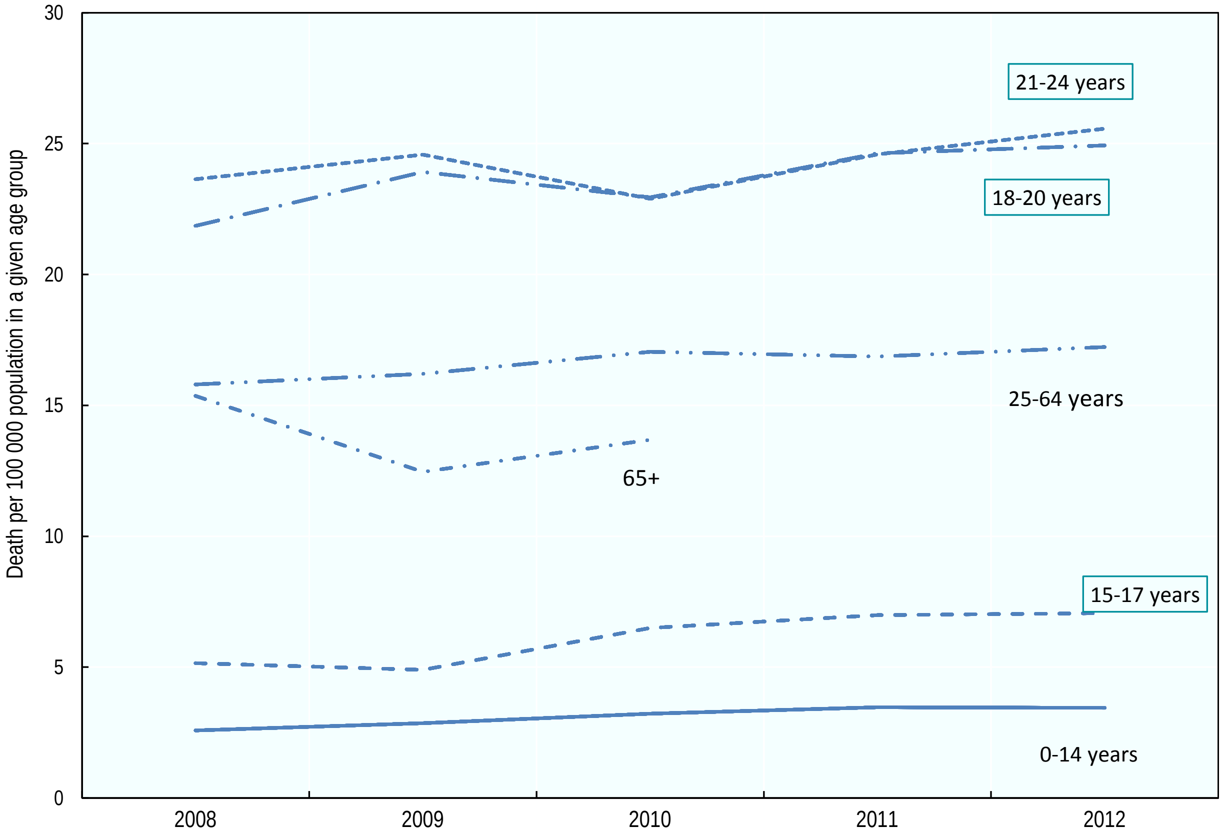
In 2012, the 20-24 age group accounted for 21% of total fatalities, while they represented only 11% of the total population. About 51% of total fatalities are between 15 and 29 years old. The 20-24 age group also has the highest fatality rate for 100 000 inhabitants (25.1%).

Table 3. **Road fatalities by age group**

				2012 % change from...
Age	2010	2011	2012	*2011*
0-5	49	47	43	-8.5%
6-9	50	60	58	-3.3%
10-14	49	51	55	7.8%
15-17	68	73	73	0.0%
18-20	228	250	257	2.8%
21-24	271	302	325	7.6%
25-64	1 000	1 020	1 075	5.4%
>65	84	90	77	-14.4%
Total incl. unknown	*1 816*	*1 905*	*1 966*	*3.2%*

Source: IRTAD.

Figure 2. **Road death rates by age group**
Fatalities per 100 000 population in a given age group



Source: IRTAD.

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.

4. Economic costs of traffic crashes

It is estimated that in 2012 the annual economic cost of road crashes equalled approximately USD 329 million, a 6% increase compared with 2010. This represents 2.3% of the GDP of Cambodia.

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

Table 4. **Costs of road crashes, 2012**

Costs (USD million)	Unit Cost	Total
Fatalities		84
Injury and disability		236
Property / damage costs		8
Total		USD 329 million
Total as % of GDP		2.3%

Source: National Road Safety Committee.

5. Recent trends in road user behaviour

Impaired driving

Drink driving

The maximum BAC level is 0.5 g/l. There is no differentiated limit for professional drivers and young drivers. 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 2012, 13% of fatalities were due to drunk driving. Compared to 2011, the number of fatalities decreased by -7%. 80% of at-fault drivers in drink-driving crashes were motorbike drivers, followed by family vehicle drivers (13%).

A peak of drink-driving fatalities was observed between 7 and 8 p.m. (19%). Saturdays, Sundays and Thursdays shared high percentages of fatalities (23%, 17% and 17%, respectively).

Drugs and driving

Cambodia does not have a legal framework nor facilities to enforce drugs-and-driving penalties.

Distraction

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.

Speed

Excessive speed is the leading cause of traffic crashes in Cambodia: it was responsible for more than 50% of fatalities in 2012.

The table below summarises the main speed limits in Cambodia.

Table 5. **Speed limits by road type, 2014**

	Motorcycles, tricycles	Cars	National roads 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

Source: National Road Safety Committee.

The number of fatalities due to speeding is increasing year by year: this is due to the development of roads and road rehabilitation throughout the country which allows drivers to drive faster.

Seatbelts and helmets

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

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

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

	2009	*2010*	*2011*	*2012*
General	23%	30%	27%	16%
Urban roads (driver)	52%	41%	44%	
Rural roads (driver)	42%	35%	41%	

Source: National Road Safety Committee.

According to RCVIS 2012, 92% of car occupants killed were not wearing a seat belt.

Helmet wearing is compulsory since 2007 for riders of (over 49 cc) motorcycles, for motorcycles with trailers and for motorised tricycles. It is not compulsory for mopeds below 49 cc and is not yet compulsory for the passengers; but it is expected that a legal amendment will be passed in 2014.

69% of motorcycle rider fatalities suffered head injuries in 2011: 69% were not wearing a helmet when the crash occurred.

6. 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 co-ordinate 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 Plan was submitted to the Prime Minister and is expected to be approved by the Council of Ministers in early 2014.

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.

Target setting

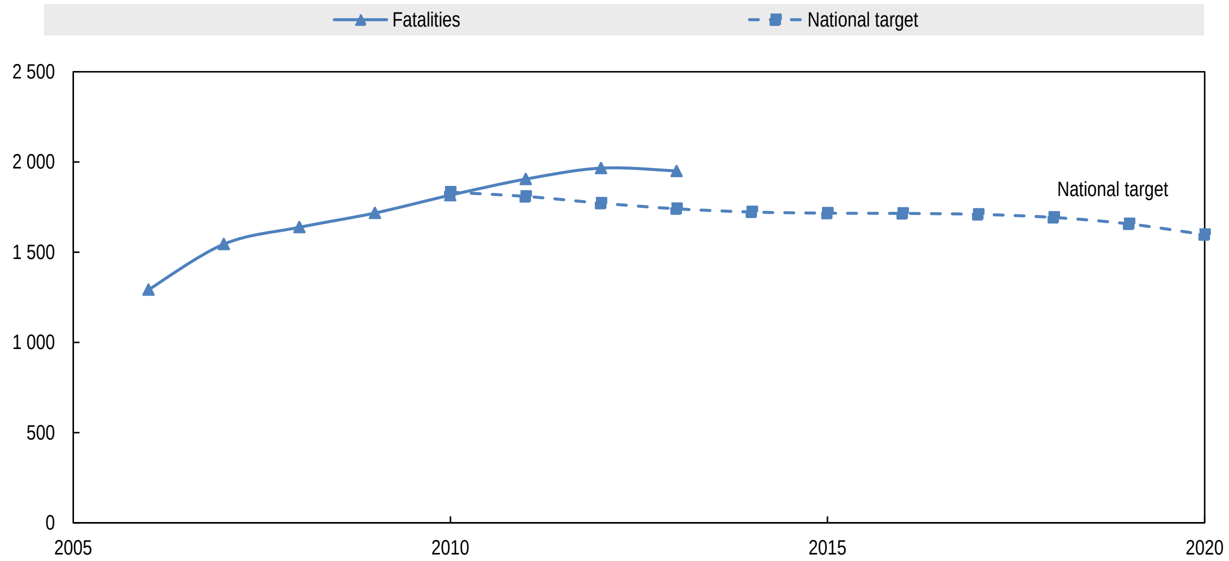
This new Plan includes, for the first time, quantified national targets and safety performance indicators. The main target is to reduce the forecasted number of fatalities by 50% by 2020, as recommended by the UN Report for the Decade of Action.

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

Monitoring

Figure 3. **Trends towards national target**



Source: IRTAD.

7. Recent safety measures (2011-2013)

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 the 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. 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 evaluation of 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 only on a small scale (mainly in the capital city), with limited resources, and have focused on:

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

Education and campaigns

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

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

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

8. 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 and references

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

Inhabitants	Vehicles/1 000 inhabitants in 2011	Road fatalities in 2011	Fatalities /100 000 inhabitants in 2011
34.8 million	**649**	**2 006**	**5.8**

1. Road safety data collection

A complete set of data for the year 2012 was not available when this report was prepared; therefore this report is based on 2011 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 by each jurisdiction (provinces and territories), and is then sent to Transport Canada for final processing and for compilation of national collision statistics.

As with any data collection programme, there are some challenges with respect to data timeliness and accuracy. Transport Canada considers the motor vehicle collision data to be relevant, of good quality overall 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. Availability challenges with respect to some variables can limit the scope and degree of analysis in some instances. In some cases, where data has not been received from all jurisdictions within Canada, methodologies are used to ensure national estimates take into account any non-reporting.

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.

A National Collision Database On-Line Web application is a query tool that contains national level statistics on vehicle collisions occurring on public roads in Canada. Approximately 23 of the data elements contained in the National Collision database are available to users, so that they can select and extract data of interest to them. A second version has been created for the provinces and territories that allows them to see more detailed information.

2. Most recent safety data

Road crashes in 2011

In 2011, motor vehicle fatalities (2 006) and serious injuries (10 938) were down approximately 10% and 7%, respectively, from 2010. The rate of fatalities per billion vehicle-kilometres travelled, at 5.9, was also significantly lower than the rate of 6.5 seen in 2010.

Among road users, the decline in fatalities in 2011 was most noticeable among passengers (-23%) and bicyclists (-16%). With respect to fatalities by vehicle type in 2011, light-duty vehicles experienced a greater decline (-13%) than that for heavy-duty vehicles (-7%).

Provisional data for 2012

Preliminary fatality data for 2012 from selected provinces and territories suggest that annual traffic fatalities are approximately 5% higher than those seen in 2011.

3. Trends in traffic and road safety (1990-2011)

Traffic

Motor vehicle registrations in Canada have been steadily increasing over the last two decades; the number of registrations for all motor vehicles increased by over one-third (+34%) in that time-frame. More recently, between 2000 and 2011, light-duty vehicle registrations rose by approximately 23%, while commercial vehicle registrations were up by approximately 31% over the same period. Over the comparable period of 2000 to 2011, driver exposure as measured by vehicle-kilometres travelled (VKTs) for light-duty and commercial vehicles increased by approximately 10%.

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 modestly by 0.7% between 2007 and 2008, subsequently declining by 2.7% in 2009, before growing by 3.1% and 2.5% in 2010 and 2011, respectively. During this same four-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 estimated increases of 1.3% and 0.5% in 2010 and 2011, respectively.

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

The downward trend in both fatalities and serious injuries continued into 2011. In fact, the 2011 motor vehicle fatality count of 2 006 was not only a significant decrease from the previous year, but also marked the lowest number of fatalities on record in Canada since the data were first collected more than sixty years ago.

This progress was achieved despite on-going growth in recent years in the Canadian population, in the number of licensed drivers, in the number of registered vehicles and in vehicle-kilometres travelled.

It is believed that increased efforts by key stakeholders in developing and implementing road safety strategies, plans and countermeasures that focused on key areas of concern (e.g. speeding, impaired driving and unbelted occupants) contributed to the overall progress. Other contributors to the achievement included continuing improvement in vehicle safety features and equipment.

Rates

2011 also marked the first year that the fatality rate per 10,000 registered vehicles (0.90) fell below 1.0.

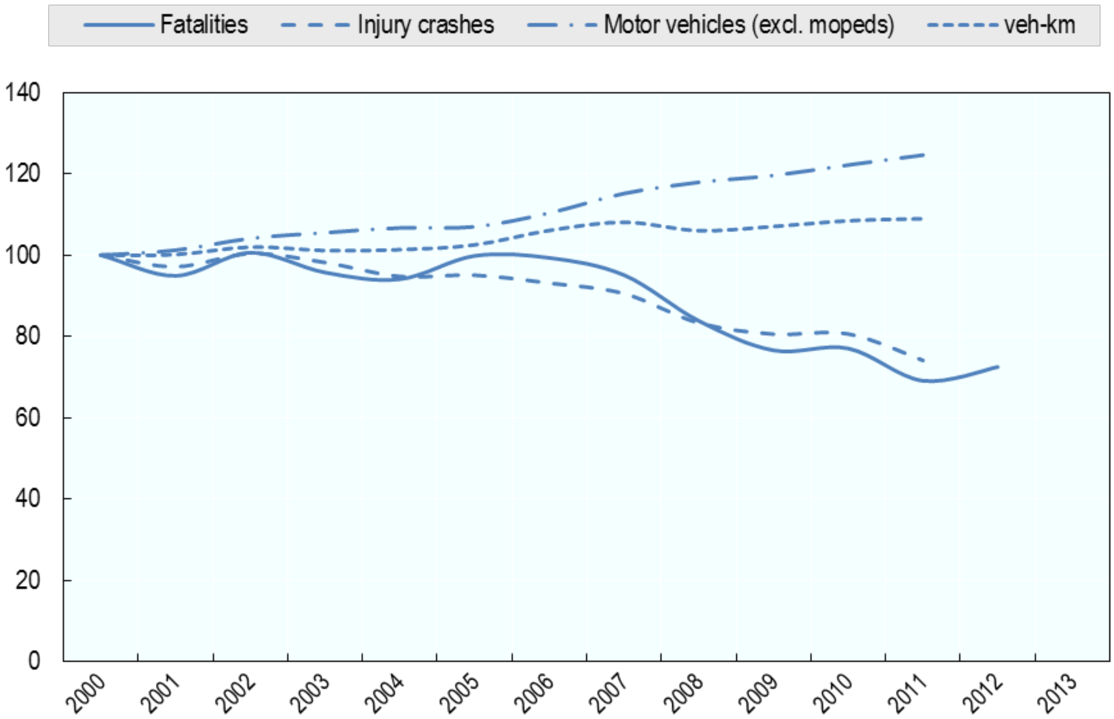
Between 1990 and 2011, the mortality (deaths/100 000 population) decreased by almost 60%, while the number of vehicles per 1 000 population has increased by 6%.

Table 1. **Road safety and traffic data**

					2011 % change over		
	1990	**2000**	**2010**	**2011**	***2010***	***2000***	***1990***
Reported safety data							
Fatalities	3 963	2 903	2 237	2 006	-10.3%	-30.9%	-49.4%
Injury crashes	181 960	155 847	125 648	115 503	-8.1%	-25.9%	-36.5%
Injured persons hospitalised	25 020	13 441	11 293	10 035	-11.1%	-25.3%	-59.9%
Deaths per 100,000 population	14.3	9.5	6.6	5.8	-11.2%	-38.3%	-59.2%
Deaths per 10,000 registered vehicles	2.3	1.6	1.0	0.9	-11.8%	-44.6%	-61.4%
Deaths per billion vehicle kilometres		9.3	6.6	5.9	-10.7%	-36.6%	
Traffic data							
Registered vehicles (thousands)	16 981	17 882	21 847	22 285	2.0%	24.6%	31.2%
Vehicle kilometres (millions)		311 334	337 687	339 170	0.4%	8.9%	
Registered vehicles per 1,000 population	613.2	582.7	642.5	648.9	1.0%	11.4%	5.8%

Source: IRTAD.

Figure 1. **Road safety and traffic data**
Index 100 = 2000



Source: IRTAD.

Road users

Motor vehicle occupants account for approximately 71% of road user fatalities in Canada each year, due to Canadians' significant usage of privately-owned motor vehicles for basic transportation.

While most vulnerable road user groups experienced a decline in fatalities in 2011, the number of pedestrians killed was modestly higher, at 316, which accounts for 16% of the total fatalities.

Table 2. **Road fatalities by road user group**

					2011 % change over		
Road users	1990	2000	2010	2011	*2010*	*2000*	*1990*
Bicyclists	106	40	61	51	-16.4%	27.5%	-51.9%
Mopeds	8	4	5	7	40.0%	75.0%	-12.5%
Motorcycles	252	166	187	162	-13.4%	-2.4%	-35.7%
Passenger car occupants	2 244	1 669	1 270	1 085	-14.6%	-35.0%	-51.6%
Pedestrians	584	372	305	316	3.6%	-15.1%	-45.9%
Others incl. unknown	769	652	409	385	-5.9%	-41.0%	-49.9%
Total	*3 963*	*2 903*	*2 237*	*2 006*	*-10.3%*	*-30.9%*	*-49.4%*

Source: IRTAD.

Age

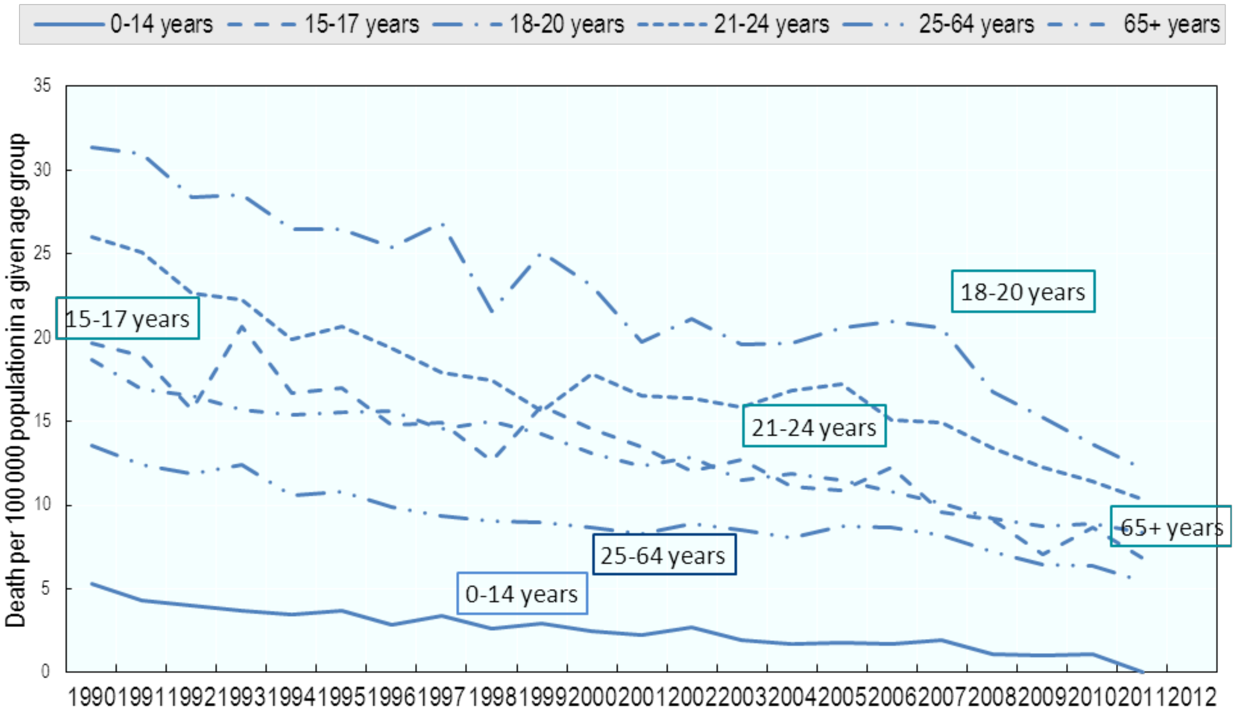
In 2011, young drivers and passengers (aged 15 to 24) continued to account for nearly one-quarter of motor vehicle fatalities, while older drivers and passengers (aged 65 and over) represented approximately 20% of fatalities.

Table 3. **Road fatalities by age group**

					2011 % change over		
Age	1990	2000	2010	2011	*2010*	*2000*	*1990*
0-5	101	38	20	21	5.0%	-44.7%	-79.2%
6-9	77	41	15	12	-20.0%	-70.7%	-84.4%
10-14	127	65	28	30	7.1%	-53.8%	-76.4%
15-17	223	183	114	90	-21.1%	-50.8%	-59.6%
18-20	382	293	192	171	-10.9%	-41.6%	-55.2%
21-24	444	294	211	194	-8.1%	-34.0%	-56.3%
25-64	2 003	1 460	1 219	1 050	-13.9%	-28.1%	-47.6%
>65	583	505	427	416	-2.6%	-17.6%	-28.6%
Total incl. Unknown	*3 963*	*2 903*	*2 237*	*2 006*	*-10.3%*	*-30.9%*	*-49.4%*

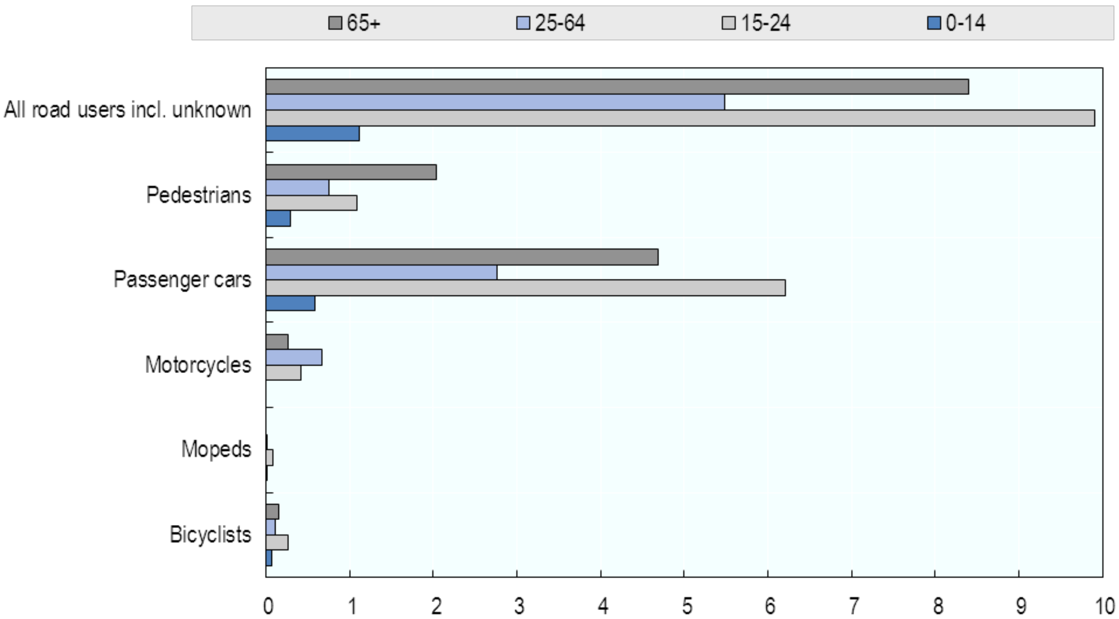
Source: IRTAD.

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



Source: IRTAD.

Figure 3. **Road death rate by age and road user group**
Fatalities per 100 000 population

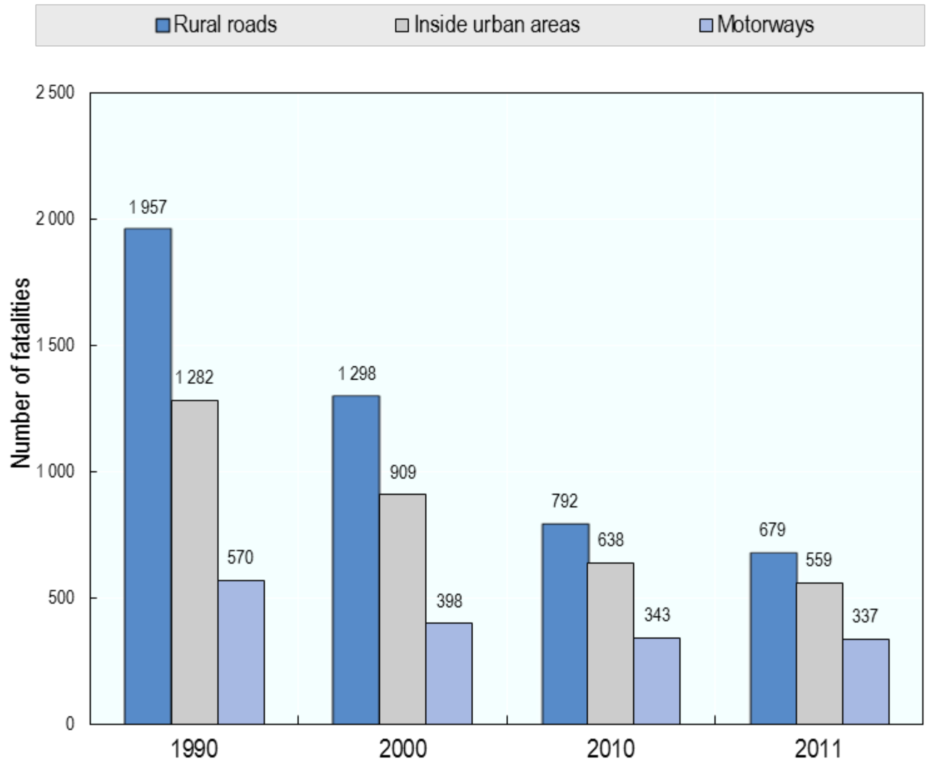


Source: IRTAD.

Road type

In 2011, rural road locations continued to account for a higher percentage of fatal collisions than urban areas, 57% versus 43 %, respectively.

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



Source: IRTAD.

4. 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 21.2 billion, i.e. 1.94% of GDP in 2011.

Table 4. **Costs of road crashes, 2011**

Costs (EU)	Unit Cost	Total
Fatalities	6 092 770 *	12.4 billion
Hospitalised people	169 874 **	2.6 billion
Slight injuries	8 232 ***	3.0 billion
Property / damage costs	6 185 †	3.2 billion
Total (EUR)	40 741 ††	21.2 billion
Total as % of GDP	0.00% ††	1.94%

Source: Transport Canada.

Notes: The exchange rate is the Average daily noon rates for 2011, Bank of Canada.
* Unit cost is the Value of Statistical Life (VSL)
** Per hospitalised person (weighted mean); Hospitalised people includes "major injuries", "total disability", and "partial disability".
*** Per slightly injured person (weighted mean); Slight injuries includes "minor injuries" and "minimal injuries".
† Total property damage divided by all reported collisions; Property damage only, excludes costs of: Hospital/Health care, Police, Courts, Fire, Ambulance, Tow trucks, Out of pocket and Traffic Delays.
†† Total Unit Cost is per collision.

5. Recent trends in road user behaviour

Impaired driving

Drink driving

In Canada, under the Criminal Code of Canada (which applies nationally) the maximum permissible blood alcohol concentration (BAC) when driving is 0.8 g/l. However, in most provinces and territories, there is an additional administrative maximum level. In most cases, the administrative level is 0.5 g/l (0.4 g/l in Saskatchewan and in Quebec the 0.5 g/l limit only applies to commercial vehicles). The penalties under these administrative programmes are significant, but do not match the seriousness of a full Criminal Code of Canada charge. Penalties in both situations increase for repeat offenders. In addition, most provincial/territorial jurisdictions have a zero BAC limit for young (under 21) and/or novice drivers.

The 2010 data (most recent available) 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.

Information on the presence of alcohol is collected on police collision report forms, but as the data are not always reliable, a surrogate is used for instances of deaths involving alcohol. The percentage of fatally injured drivers who were tested for alcohol is applied to all motor vehicle deaths to estimate the percentage of all deaths which were alcohol related. With respect to injury collisions, any police report which indicates alcohol or any collisions that fit a surrogate model are identified as alcohol related[1].

[1] *Source*: Mayhew, D.R., D.J. Beirness and H.M. Simpson (1997), Indicators of the Alcohol-Crash Problem, *Road Safety and Motor Vehicle Regulation,* Transport Canada, Ottawa, Ontario.

Drugs and driving

The Criminal Code of Canada sections that govern impaired driving would also include impairment by drugs (except 254b, the over 0.8 dg/l *per se* limit). The Criminal Code was updated in 2009 to detail a police investigation of suspected drug-impaired driving situations, based on behavioural indices of unsafe driving and following the procedures set out by the International Association of Chiefs of Police Drug Recognition Evaluator (DRE) programme. This programme is begun if there appear to be behavioural indices of impairment and no or little alcohol is found. The penalties are the same.

Canada began testing fatally injured drivers for drugs in 2000, similar to the method used for alcohol. The table below indicates the number and percentage of drivers who were tested and found positive or negative for drugs. Not all drivers are tested and the testing rate is typically lower than that of alcohol. It will be noted that the rate of psychotropic drugs found in fatally injured drivers is similar to that of alcohol.

Year	Drivers Tested for Presence of Drugs	Negative	Positive	% Neg	% Pos
2000	727	496	231	68.2%	31.8%
2001	798	527	271	66.0%	34.0%
2002	842	523	319	62.1%	37.9%
2003	835	575	260	68.9%	31.1%
2004	815	513	302	62.9%	37.1%
2005	970	601	369	62.0%	38.0%
2006	1 175	759	416	64.6%	35.4%
2007	1 197	749	448	62.6%	37.4%
2008	1 051	640	411	60.9%	39.1%
2009	999	623	276	62.4%	37.6%
2010	924	585	339	63.3%	36.7%

Source: Transport Canada.

Distraction

The use of cellular phones or other electronic devices is regulated by the provinces and territories.

An observational cell-phone survey was conducted at 286 urban sites during September 2012 and at 252 rural sites during September 2013. A total of 70 686 drivers of light-duty vehicles were observed while they were stopped at a traffic light or a stop sign at urban sites and 33 483 drivers were observed at rural sites at similar intersections, for a total of 104 170 drivers observed. The use of a hand-held Electronic Communications Device (ECD) was recorded, as was the type of usage (i.e. speaking, typing, both), driver age and gender, number of passengers in the vehicle and type of vehicle. The data were weighted by population and number of vehicles passing through each survey site to obtain estimates of ECD use and the type of use.

The results are presented nationally, by jurisdiction, and by various subgroups (i.e. age, sex, type of vehicle, number of passengers). Nationally, an estimated 4.4% (± 0.4) of the drivers used an ECD, varying by jurisdiction from 1.4 to 8.7%. ECD use was more frequent among young drivers (<25 years of age), drivers of light trucks, drivers without passengers, and somewhat more by female drivers. ECDs were used for talking by 2.3% of drivers and for typing by 1.6% of drivers. Nationally, the use of hand-held ECDs for talking was 58% lower in the 2012-2013 surveys than that observed in 2006-2007 surveys.

Fatigue

A model was created to assess fatigued driving in Canada and is posted on the www.ccmta.ca website. However, the model has not been updated in a number of years. No updated information is currently available.

The North American Fatigue Management Program (www.nafmp.com) for commercial carriers and drivers kicked off in Canada and the US.

Speed

The table below summarises the main speed limits in Canada.

Table 5. **Passenger car speed limits by road type, 2014**

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

Source: Transport Canada.

Motor vehicle crashes, where speeding was identified as a contributing factor in the collision, continued to be one of the more significant contributors (along with impaired and distracted driving) leading to motor vehicle fatalities. In 2011, it is estimated that approximately 1-in-5 fatal collisions involved speeding. It should be noted that over the last decade, there has been an approximate 20% decline in the number of fatalities resulting from speed-related crashes.

Seatbelts and helmets

Depending on the jurisdictions, seat-belt use was made compulsory between 1976 and 1988.

Seat-belt usage in Canada is very high (approximately 95%), however, there continues to be a significant number of motor-vehicle occupant fatalities associated with unbelted occupants at the time of the collision. In 2011, approximately 31.4% of occupants killed were unbelted at the time of the collision; a notable decrease from the 34.0% seen in 2010.

Table 6. **Percentage of driver and passenger fatalities and serious injuries where victims were not using seatbelts (2007-2011)**

	2007	2008	2009	2010	2011
Drivers					
Fatalities	35.3	34.9	33.6	34.0	31.4
Serious Injuries	16.0	15.6	14.5	12.9	12.9
Passengers					
Fatalities	39.1	38.3	36.3	40.4	34.1
Serious Injuries	24.8	21.6	23.3	20.5	20.9

Source: Transport Canada.

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

Source: IRTAD.

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

6. National road safety strategies and targets

Organisation of road safety

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 co-ordinate 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.

Road safety strategy for 2011-2015

Canada is now into its third national road safety plan, the Road Safety Strategy (RSS) 2015.

Target setting

The goal of the renewed programme is to achieve downward trends in fatalities and serious injuries throughout its five-year duration averaged over a three-year time frame.

Monitoring

In 2011, both the number of fatalities and serious injuries were significantly lower than the corresponding baseline figures (2006 to 2010). The fatality count in 2011 at 2 006 was 19.9% lower, while the serious injury count of 10 938 was 18.5% lower than the baseline period.

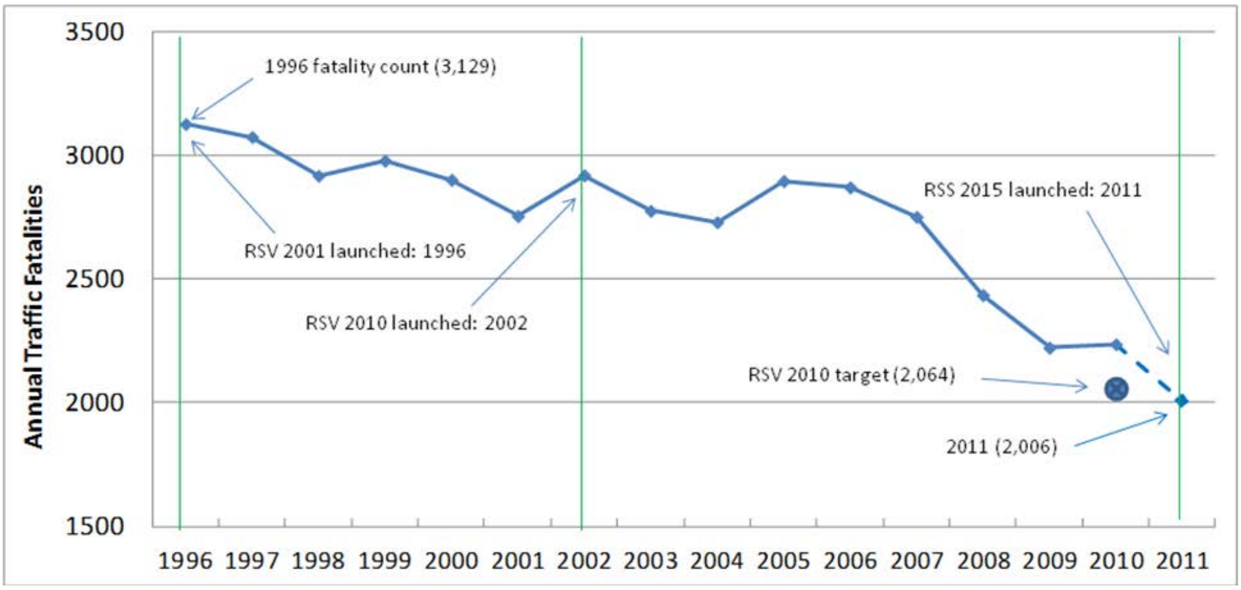
Examining the casualty data in 2011 against comparable data in the 2006 to 2010 baseline period, showed that the greatest reductions in fatalities occurred among victims of crashes who were unrestrained (-32.0%) and those who died in speed-related collisions (-28.1%). The least amount of progress in reducing fatalities was observed with crashes involving vulnerable road users (-11.6%) and collisions involving commercial vehicles (-12.1%).

The story was similar for serious injuries with the most notable progress in 2011 with respect to serious injury reductions being associated with crashes where occupants were unrestrained (-35.8%) and collisions that were speed-related (-27.5%).

Evaluation of past road safety strategy

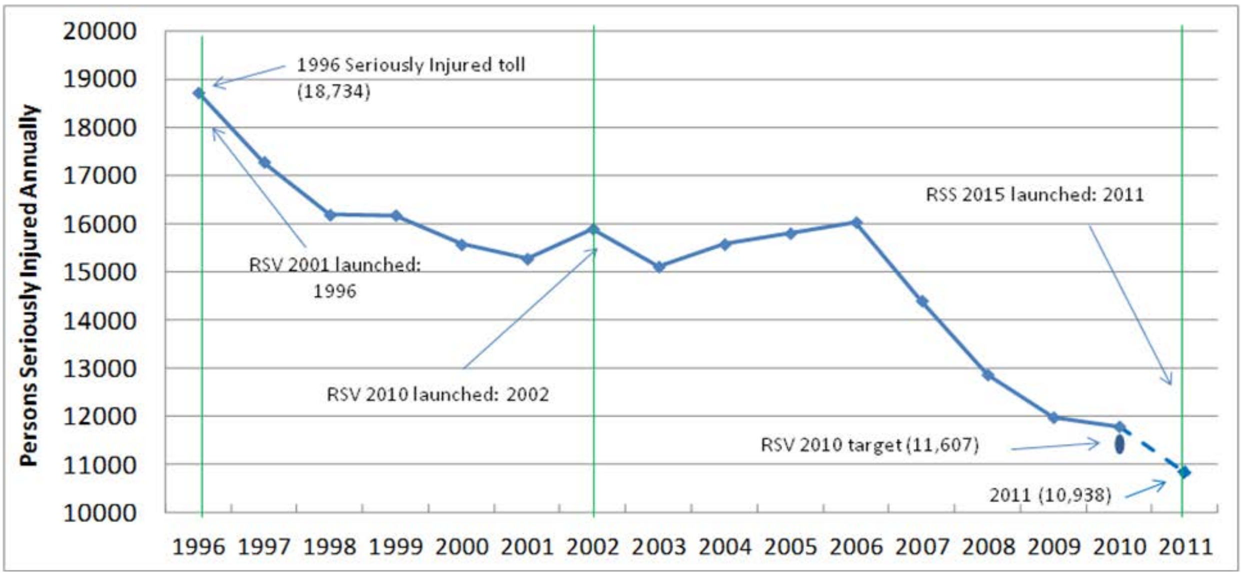
The Road Safety Vision (RSV) 2010 had an overall objective of achieving a 30% or greater decrease in the average number of road users killed or seriously injured in traffic collisions during the final three years of the initiative (2008-2010) when compared with average deaths and serious injuries that occurred during the timeframe of the inaugural national road safety plan (i.e. RSV 2001). Although the ultimate objective was not attained, substantial reductions in the number of serious casualties nevertheless occurred. Fatalities and serious injuries were 22.4% and 26.3% lower, respectively, during the 2008-2010 period than during the 1996-2001 baseline period. The average number of road users killed in crashes during the final three years of RSV 2010 was the lowest on record in sixty years. These improvements occurred as use of the road transportation network continually increased. Canada's population, licensed drivers and motor vehicles registered (3) all increased by double-digit figures between the two comparison periods: by 11.7%; 13.3%; and 21.1%, respectively, while vehicle-kilometres travelled increased by approximately 8%.

Figure 5a. **Improvement in the number of traffic fatalities over three National Road Safety Plans, Canada, 1996 to 2011 (Annual)**



Source: Transport Canada.

Figure 5b. **Improvement in the number of seriously injured victims of traffic collisions over three National Road Safety Plans, Canada, 1996 to 2011 (Annual)**



Source: Transport Canada.

7. Recent safety measures (2011-2013)

Road safety management

Speed management

- A number of provincial and territorial governments are working towards the development of road safety action plans in support of Road Safety Strategy 2015. These individual plans support regionally specific road safety issues and include impaired driving, speeding, high-risk drivers and accommodating cyclists and pedestrians as a part of the traffic flow.
- A number of municipalities are examining the issues related to a 30 kph speed limit in certain districts, as appropriate. These would include residential neighbourhoods and school zones. Jurisdictions continue to increase sanctions for street racing, or drivers convicted to exceeding the speed limit by a significant amount.

Impaired driving

- In the area of impaired driving a recent observational national survey of distracted driving has been completed. One jurisdiction is running a campaign called "Crotches Kill" related to testing and driving (www.saferoads.com/drivers/distracted_driving_campaign.html)
- Consideration is being given to administrative sanctions for drug-involved drivers who do not meet the legal definition of impaired, but who pose a safety risk. Some provincial jurisdictions have changed their traffic act laws to strengthen the administrative penalties for low BAC drivers and drivers who exceed the legal limit. A number of jurisdictions are promoting safe rides home during the Christmas season for drinking drivers through Operation Red Nose.

Education and awareness

- Road Crash Victim Canada held its sixth annual "National Day of Remembrance for Road Crash Victims" on 20 November 2013. In Canada, this commemoration generally occurs the Wednesday following the third Sunday of November. For the national event, there was a procession in Ottawa, followed by a ceremony. For 2014, 19 November is designated as the National Day of Remembrance for Road Crash Victims. A national event is being planned in Toronto to mark the event and regional events are also being encouraged.
- *Leave the Phone Alone: http://www.leavethephonealone.ca/pledge.php* This is a website where people can pledge to leave the phone alone while driving. They can see their pledge on the map. This site was launched in November 2010 as a precursor to the 2011 Year of Road Safety Organization and various jurisdictions have used the campaign to promote their distraction-free driving campaign; including installing signs on roadways and challenging other jurisdictions. There have been over 2 700 pledges. The Royal Canadian Mounted Police are planning to use the programme in the near future for their campaign.
- The North American Fatigue Management Program (www.nafmp.com) for commercial carriers and drivers kicked off in Canada and the US.

Other

- *The Canadian Council of Motor Transport Administrators has released a Strategy to Improve Pedestrian Safety. Report available at* http://ccmta.ca/en/

- Transport Canada continues to work with stakeholders that are seeking an exemption under the Motor Vehicle Transport Act. A copy of those exemptions currently in force can be found at: http://www.tc.gc.ca/eng/motorvehiclesafety/safevehicles-motorcarriers-exemptions-1248.htm
- The motor-vehicle standards and test requirements to allow built-in child seats to be designed for use by larger children.
- Work is underway looking at evaluating the safety and environmental performance of aerodynamic technologies for heavy-duty trucks (i.e. long combination vehicles, boat-tails, gap fairings); conducting safety and environmental testing on liquefied and natural gas technologies; and evaluating the performance of co-operative heavy-truck platooning through connected vehicle technologies, among others.
- Draft legislative changes to the Motor Vehicle Safety Act have been tabled in Parliament. If approved, these changes will facilitate more timely development and modification of regulations, enhance enforcement measures, provide better information for policy-making and facilitate importation in a manner *that still ensures the safety of vehicles on Canadian roadways.*

Infrastructure

- The Insurance Corporation of British Columbia operates a Municipal Road Safety Audit Program which completes approximately 15 audits per year. The corporation also operates a Road Improvement Proactive Funding for Collision Prevention programme for locations with a significant collision history.
- A roundabout guide book has been produced for BC municipalities. Also, a national speed management guide is in development.
- The Transportation Association of Canada has released six publications (publications available at http://tac-atc.ca/en/bookstore-and-resources/bookstore :
  - Updated Manual of Uniform Traffic Control Devices for Canada;
  - Pavement Asset Design and Management Guide;
  - Roadway Lighting Efficiency and Power Reduction Guide;
  - Best practices guide for the use of recycled materials in transportation infrastructure;
  - Synthesis of practices of geometric design for special roads;
  - Syntheses of Best Practices - Road Salt Management (2013).

8. Recent and on-going research

- A Canadian Naturalistic Driving Study is underway in Saskatoon. Shortly, commercial vehicles will be added via the Canadian Naturalistic Truck Study (http://canada-nds.net/index.html)
- The Canadian Council of Motor Transport Administrators has launched a new website at www.ccmta.ca
- Autonomous vehicles are an emerging issue.
- Roadside testing of drugs of interest is also an issue.

Useful websites and references

Transport Canada	http://www.tc.gc.ca/
Road Safety Vision 2010	http://ccmta.ca/en/members/standing-committees/rsrp-member-page/rsrp-member-page-committee-reports
Road Safety Strategy 2015	http://www.ccmta.ca/crss-2015/strategy.php
Transportation Association of Canada	http://www.tac-atc.ca/
National Collision Data Base On-Line Web application	http://www.tc.gc.ca/VehicleCollisions

Contact

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

Chile

Source: CONASET

Inhabitants	Vehicles/1 000 inhabitants	Road fatalities in 2012	Fatalities /100 000 inhabitants in 2012
17 402 630[1]	**223**	**1 980**	**11.4**

The National Road Safety Commission of Chile (CONASET) joined IRTAD in 2013.

The data included in this report have not yet been validated by IRTAD.

1. Road safety data collection

Definition

In police records, a road fatality is defined as a traffic casualty dying from injury within 24 hours of the crash. To conform to international definitions of a death within 30 days, CONASET applies a correction factor of 1.3. Fatality data in this report correspond to the corrected data after application of the correction factor.

Data collection

Following the occurrence of a fatal or injury traffic crash, the police attending the site of the accident fill in a "Data Collection Form of Road Traffic Accidents" (SIEC 2). This form is used throughout the country for crash data collection. The details contained in this form is later entered and stored in a database available to the police.

In cases of crashes involving deaths or serious injuries, the accident report is sent by the police to the respective judges.

The official vital statistics are generated through the National Vital Statistics Agreement (CNEV, whose members are the National Statistics Institute, the Ministry of Health, and the Civil Registry and Identification Service). The cause of death is coded by the Ministry of Health using the International Statistical Classification of Diseases and Related Health Problems (ICD-10). Due to the complexity involved in collecting and validating data on deaths, the most recent information from the health database is from 2011.

1. Source: National Statistical Institute (www.ine.cl)
http://palma.ine.cl/demografia/menu/EstadisticasDemograficas/proyecciones.aspx

2. Most recent safety data

Road crashes in 2012

In 2012, there were 1 980 road deaths in Chile, a 3.2 % decrease compared to 2011. The number of injury crashes decreased by 1.6%. However, this decrease did not benefit all road users. The number of motorcyclists killed increased by more than 50%, while the mortality rate decreased for all other road user groups.

Improving the safety of motorcyclists is one of the main priorities in Chile. Indeed, the government is working on the first Chilean national motorcycle plan that will be released by the end of 2014.

Road fatality data for 2013

Official data for 2013 show a 7% increase in fatalities, with 1 623 fatalities within 24 hours, corresponding to 2 110 fatalities within 30 days after application of the correction factor of 1.3.

3. Trends in traffic and road safety (2000- 2012)

Traffic

Between 2000 and 2012, the number of motorised vehicles increased by 87%, with the number of motorcycles multiplied by nearly five.

Traffic volume also increased significantly. A positive GDP trend and a steady low unemployment rate have had clear influences in traffic. People are not travelling only by obligation, but also for pleasure. In the last 5 years the number of people travelling for holiday purposes has increased by 100%.

There is a strong vehicle concentration in the main cities. As a consequence, increasing congestion problems are affecting the traffic, especially during rush hours.

Table 1. **Growth rate of motor vehicles**

	2000	2010	2011	2012	% 2011-2012	% 2000-2012
Total vehicles	2 128 855	3 375 523	3 654 727	3 973 913	8.7%	86.7%
Motorcycles and similar	27 284	102 314	112 806	133 640	18.5%	389.8%

Source: CONASET

Change in the number of fatalities and injury crashes (2000-2012)

Chile is an upper middle-income country, with a solid record of economic growth during the last two and a half decades. Between 2000 and 2012, the number of fatalities has been fluctuating between 2 207 and 1 980 deaths, with no clear trends. Chile observed a peak in the number of road deaths in 2008 with 2 317 fatalities.

Rates

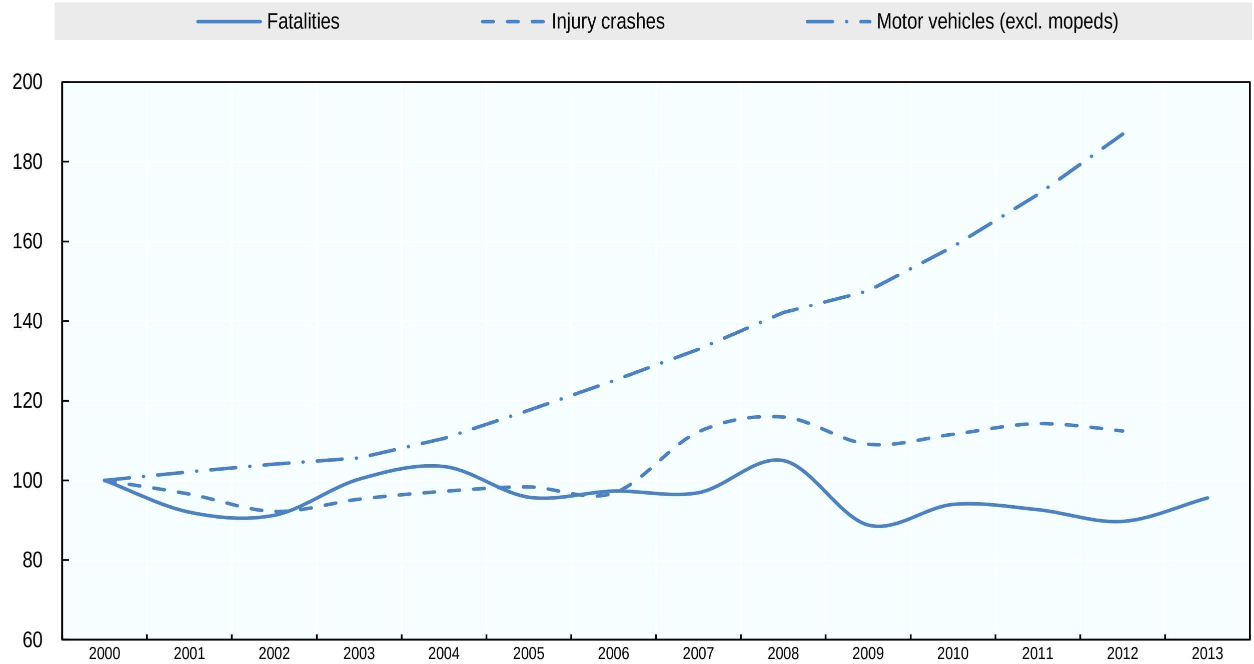
Since 1990, the death rate per 100 000 population has decreased by 27%, while the number of vehicles per 1 000 population has increased by 74%. The huge difference in the evolution of both rates is explained by the explosion in the number of registered vehicles.

Table 2. **Road safety and traffic data**

	1990	2000	2010	2011	2012	2012 % change over 2011	2000	1990
Reported safety data								
Fatalities	2 063	2 207	2 074	2 045	1 980	-3.2%	-10.3%	-4.0%
Injury crashes		30 772	34 335	35 162	34 593	-1.6%	12.4%	
Deaths per 100 000 population	15.7	14.3	12.1	11.9	11.4	-4.2%	-20.3%	-27.4%
Deaths per 10 000 registered vehicles	19.2	10.4	6.1	5.6	5.0	-10.7%	-51.9%	-74.0%
Traffic data								
Registered vehicles (thousands)		30 772	34 335	35 162	34 593	-1.6%	12.4%	
Registered vehicles per 1 000 population		135.0	193.0	207.0	223.3	7.8%	65.4%	

Source: CONASET

Figure 1. **Road safety and traffic data**



Source: CONASET

Road users

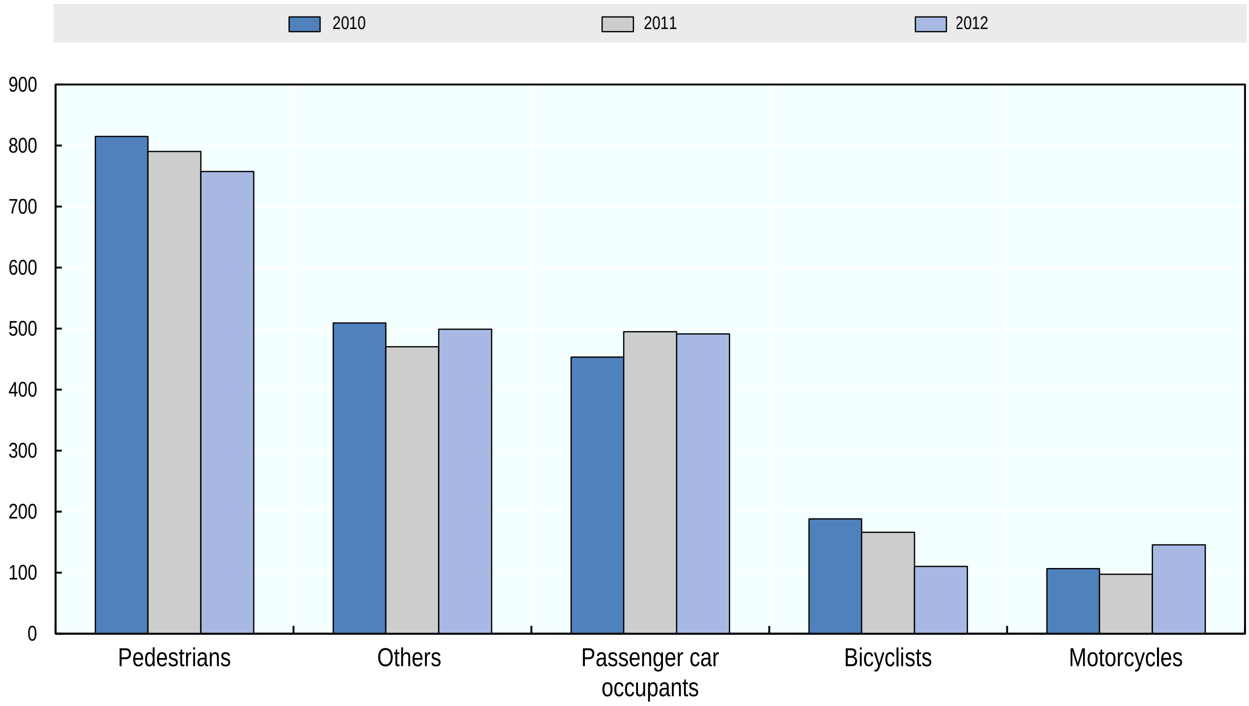
In 2012, pedestrians were the user group most affected by road fatalities (representing 38% of total road deaths) followed by car occupants (25%).

Evolution in road safety in the past two years has been unevenly shared among the different road users. As in many other Latin American countries, safety of motorcyclists is a growing concern. In 2012, the number of motorcyclists killed increased in Chile by more than 50%. The explosion of the motorised two-wheelers fleet is one of the factors which explain this trend (increase by over 80% in the last 10 years).

Table 3. **Road fatalities by road user group**

				2012 % change from	
	2010	2011	2012	*2011*	*2010*
Bicyclists	189	166	111	-33.1%	-41.3%
Motorcycles	111	98	156	59.2%	40.5%
Passenger car occupants	454	491	495	0.8%	9.0%
Pedestrians	815	790	758	-4.1%	-7.0%
Others incl. unknown	506	499	471	-5.6%	-6.9%
Total	*2 074*	*2 045*	*1 980*	*-3.2%*	-4.5%

Source: CONASET



Source: CONASET

Age

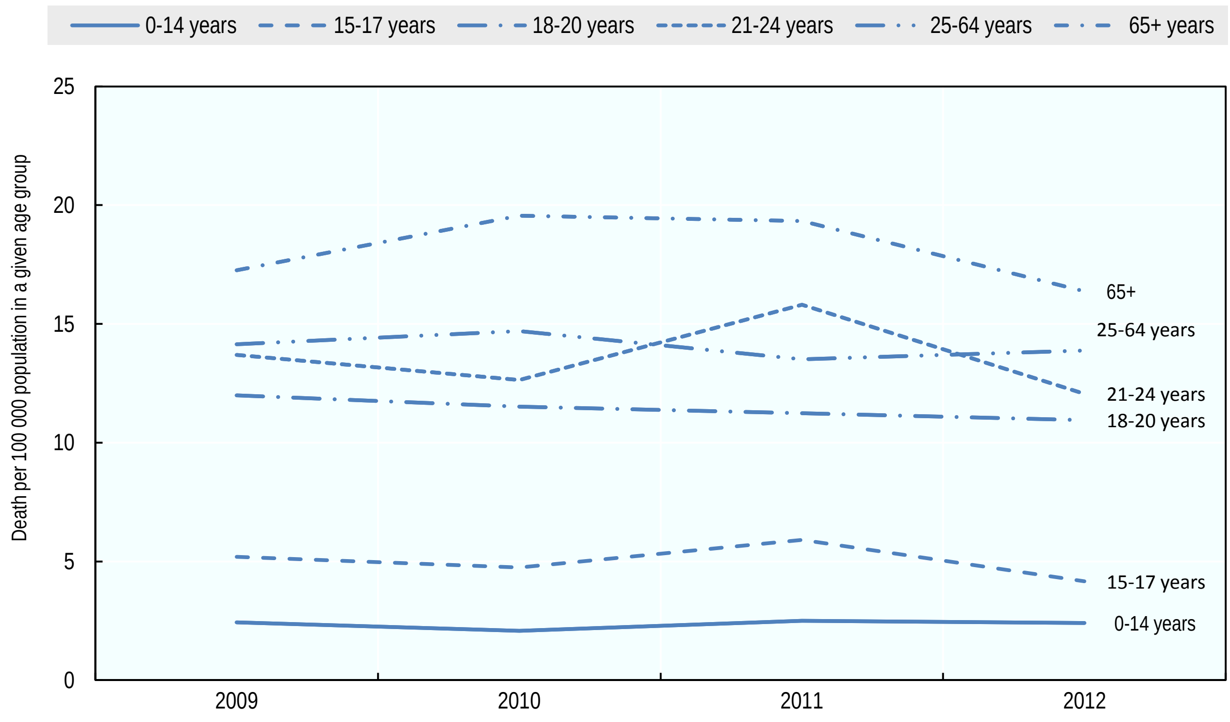
In Chile, the group the most at risk are the seniors, with a mortality rate of 16.4 deaths per 100 000 population. They are particularly vulnerable as pedestrians.

Table 4. **Road fatalities by age group**

				2012 % change from...	
Age	2010	2011	2012	*2011*	*2010*
0-5	56	57	59	3.5%	5.4%
6-9	18	26	18	-30.8%	0.0%
10-14	29	40	42	5.0%	44.8%
15-17	42	51	35	-31.4%	-16.7%
18-20	104	100	96	-4.0%	-7.7%
21-24	147	185	142	-23.2%	-3.4%
25-64	1 292	1 206	1 257	4.2%	-2.7%
>65	302	309	272	-12.0%	-9.9%
Total incl. unknown	*2 074*	*2 045*	*1 980*	*-3.2%*	-4.5%

Source: CONASET

Figure 2. **Road death rates by age group**
Fatalities per 100 000 population in a given age group, 2009-2012

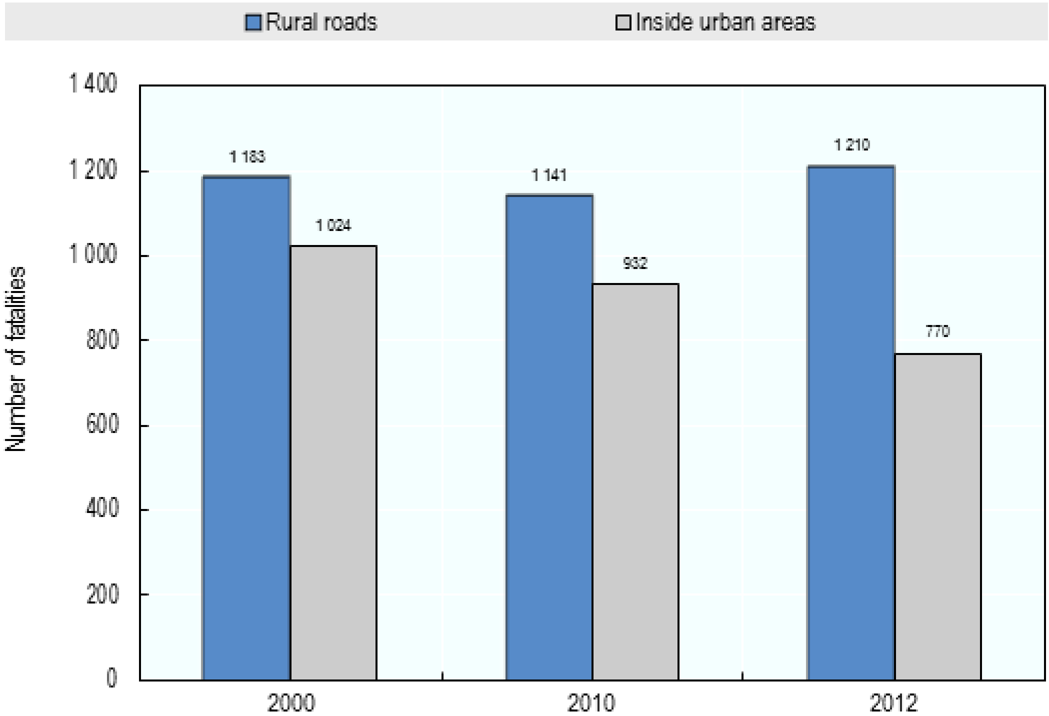


Source: CONASET

Road Type

In 2012, 61% of road fatalities occurred on rural roads. Since 2000, progress has been achieved in urban areas, while the number of fatalities increased on the rural network.

Figure 3. **Reported fatalities by road type 2010 and 2012**



Source: CONASET

4. Economic costs of traffic crashes

In Chile, the methodology to assess the economic cost of road crashes is based on the Human Capital (HC) approach. This approach assesses the consequences of the crashes (number of deaths and injuries), based on the loss of productivity resulting from a statistical death but does not include property damage and other costs.

Based on this methodology, road crashes cost USD 404 Million in 2013.

However the real costs of road crashes for Chilean society are actually much higher. First, the police data underestimated the true extent of casualties. Second, the Mandatory Vehicle Insurance (SOAP) covers health expenses up to a certain amount; beyond this amount, the expenses must be covered by the victims. In addition, this calculation does not consider property damage and other costs, including costs of police, fire and courts, administrative costs and legal paperwork.

Table 5. **Costs of road crashes**
Estimation based on capital approach

	Lost Productivity Costs USD	Costs Health Spending USD	TOTAL USD
2012	378 million	33 million	411[1]
2013	379 million	26 million	404[2]

[1]Tasa Rates at December 31, 2012: USD = 478.6.
[2]Tasa Rates at December 31, 2013: USD = 523.76. Both values are reported by the Central Bank of Chile.

Source: CONASET

5. Recent trends in road user behaviour

Impaired driving

Drink driving

The maximum permissible blood alcohol content is 0.3 g/l for all drivers.

The law defines

- driving under the "influence of alcohol" when driving with a BAC between 0.3 and 0.8 g/l.
- driving while intoxicated, when driving with a BAC of 0.8 g/l or higher, which entails much tougher sanctions.

A crash is defined as an alcohol-related traffic crash when either a driver, or another road user involved in the crash, has a measurable or estimated BAC of 0.3 g/l or above. This statistic includes any and all vehicular (including bicycle and motorcycle) accidents in which any alcohol has been consumed, or believed to have been consumed, by the driver, a passenger or a pedestrian associated with the accident.

In 2012, it is estimated that 14.2% of fatalities involved a driver impaired by alcohol.

Table 6. **Fatal crash due to drink driving**

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Deaths due to alcohol related crashes	381	376	366	355	344	378	313	293	272	216
Total deaths	1 703	1 757	1 626	1 652	1 645	1 782	1 508	1 595	1 573	1 523
% of deaths due to alcohol related crashes	22.4%	21.4%	22.5%	21.5%	20.9%	21.2%	20.8%	18.4%	17.3%	14.2%

Source: CONASET

Drugs and driving

Currently there is no proper drug test process after a crash occurred. Therefore the estimation of drug related crashes is currently largely underestimated.

Speed

The table below summarises the main speed limits in Chile.

Table 7. **Passenger car speed limits by road type, 2014**

Urban roads	60 km/h
Rural roads	100 km/h
Motorways	120 km/h

Source: CONASET

The maximum speed limit on rural roads is 100 km/h if there is one lane in each direction. If there are two or more lanes in each direction, the maximum speed limit is 120 km/h.

There is little information on the share of crashes due to excessive or inappropriate speed. Moreover, data available underestimates the speed influence in the most serious crashes. Work is underway to get more accurate information. Meanwhile, it is roughly estimated that speeding is responsible in around 40% of fatal crashes.

Seatbelts and helmets

Seatbelt use has been compulsory for front seats since 1985 and rear seats since 2006. The wearing rate is over 80% for drivers, around 70% for front seat passengers and around 10% for rear seat passengers.

All riders of motorised two-wheelers are required to wear helmets. The helmet wearing rate by riders of motorised two-wheelers is high at 99%.

6. National road safety strategies and targets

Organisation of road safety

Lead agency.

The National Traffic Safety Commission (CONASET) is an interministerial body created as a presidential advisory Commission through Supreme Decree 223, of 27 December 1993.

CONASET has a Board of ten Ministers (Ministry of the Interior Affairs, Ministry of the General Secretariat of the Presidency, Ministry of the General Secretariat of Government, Ministry of Education, Ministry of Justice, Ministry of Public Works, Ministry of Health, Ministry of Housing and Urban Development, Ministry of Labour, Ministry of Transportation and the National Police Director, which is led by the Minister of Transportation).CONASET's Executive Director is in charge of the national road safety strategy, which is agreed by the board.

In 1993, CONASET began working on a framework policy declaration, which has been the general guide in the last 20 years.

Road safety policy

The Government of President Piñera launched an ambitious development agenda which sets the basis for the country's ultimate goal of achieving high-income developed status by 2018. Chile is a leading country in the Latin American region, but lags behind OECD standards regarding the Human Opportunity Index (HOI). In this context, it is important to achieve a greater competitiveness and to improve the quality and the road safety of the people.

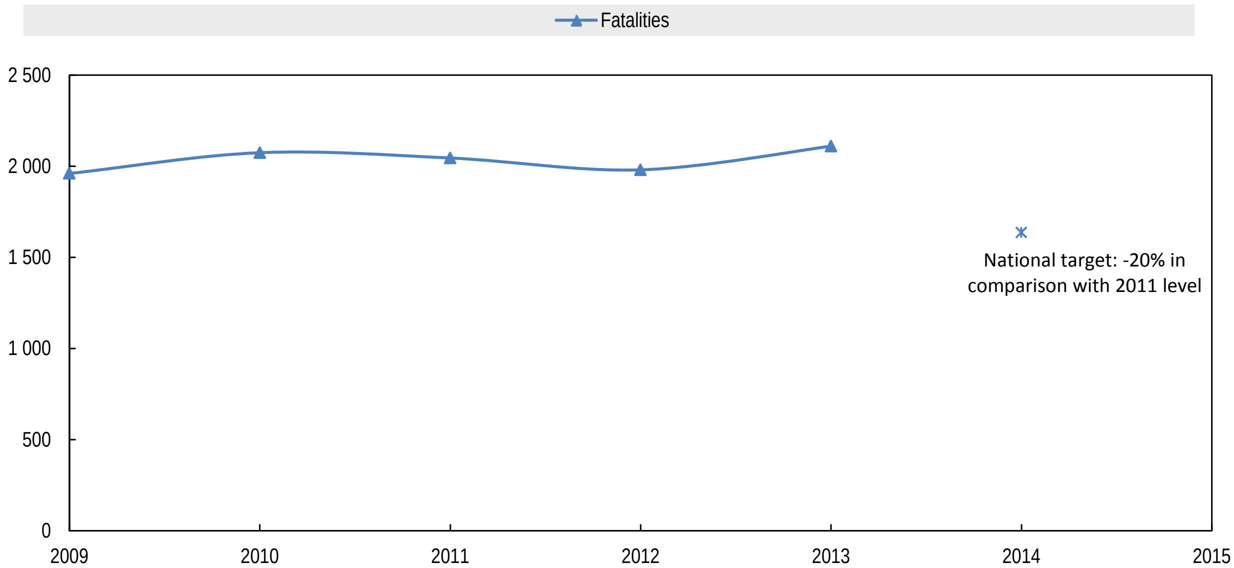
Road safety strategy for 2011-2020

The first formal national road safety plan of action was delivered in 2011, and CONASET is currently working on the national road safety strategy for 2015-2020.

Target setting and monitoring

In 2011, Chile set its first road safety target — to decrease by 20% the numbers of road deaths by 2014. To achieve this target, Chile needs to reduce road fatalities by 20% in 2014.

Figure 4. **Trends towards national target**



Source: CONASET

7. Recent safety measures (2011-2013)

Road safety management

Driving licence

- In the past, the obtention of a driving licence only required to pass a written theory test. The test used to be extremely easy as the list of the 200 questions was public. Thus, most candidates just memorised questions and answers, but learned almost nothing about traffic regulation and road safety. The fail rate was only 2%. In the last two years driving licence tests have changed and currently the fail rate is about 45%.
- A new driving practical and theory test, designed by CONASET, is being implemented in 2014. The main focus of both exams is safety. To succeed, the candidates have to demonstrate their ability to drive safely.
- The theoretical test will be passed on a computer. The content of the test will focus on the risks of drink-driving and speeding, the use of protection devices (seatbelt, child restraint, and helmets). It consists of 35 questions (from a pool of 800 questions).

- The practical exam requires mastering at least 28 manoeuvres out of 33.
- CONASET also developed a book ("Libro del Nuevo conductor") to help candidates study for their tests. *More about:* http://www.conaset.cl/conductores-no-profesionales-licencias-b-y-c.html
- Professional drivers will have to pass an additional theoretical test.

New driving license document

- To avoid an expected increase in fraud (due to the increased difficulty to obtain the licence, as well as tougher enforcement leading to possible loss of the licence), a more secure driving licencing document will be issued. This new document will be made of polycarbonate and contain a chip with the photograph of the driver.

Driver behaviour

Impaired driving

- In 2012, the government of Chile introduced a new law to support the "Zero Tolerance" policy for drink driving. It sets the maximum permissible blood alcohol content at 0.3 g/l. This new law was accompanied by a number of measures, including :
  - More severe penalties for drinking and driving and strict enforcement.
  - Regular communication and awareness campaigns.
  - Inclusion of the risks of alcohol and drug(s) on driving in the new theory test.
  - Road safety education in schools: "drinking and driving and its risks" is one of the most important contents.

Figure 5. **Sanctions for drinking and driving**

Source: CONASET

The results so far are promising and show that the number of fatalities caused by drunk drivers has decreased by 28% within two years. Indeed, this number is the lowest in the last 12 years in Chile.

Speed management

- Until now, speed enforcement has been carried out only by the Chilean police (Carabineros de Chile) and inspectors of the Ministry of Public Works on the road side. Given the limited resources and the very widespread road network, the chances of being controlled for speeding were very low. Taking into account the successful experiences of other countries, the government of Chile decided to set up a plan for the progressive implementation of automatic speed enforcement throughout the country.

Road safety campaigns

- CONASET is continuously developing Road Safety awareness campaigns. In some cases, these are being conducted in co-operation with private companies. One of the most important campaigns in the last few years was a mass media campaign in 2012, against drinking and driving, when the new Alcohol Law became effective in Chile.
- Selection of campaigns conducted in 2013:
    - August – September 2013: “Zero Tolerance for speeding”: the campaign against speeding involved the participation of Formula 1 Driver Michael Schumacher and focused on the danger and consequences of driving above the speed limits.
    - October 2013: “Belt up – save your life”: this annual campaign aims at increasing the seat belt use for drivers and passengers, especially in the back seats.
    - November 2013: “New practical test”: this campaign was created in order to provide information about the new requirements and test to obtain a driving license;

More about the campaigns from CONASET http://www.conaset.cl/campanas-videos.html

Road safety education

- Even though, since 1984, Chilean law states that road safety education must be included in the schools programme, the reality is that most teachers do not teach road safety in their classes. Enhancing road safety education in schools is a priority matter, as road crashes are the leading cause of death of children up to 14 years.

  During the last two years, CONASET and the Ministry of Education have incorporated road safety activities in the basic education programmes. Nevertheless students are, in most cases, not learning road safety at all. Teachers do not manage road safety concepts, so the implementation of the new road safety education programme has not been effective. This is actually the main challenge that road safety professionals are currently facing.

Vehicles

- Compulsory use of seatbelts in interurban buses (2012).
- New safety devices for interurban buses, such us: ABS, Electronic Stability Program, rear fog light, back-up alarm (2013).
- Mandatory safety device for new cars: audible alarm for non-use of seatbelts (2013)

Infrastructure

- New Traffic Signal Manual (2012)
- New Road humps (2013)

8. Recent and on-going research

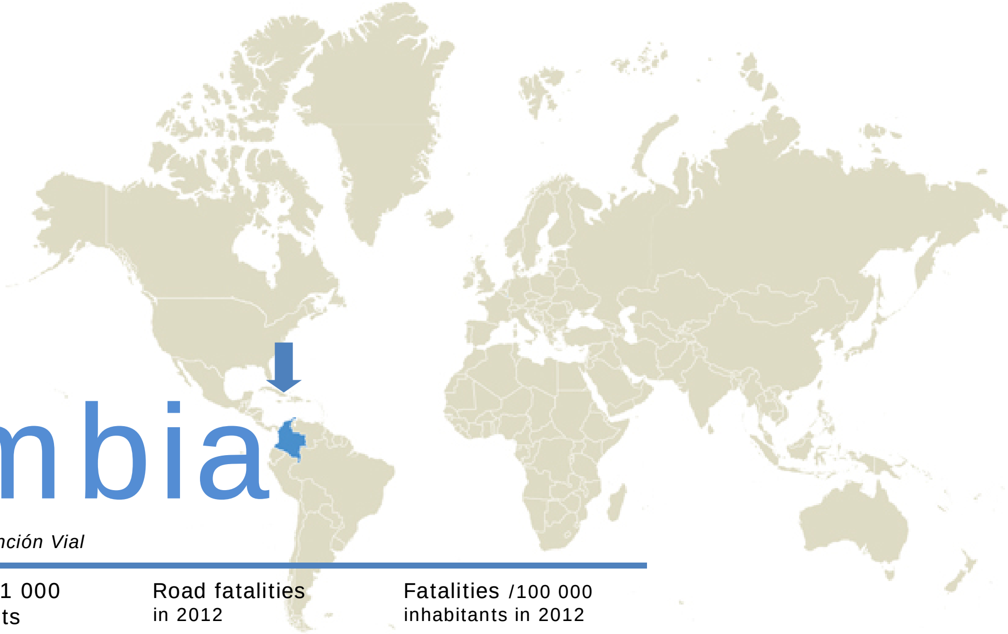
http://www.conaset.cl/estudios.html

Useful websites and references

National Road Safety Commission - CONASET	http://www.conaset.cl

Contact

For more information, please contact: dmimica@mtt.gob.cl



Colombia

Source: Corporación Fondo de Prevención Vial

Inhabitants	Vehicles/1 000 inhabitants	Road fatalities in 2012	Fatalities /100 000 inhabitants in 2012
46.6 million	**197**	**5 922**	**12.7**

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 validated by the IRTAD Group.

1. Road safety data collection

Definitions

- Road fatality: Any person killed immediately or dying within 30 days as a result of a road injury accident.
- Serious injuries: There is no standard definition of serious road traffic injury in Colombia. Hospitals provide information about the severity of injuries, but no standard classification has been adopted for the country. In addition, injury data reported in Colombia comes from different sources. The Instituto Nacional de Medicina Legal y Ciencias Forenses (National Institute of Legal Medicine and Forensic Sciences, NILMFS), for example, reports the victims that filed a complaint for a non-fatal injury. The traffic authorities, on the other hand, are supposed to report any person injured involved in a road accident, regardless of their severity.
- Slight injuries: No standard definition of slight road traffic injury has been adopted in Colombia.

Data collection and analysis

The primary source of road fatalities data is the NILMFS, which releases a report each April 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 to CFPV 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.

Crash 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; seat-belt 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. The quality of this source of data, from a transcription perspective, was audited by CFPV in 2013, and only a low percentage of errors were found in a few variables of the group analysed.

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 recognised. 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 recognised 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 no standard classification has been adopted for the country.

2. Most recent safety data

Road crashes 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 these 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.

In 2012, 63% of road fatalities took place in cities and 37% occurred on interstate or national highways. Nonetheless, the most lethal events in 2012 took place in interstate or national highways; 81 deaths resulted from only 10 crashes. Additionally, 50% of road fatalities occurred in 42 municipalities which have the highest road fatality rates among the 1 135 municipalities in the country. Analysis of road fatalities among age groups reveals that people over 60 years old are the most affected, followed by 19-29 year olds.

Public urban transportation continues to be the safest mode. While in cities 7 out of every 10 trips are made in public urban transportation, only 2.2% of fatal urban road victims were riding public buses. In contrast, motorcycles and pedestrians faced the greatest risks; 42.3% of people who died as a result of road accidents in 2012 were motorcyclists, 28.4% were pedestrians and 41% of the latter were hit by motorcycles.

Sundays turned out to be the most lethal days in 2012; one in every four road fatalities took place on a Sunday. Furthermore, the days with the highest mortality records in 2012 were special dates, such as Christmas, New Year's Day, Father's Day and Mother's Day.

Provisional data for 2013

Provisional data for 2013 shows 6 013 road fatalities, 91 more that those recorded in 2012, i.e. a 1.5% increase. Despite this, the rate of deaths per 10 000 vehicles kept falling to 5.9, due to an annual increase of 13.1% in the number of registered vehicles during 2013. However, the rate of deaths per 100 000 populations increased for the second consecutive year since 1995, without counting 2009, reaching 12.8.

As in previous years, deaths by road crashes were primarily concentrated on urban areas (64.8% of total), in 42 cities (50% of total), during the weekends (52% of total), specially Sunday (22%), and among male population (81%).

The situation worsened in particular for motorcyclists and cyclists, with a respective increase of 110 deaths (4.4%) and 12 deaths (4.2%) when compared to 2012.

3. Trends in traffic and road safety (1990-2013)

Traffic

Between 1995 and 2013, the vehicle fleet in Colombia has increased fourfold, from 2.3 million in 1995 to 10.1 million in 2013, mainly due to the enormous growth of the motorcycle fleet that increased more than twelvefold in the same period, from 452 thousand to 5.4 million.

This enormous penetration of the motorcycle in the Colombian market has been changing the structure of the vehicle fleet, especially since 2005. In 1995, 19% of the fleet was motorcycles and 36% private cars. By 2005, these percentages were 29% and 33% respectively, and 46% and 26% in 2010. In 2013, 53% of the vehicle fleet were motorcycles and 26% private cars.

The rise of the motorcycle in Colombia has been linked to macroeconomic and social factors, but also to the short supply of quality public transport in many cities.

Change in the number of fatalities and injury crashes (1990-2013)

Between 1995 and 2013, the number of fatalities decreased by 23.6%, from 7 874 in 1995 to 6 013 in 2013, according to NILMFS figures.

Between ***1995 and 2004*** the number of deaths decreased by 30.4%, and the rate of deaths per 10 000 vehicles was practically more than halved (33.9 in 1995 to 14.9 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, that produced a slowdown in the growth of the number of cars, which decreased from an average annual growth of 9% in 1990-1998 to 4.6% in 1999-2004.

Starting in 2005, renewed economic growth spurred demand for automobiles, and registered vehicles increased by 152% between 2005 and 2013 (average annual rate of 12%). This substantial increase in risk exposure was addressed by the national government through additional measures to prevent road crashes, such as issuing a technical standard on helmets and the implementation of mass transport systems in the main cities of the country. The results in terms of the long-term reduction in road accidents are noteworthy – the death rate per 10 000 vehicles was more than halved, from 14.9 in 2004 to 5.9 in 2013 – though much remains to be done.

Rates

Since 1995, the death rate per 10 000 vehicles dropped from 33.9 in 1995 to 6.5 in 2012, and to 5.9 in 2013. In terms of mortality per population, Colombia had a fatality rate of 12.7 fatalities per 100 000 population in 2012, that rose to 12.8 in 2013.

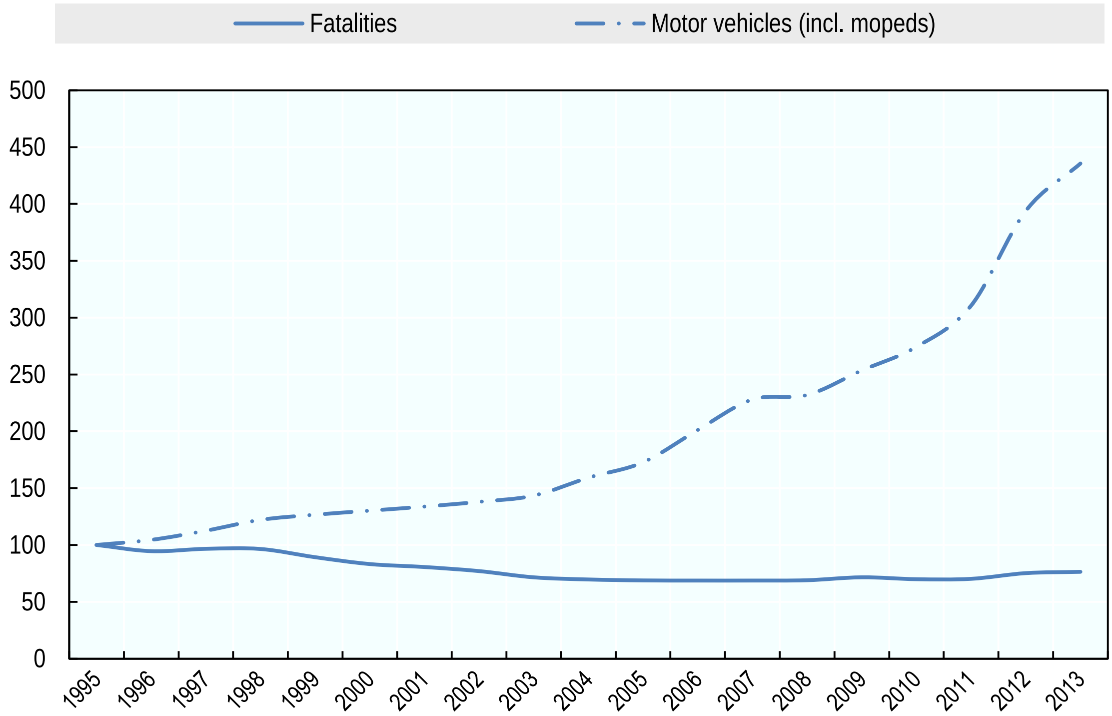
Table 1. **Road safety and traffic data**

						2012 % change from		
	1995	**2000**	**2010**	**2011**	**2012**	***2011***	***2000***	***1995***
Reported safety data								
Fatalities	7 874	6 551	5 502	5 528	5 922	7.1%	-9.6%	-24.8%
Injury crashes			74 033	75 091	62 932	-16.2%		
Deaths per 100 000 population	21.0	16.3	12.1	12.0	12.7	5.9%	-21.8%	-39.5%
Deaths per 10 000 registered vehicles	33.9	21.6	8.6	7.7	6.5	-15.5%	-70.1%	-80.9%
Traffic data								
Registered vehicles[1] (thousands)	2 325	3 026	6 377	7 220	9 157	26.8%	202.6%	293.8%
Registered vehicles per 1 000 population)	62.1	75.1	140.1	156.8	196.6	25.4%	161.7%	216.8%

Source: CFPV, Ministry of Transport for vehicle data (Anuario Transporte en Cifras - Estadísticas 2012), DANE for population.

1. Registered vehicles including mopeds.

Figure 1. **Road safety and traffic data**
Index 100 =1995



Source: CFPV, Ministry of transport for vehicle data (Anuario Transporte en Cifras - Estadísticas 2012)

Road users

The most vulnerable road users have increased their participation in road accident mortality in the last six years from 81% to 85% in 2012 and 86% in 2013, excluding unclassified users. While the mortality among motorcyclists has worsened and the pedestrian has remained virtually unchanged, the situation improved for cyclists.

The safety of motorised two-wheelers is a growing concern in Colombia. In 2007, they represented 32.6% of all fatalities, and the situation is deteriorating every year, reaching 43.5% in 2013. Between 2007 and 2013 the number of motorcyclists killed increased by 48%. Pedestrians safety is also a high priority. In 2013, they accounted for 28% of all fatalities, a lower percentage than the 30.9% observed in 2007.

Table 2. **Road fatalities by road user group**

				2012 % change from	
	2010	2011	2012	*2011*	*2010*
Bicyclists	318	336	288	-14.3%	-9.4%
Motorised two wheelers	2 151	2 345	2 508	7.0%	16.6%
Passenger car occupants	504	406	432	6.4%	-14.3%
Pedestrians	1 692	1 581	1 683	6.5%	-0.5%
Others incl. unknown	837	880	1 011	14.9%	20.8%
Total	*5 502*	*5 528*	*5 922*	*7.1%*	7.6%

Source: IRTAD LAC

Age

In the last eight years, a good improvement was observed for the 0-14 years old, decreasing from 369 road fatalities in 2005 to 297 in 2012 and 285 in 2013. For all the other age groups, the number of fatalities increased during that period.

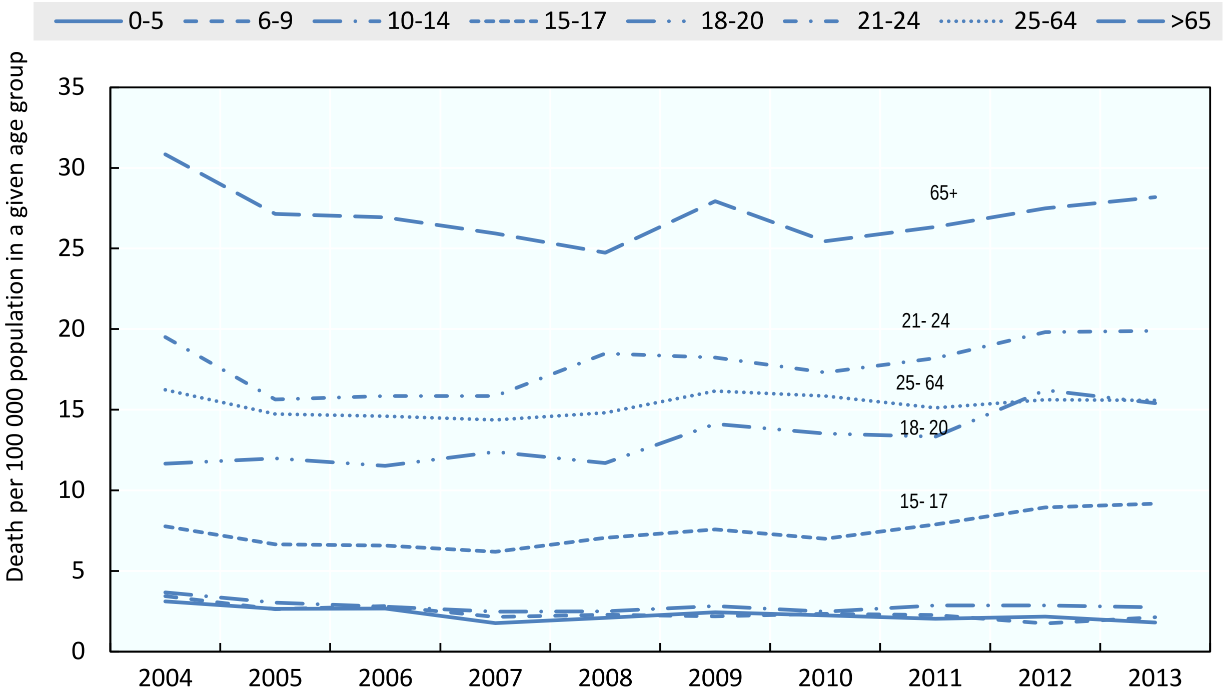
The 65 and above age group has a highest death rate (27.5 fatalities / 100 000 population in 2012 and 28.2 in 2013) more than twice of high as those of the general population (12.7 and 12.8 respectively). The 21 to 24 age group has the second highest rate (19.8 in 2012 and 19.9 in 2013).

Table 3. **Road fatalities by age group**

				2012 % change from...	
Age	2010	2011	2012	*2011*	*2010*
0-5	115	104	115	10.6%	0.0%
6-9	81	78	60	-23.1%	-25.9%
10-14	110	126	124	-1.6%	12.7%
15-17	186	210	238	13.3%	28.0%
18-20	348	346	423	22.3%	21.6%
21-24	555	593	656	10.6%	18.2%
25-64	3 327	3 238	3 410	5.3%	2.5%
>65	779	831	896	7.8%	15.0%
Total incl. unknown	*5 502*	*5 528*	*5 922*	*7.1%*	7.6%

Source: IRTAD LAC

Figure 2. **Road death rates by age group**
Fatalities per 100 000 population in a given age group, 2004-2012



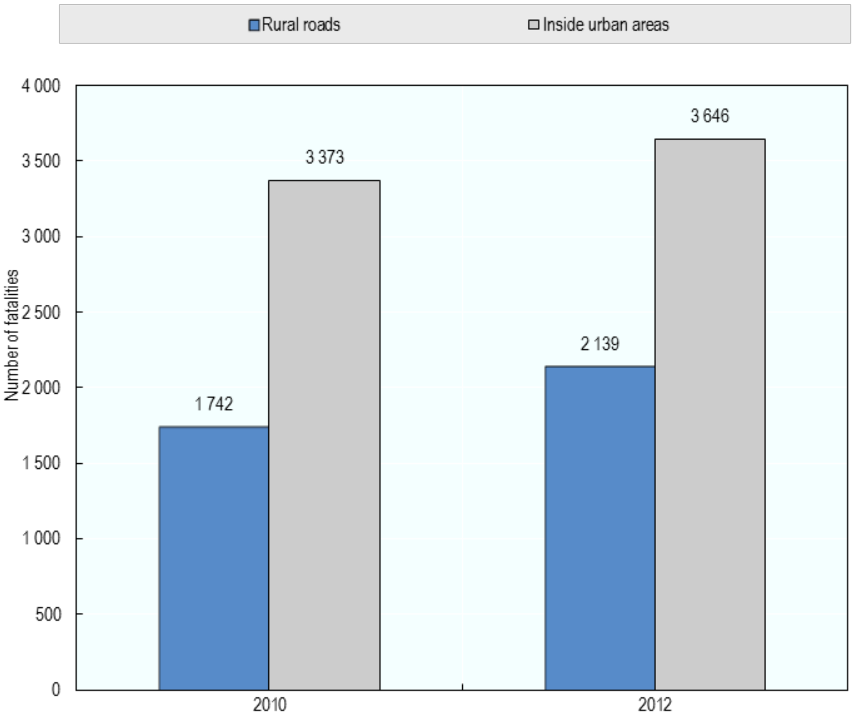
Source: IRTAD LAC

Road Type

In Colombia, the road network is divided into urban and rural networks. In 2012, 63% of fatalities occurred on the urban network, and that percentage reached 64.8% in 2013, excluding unclassified records. The high concentration of road fatalities in urban areas is the result of several factors: nearly 70% of the country's population lives in urban areas; the road infrastructure was designed for cars and there is little protected areas for pedestrians and other vulnerable users; the high density of roads in the cities, resulting from unprecedented growth in the vehicle fleet and stagnation in the expansion of the road network; limited enforcement of traffic rules; and poor road safety culture by users.

Between 2007 and 2012, the number of fatalities in urban areas increased by 9%, and by 47% in the rural network.

Figure 3. **Road fatalities by road type**



Source: IRTAD LAC

4. Economic costs of traffic crashes

CFPV and Universidad de Los Andes conducted in 2012 a study on the "Development of a Methodology to Assess the Economic Cost of Road Accidents in Colombia and Calculations for the 2008-2010 Period". The costs were calculated using a capital approach. The following costs were estimated: human costs, damages to property, medical costs and administrative costs, for three types of crashes based on the reported seriousness of the event: fatal crashes, injury crashes and property damage crashes. This study estimated the following unit costs for the year 2010:

- Property damage only crash: USD 4 100
- Injury crash: USD 11 800
- Fatal crash: USD 362 200

In addition, the study estimates that in 2010 the total costs of road crashes was nearly USD 3 billion, around 1% of GDP.

Table 4. **Costs per road crashes in Colombia, by type of expenditure and severity of the event, 2010**

Expenditure (US Thousands, 2013=100)	Severity of the event Property damage	Injured victims	Fatal victims
Damages to property	3.5	4.2	7.5
Medical costs		1.4	0.6
Administrative costs	0.5	1.3	2.1
Human costs		4.8	352.0
Cost per event	4.1	11.8	362.2

Source: CFPV and Universidad de los Andes.

5. Recent trends in road user behaviour

Impaired driving

Drink driving

In August 2012, a law was passed to reduce the maximum acceptable blood alcohol levels for drivers (from 0.4 g/l to 0.2 g/l).

In 2013, CFPV, the University of Javeriana and the University del Valle conducted surveys on the prevalence of driving under the influence of alcohol and alcohol consumption patterns among drivers in the cites of Bogotá, Cali and Chía. Drivers were tested for alcohol levels and asked to participate in a survey on driving under the influence of alcohol, subject to oral informed consent. Some of the findings of the studies are:

- Prevalence of driving under the influence of alcohol was 0.88% (95% CI 0.26-1.49%) in Cali, 0.6% (95% CI 0.2-1.6%) in Chía, and 0.4% (95% CI 0.24-0.67%) in Bogotá.
- Prevalence of driving under the influence of alcohol was greater among motorcycle drivers than among automobile drivers in the three cities, with 1.06% and 0.73%, respectively in Bogotá, 0.8% and 0.6% in Chía, and 0.65% and 0.29% in Bogotá.
- More than a third of people surveyed considered that the probability to be tested for alcohol level in a checkpoint is law: 38% of people surveyed in Cali, 42.5% in Chía, and 36.8% in Bogotá.
- Nearly two out of three drivers who took the survey in Bogotá (62.3%) and one of two in Cali (50%) believe it is safe to drive after consuming alcohol, while this percentage was 29.2% in Chia.

Drugs and driving

To date, there is no information available on drug related crashes.

Distraction

Distracted driving is recognised as a major and potentially growing problem in the country; however, there is no estimation available on the prevalence of this behaviour.

It is illegal to use a hand-held mobile phone or similar device while driving. The penalty is a fine to equivalent the amount of four days' legal minimum wage (USD 42).

Fatigue

To date, there is no information available on crashes due to fatigue.

Speed

There is no information on the share of fatal crashes due to excessive or inappropriate speed. Also, there is not data on average speed on urban and rural roads.

The table below summarises the main speed limits in Colombia.

Table 5. **Speed limits by road type, 2014**

	General speed limit Passenger cars	Comments)
Urban and municipal roads	80 km/h	60 km/h for freight transport, public service transport and school buses the limit may be modified by competent traffic authorities
Urban and municipal roads (school and residential areas)	30 km/h	
National and departmental roads	120 km/h	80 km/h for freight transport, public service transport and school buses the limit may be modified by competent traffic authorities

Source: CFPV

Seatbelts and helmets

Seat-belt usage is compulsory on front seats since December 2002. Use of seat-belts in the back seat is not compulsory, but since 2004 it has been mandatory for all automobiles manufactured, assembled or imported in the country to have seat belts 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 back-seat belts.

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

In 2013, CFPV measured the prevalence of the correct use of helmets by motorcycle and bicycles users. The survey took place in 15 big, medium sized and small cities. The results are statistically representative at the national level and by city group.

At the national level, 87.3% of motorcycle users wear the helmet over their heads and 65.5% wear it fastened (a proxy for correct usage); these percentages are of 15.6% and 15.1%, respectively, for bicycle users.

The prevalence of helmet wearing among users of two-wheeled vehicles is directly proportional to the size of the city. 97.8% of motorcycle users in large cities wear the helmet and 84% wear it fastened, while in mid-size cities the percentages of use are 89.1% and 49.5%, respectively, and in small cities these percentages are 62.9% and 35.8%. Also in big cities 21.8% of cyclists wear helmets and 21.2% wear it fastened, whereas in medium-sized cities use percentages are 13.2% and 12.5%, respectively, and in small towns these percentages reach to be 3.8% for use and 3.5% for the fastened use.

The use of helmets is mandatory in Colombia since 1998 and there is a technical standard on the type of helmets since 2004. However, a recent study by CFPV study showed that helmets in Colombia are far behind the minimal required security and that regulation has not been effective to improve the quality of the available helmets.

6. National road safety strategies and targets

Organisation of road safety

In Colombia, the main entity responsible for road safety used to be the Ministry of Transportation.

In December 2013, the National Road Safety Agency-ANSV was created by law, as the highest authority for the implementation of policies and national road safety measures. This agency, that is expected to start working on August 2014, will coordinate public and private entities committed to road safety and will implement the Government road safety action plan; its mission is to prevent and reduce traffic accidents.

The Political Constitution of Colombia 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 in line with the UN Global Plan for the Decade of Action for Road Safety 2011-2020; however, this plan was subject to a consultation process with public and private stakeholders. The public consultation on the latest version of the action plan closed on 30 January 2014 and, to date, the Ministry of Transportation has not issued its final version[2].

7. Recent safety measures (2011-2013)

Road safety management

Creation of a National Road Safety Agency: The National Road Safety Agency-ANSV was created by law in 2013 as a decentralized body of the national level, under the Ministry of Transport, and as part of the Executive Branch, with legal, administrative, financial autonomy and its own assets. The purpose of this agency is planning, coordination and management of road safety in the country. ANSV

2. See: https://www.mintransporte.gov.co/publicaciones.php?id=3239

will be the institutional support and coordination for the implementation, follow-up and control of strategies, plans and actions aimed at fulfilling the objectives of road safety policies of the national government throughout the country.

Driver behaviour

Impaired driving

- In August 2012, a law was passed to reduce the maximum acceptable blood alcohol levels for drivers (from 0.4 g/l to 0.2 g/l). Penalties were increased, including, among others, suspension of the driver's license and fines.
- In December 2013, a new law was enacted to dictate criminal punishment and administrative provisions for driving under the influence of alcohol or other psychoactive substances:
  - Punitive aggravation for manslaughter: The penalty for drivers that have been involved in an accident with fatalities and with alcohol levels greater or equal to grade 1, or under the influence of a drug or substance producing physical or mental dependence were intensified.
  - Increase of penalties for drunk drivers: Penalties were heightened and based on the blood alcohol concentration level and the frequency of recidivism. The lightest penalty, which is applied to those that are detected for the first time with a grade zero alcohol level (between 0.2 g/l and 0.39 g/l), consists of the suspension of the license for a year, with a corresponding fine of 90 smdlv (USD 943.6), the performance of 20 hours of community service towards the prevention of driving under the influence of alcohol and psychoactive substances, and vehicle immobilisation for a day. The maximum penalty, which is applied to those who are detected for a third time with grade three of alcohol (greater than or equal to 1.50 g/l), consists of the cancellation of the driving license, 90 hours of community service towards the prevention of driving under the influence of alcohol and psychoactive substances, a fine equivalent to 1,440 times the current daily minimum wage (USD 15 140), and vehicle immobilisation for 20 business days.

Education and awareness

- Since 2002 a law was submitted that mandated educational establishments to provide courses of traffic and road safety designed by the National Government for the Pre-school, Primary, and Secondary levels. However, this initiative was never implemented systematically in the country.
- In December 2011 a law was enacted with the purpose of defining general guidelines in education, corporate social responsibility, and state and community actions to promote the development of safe road habits, behaviour and conduct. This law mandates, among others, the obligation to teach preventive traffic-related habits and behaviours, respect for the norms and the authorities, and attitudes of citizen mindfulness regarding the use of roadways in all official and private establishments providing formal education at the pre-school, primary, and secondary levels.
- To date, the Ministry of Education has defined some educational guidelines about road safety, which will be piloted locally with the purpose of validating this instrument. In addition, the Ministry of Education, the CFPV and the Instituto Colombiano para la Evaluación de la Educación (National Assessment Agency) prepared an instrument to test knowledge, attitudes,

and beliefs about road safety that was applied in October 2013 at the national level to a statistically representative sample of students in the 5th and 6th grades, as part of the test of citizen competency in the exams that the National Government performs annually to evaluate the nation's education quality. The results of this instrument will be available towards June of the current year and will serve as a baseline for the validation process of the educational guidelines developed by the Ministry.

Vehicles

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

Infrastructure

- IRAP Project: In October 2013, the results of the International Road Assessment Program-IRAP, carried out by the CFPV, the CAF, the Ministry of Transportation and a group of public entities of the sector were published. As a result of this project, Colombia has today a detailed inventory of the characteristics of 10 988 km of roads, identifying the risks and required corrective actions to increase road safety.

  The study found that Colombian roads have a rating of two stars with an average score of 12.9. This study enables the analysis of investment scenarios. For example, it estimates that with an investment of USD 1 billion, which is one third of the cost of accidents in one year, the quality of roads avoiding more than 8 000 deaths and 56 000 serious injuries for the next 20 years.

- Moto-Roadway in Cali: with the objective to improve the safety for motorcyclists and cyclists, the city of Cali put in operation a pilot route of approximately 6.5 km of moto-roadway, reserved to motorcycles and bicycles. CFPV and the Universidad del Valle conducted an impact study. It was concluded that the implementation of the moto-roadway has led to an increase in motorcycle volumes on the roadway, with small increases in speed and a reduction of traffic incident involving motorcycles and other types of vehicles. By contrast, there has been a reduction in the volumes of automobiles and bicycles, and a reduction in the speed of automobiles. Motorcyclists are very supportive with the implementation of moto-roadway, but other users do not. Thus, alternatives for automobile drivers should be offered, and specific solutions for cyclists and pedestrians should be sought.

Post crash care

- In 2011 a law was issued defining and mandating the development of the System of Medical Emergencies in Colombia, with the purpose of responding in a timely manner to the victims of illness, traffic accidents, traumas, or cardiac arrest that may require urgent medical attention. The Ministry of Health must establish regulations for the development and operation of the system of medical emergencies, to guarantee the articulation of the different actors in the General System of Social Security in Health, according to their competencies.

8. Recent and on-going research

General

- Road safety profiles at the municipality, department, and national levels, 2007-2012. CFPV. 2013
- Statistical yearbook of road accidents Colombia, 2011. CFPV; Universidad de los Andes. 2013
- Development and application of a methodology to diagnose the local road safety management capacity. CFPV; Oportunidad Estratégica. 2013
- Methodology for the computation speed limits for urban roads in Colombia. CFPV; Universidad del Cauca; GSD +. 2013

Human Behaviour

- Road safety performance indicators in Colombia. Volume 1: Prevalence and characterization of helmet use, overload of passengers, and minor transportation in two-wheeled vehicles. CFPV. 2013
- Prevalence of alcohol consumption in traffic accidents in Bogotá and associated costs . CFPV; INMLCF; Universidad Javeriana. 2013
- Prevalence of alcohol consumption in traffic accidents in Sincelejo and associated costs. CFPV; Universidad Javeriana. 2013
- Prevalence of driving under the influence of alcohol and characterization of consumption patterns of drivers in the city of Cali. CFPV; Instituto Cisalva, Universidad del Valle; Traffic Injury Research Foundation. 2013
- Prevalence of driving under the influence of alcohol and characterization of consumption patterns of drivers in the city of Bogotá. CFPV; Universidad Javeriana. 2013
- Prevalence of driving under the influence of alcohol and characterization of consumption patterns of drivers in the municipality of Chía. CFPV; Universidad Javeriana. 2013
- Prevalence of driving under the influence of alcohol and characterization of consumption patterns of drivers in the city of Medellín. CFPV; Universidad de Antioquia. 2014
- Tool for the assessment of road safety knowledge of 5th year and 9th year students. CFPV; Instituto Colombiano para la Evaluación de la Educación; Ministry of Education. 2013

Safety devices

- Helmets for motorcyclists: Institutional, legal, market, and technical review. CFPV; CESVI Colombia. 2014

Motorcyclists

- Characterisation of the provision of transportation service in motorcycle (moto-taxiing). CFPV; Econometría. 2013

Infrastructure

- Impact of the roadway trial in Cali 2012-2013. CFPV; Universidad del Valle - Instituto CISALVA. 2013
- Guidelines to introduce road and pedestrian safety criteria in the design and operation of Bus Massive Transportation Systems. CFPV; Sigma Gestión de Proyectos. 2013
- Traffic calming guidelines. CFPV; Rodrigo Salazar Pineda; GSD +. 2013

Post crash care

- System of pre-hospital attention indicators for traffic accidents. Colombia. CFPV; Universidad de Antioquia. 2013

Useful websites and references

Corporación Fondo de Prevención Vial - CFPV	https://www.fpv.org.co
Vice-Ministry of Transport	https://www.mintransporte.gov.co https://www.mintransporte.gov.co/documentos.php?id=15
Instituto Nacional de Medicina Legal y Ciencias Forenses (National Institute of Legal Medicine and Forensic Sciences)	http://www.medicinalegal.gov.co
Departamento Nacional de Estadísticas - DANE	http://www.dane.gov.co

Contact

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

Czech Republic

Source: IRTAD, CDV

Inhabitants	Vehicles/1 000 inhabitants	Road fatalities in 2012	Fatalities /100 000 inhabitants in 2012
10.5 million	**545**	**742**	**7.1**

1. Road safety data collection

Definitions

- Road fatality: A person who died immediately after the crash or within the next 30 days
- Serious injury: There is no special definition of serious injury in the Czech Republic but, in practice, the injury level is determined through the opinion of the physician at the scene of the crash, or later in the hospital (within 24 hours of the crash). At present, the severity value based on MAIS 3+ is not yet in general use and its future utilisation is yet to be decided.

Data collection and analysis

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

2. Most recent safety data

Road crashes in 2012

In 2012, road fatalities decreased by 4% and the number of people seriously injured by 3.3%, continuing the marked downward trend since 2008.

Provisional data for 2013

Based on provisional data for the year 2013, the positive trend in traffic safety continued, with an estimated 11.9% reduction in the number of fatalities in comparison with 2012.

3. Trends in traffic and road safety (1990-2013)

Traffic

Between 1990 and 2012, the number of motorised vehicles increased by 77.8% and the overall vehicle kilometres driven by 76.6%.

HGV fleet and traffic increased gradually after 1990 with the development of the new market economy. However, in 2007-2008 stagnation was observed due to the economic recession. A strong drop in vehicle-kilometres was observed in 2010 and year 2012 data are still on the decrease.

Change in the number of fatalities and injury crashes (1990-2012)

Between 1990 and 2012, the number of fatalities decreased by 42% and the number of injury crashes by around 6%. In the same period, the number of vehicles increased by nearly 80%. In recent years (2000-2012) the number of fatalities was halved.

Rates

Between 2000 and 2012, the mortality rate, expressed in terms of deaths per 100 000 population, decreased by more than 50%.

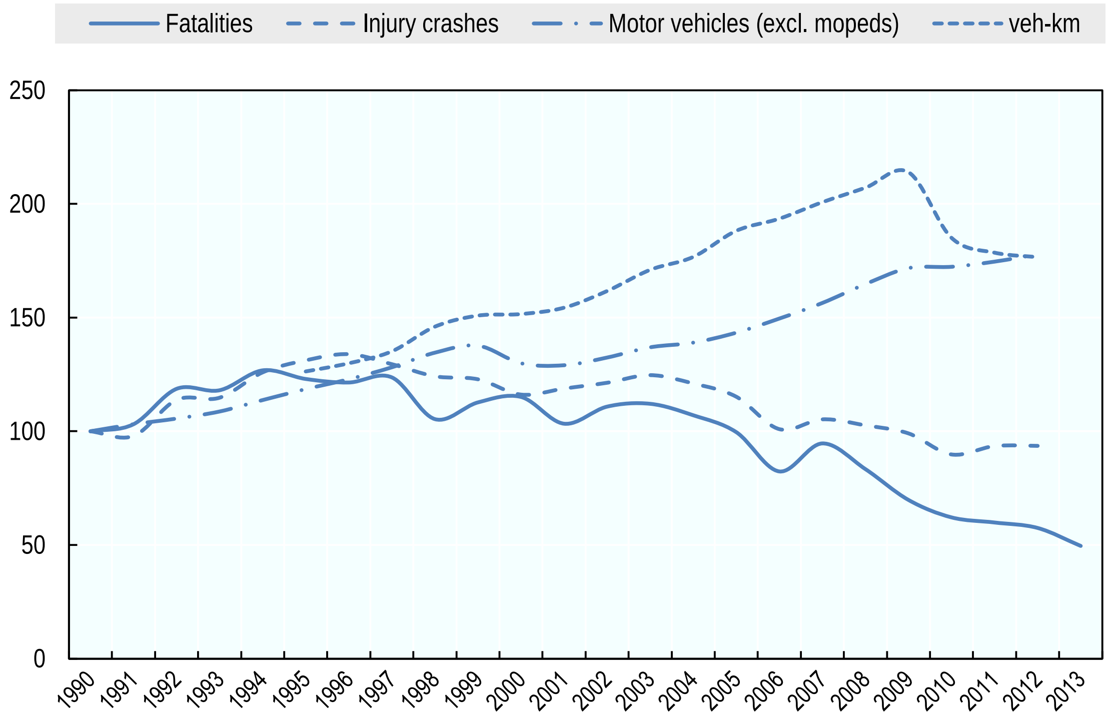
Table 1. **Road safety and traffic data**

						2012 % change from		
	1990	2000	2010	2011	2012	*2011*	*2000*	*1990*
Reported safety data								
Fatalities	1 291	1 486	802	773	742	-4.0%	-50.1%	-42.5%
Injury crashes	21 910	25 445	19 676	20 487	20 504	0.1%	-19.4%	-6.4%
Deaths per 100,000 population	12.5	14.5	7.6	7.4	7.1	-4.2%	-51.1%	-43.3%
Deaths per 10,000 registered vehicles	4.0	3.6	1.4	1.4	1.3	-5.7%	-63.5%	-67.7%
Deaths per billion veh-km	48.3	36.7	16.2	16.2	15.7	-3.0%	-57.2%	-67.5%
Traffic data								
Registered vehicles[1] (thousands)	3 219	4 182	5 548	5 621	5 724	1.8%	36.9%	77.8%
Vehicle kilometres (millions)	26 710	40 480	49 434	47 692	47 174	-1.1%	16.5%	76.6%
Registered vehicles per 1,000 population)	310.7	406.9	528.0	536.0	544.9	1.7%	33.9%	75.4%

Source: IRTAD

1. Registered vehicles excluding mopeds.

Figure 1. **Road safety and traffic data**
1990 = index 100



Source: IRTAD

Road users

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

Between 2000 and 2012, motorcyclist fatalities decreased by 10%, while passenger car fatalities decreased by more than 50% during the same period.

In 2012, there was an increase in the number of cyclists and motorcyclists killed.

Table 2. **Road fatalities by road user group**

						2012 % change from		
	1990	2000	2010	2011	2012	*2011*	*2000*	*1990*
Bicyclists	135	151	80	63	78	23.8%	-48.3%	-42.2%
Mopeds	47	16	4	0	3	n.a	-81.3%	-93.6%
Motorcycles	66	100	95	82	90	9.8%	-10.0%	36.4%
Passenger car occupants	597	784	403	404	368	-8.9%	-53.1%	-38.4%
Pedestrians	359	362	168	176	163	-7.4%	-55.0%	-54.6%
Others incl. unknown	87	73	52	46	40	-13.0%	-45.2%	-54.0%
Total	*1 291*	*1 486*	*802*	*773*	*742*	*-4.0%*	*-50.1%*	*-42.5%*

Source: IRTAD

Age

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

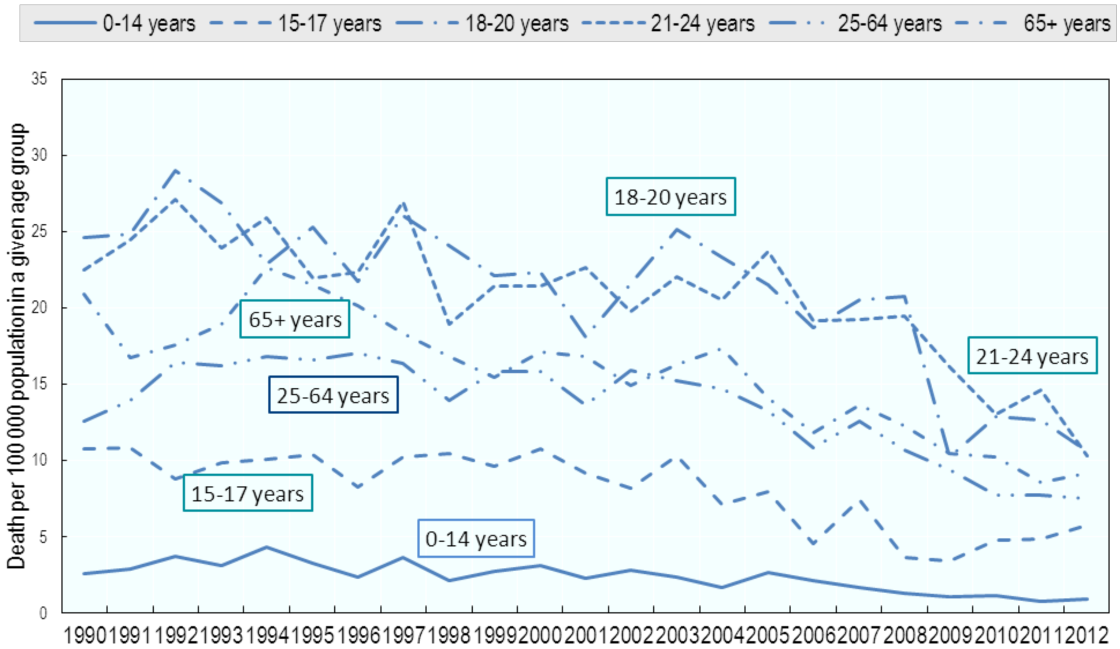
Young people (21-24) are still a high-risk group for road safety, but showed the highest reduction in fatalities in 2012 (-30%).

Table 3. **Road fatalities by age group**

						2012 % change from...		
Age	1990	2000	2010	2011	2012	*2011*	*2000*	*1990*
0-5	16	13	7	4	4	n.a.	-69.2%	-75.0%
6-9	25	17	3	2	6	n.a.	-64.7%	-76.0%
10-14	18	24	7	6	5	n.a.	-79.2%	-72.2%
15-17	57	44	17	16	17	6.3%	-61.4%	-70.2%
18-20	107	103	51	49	40	-18.4%	-61.2%	-62.6%
21-24	123	155	74	80	56	-30.0%	-63.9%	-54.5%
25-64	668	881	471	469	455	-3.0%	-48.4%	-31.9%
>65	270	243	164	141	157	11.3%	-35.4%	-41.9%
Total incl. unknown	*1 291*	*1 486*	*802*	*773*	*742*	*-4.0%*	*-50.1%*	*-42.5%*

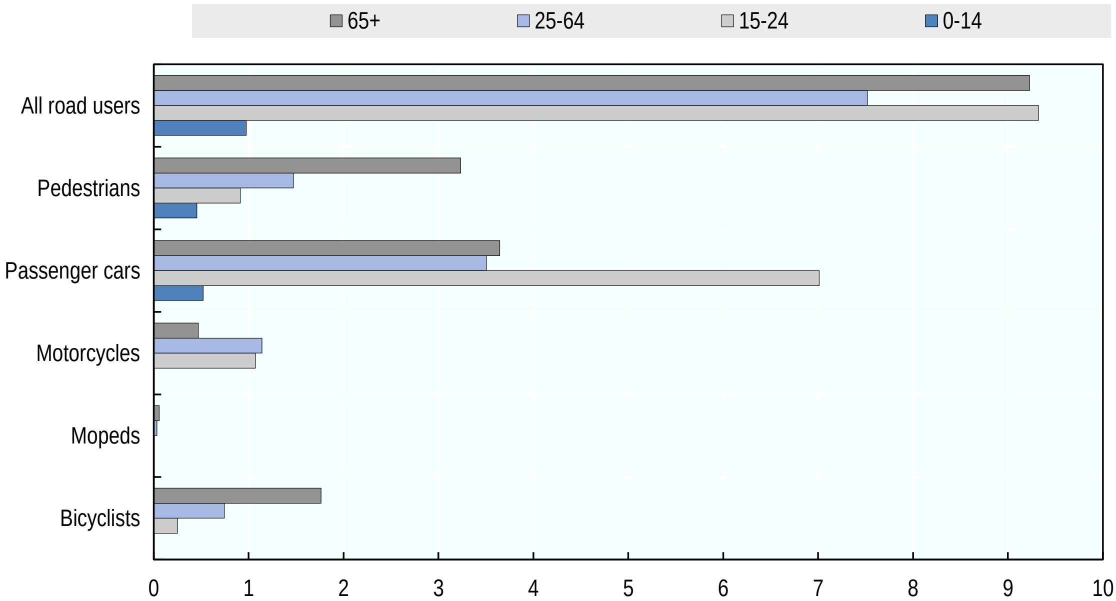
Source: IRTAD

Figure 2. **Road death rates by age group**
Fatalities per 100 000 population in a given age group, 1990-2012



Source: IRTAD

Figure 3. **Road death rate by age and road user group**
Fatalities per 100 000 population

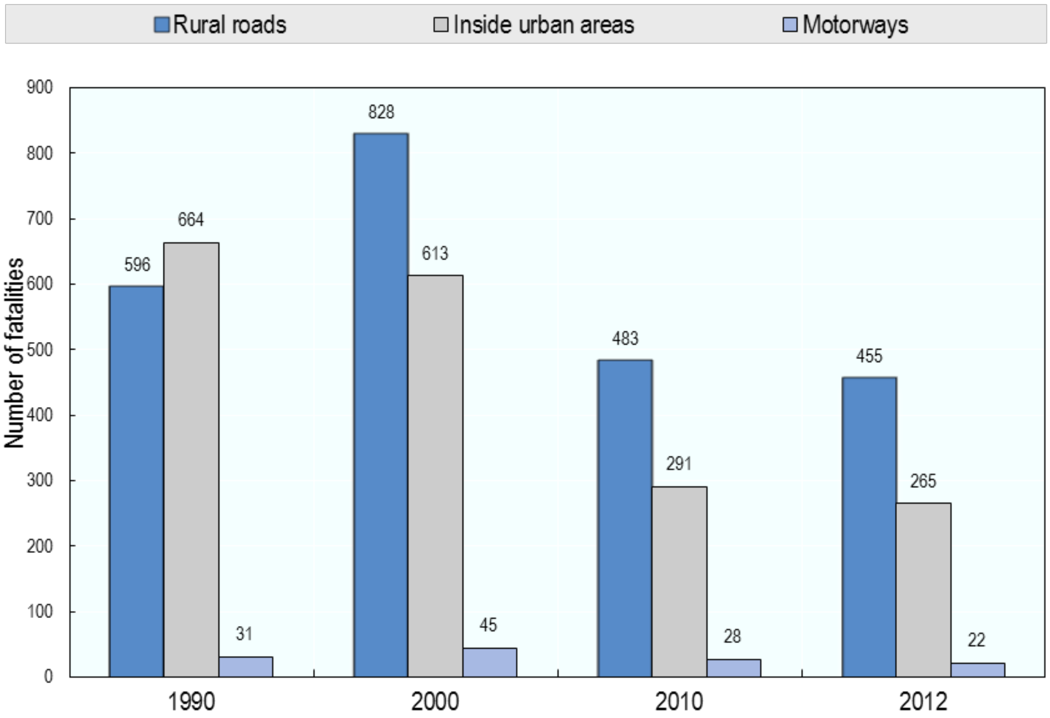


Source: IRTAD

Road Type

Since 1990, the greatest reduction in fatalities has occurred on urban roads (-60%), while improvement on rural roads has been less marked (-23%). 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 widespread introduction of traffic-calming measures.

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



Source: IRTAD

4. Economic costs of traffic crashes

Economic costs engendered by road crashes are evaluated by the human capital approach. They are composed of 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 crashes for the Czech Republic is published every year. For 2012, they were estimated at EUR 2.1 billion, i.e. 1.4% of GDP.

Table 4. **Costs of road crashes in 2012**

Costs (EUR)	Unit Cost (EUR)	Total (EUR.)
Fatalities	756 553	561.4 million
Hospitalised people	198 902	593.9 million
Slight injuries	17 221	389.0 million
Property / damage costs	9 028	549.8 million
Total (EUR)		2.1 billion
Total as % of GDP		1.4%

Source: CDV

5. Recent trends in road user behaviour

Impaired driving

Drink 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 2002, 11.0% of fatalities were due to alcohol related crashes. This proportion decreased to 3.4% in 2007, and then increased again to 13.5% in 2010 (probably due to a change in the investigation procedure). In 2012, it is estimated that 6.6% of road fatalities were due to alcohol related crashes.

Drugs and driving

Drug influence is forbidden during driving. The share of fatal crashes due to a driver under the influence of drugs was estimated at 1.3% in 2012.

Distraction

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.

Fatigue

In 2012, it was estimated that about 1% crashes were due to fatigue.

Speed

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

The share of injury crashes due to excessive speed was 25% in 1980, 24% in 2000 and 26.1% in 2012. The share of fatal crashes due to excessive speed was 33% in 1980, 40% in 2000 and 38.3% in 2012.

The table below summarises the main speed limits in the Czech Republic.

Table 5. **Passenger car speed limits by road type, 2014**

	General speed limit Passenger cars	Comment
Urban roads	50 km/h	Average speed: around 45 km/h 85th percentile speed: around 55 km/h % of drivers above the limit: 20 to 40%
Rural roads	90 km/h	Average speed: around 70 km/h 85th percentile speed: around 80 km/h % of drivers above the limit: 15 to 30%
Motorways	130 km/h	

Source: CDV

Average speed, 85th percentile speed and the percentage of drivers above the speed limit have been monitored regularly since 2005. The introduction of a demerit point system in 2006 resulted in a reduction in the number of drivers above the limit. But this share increased again in 2010.

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.

In 2012, 35.5 % of car occupants killed were not wearing a seatbelt when the crash occurred. It is estimated that 90 lives could have been saved if all car occupants had worn seatbelts.

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

	2000	*2011*	*2012*
Front seat			
General	63%	98%	97%
Urban roads	46%	99%	98%
Rural roads	62%	99%	96%
Motorways	81%		
Rear seats			
Adults	7%	83%	66%

Source: CDV

6. 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 (comprising representatives of parliament, ministries, civil associations, professional organizations and the private sector). There are also 14 regional BESIP coordinators.

Road safety strategy for 2011-2020

The National Strategic Safety Plan for years 2011-2020 has as a target the reduction in the fatalities rate to that of the average rate for Europe, with the following priorities:

1. Children
2. Pedestrians
3. Bicyclists
4. Motorcyclists
5. Young and novice drivers
6. Elderly population
7. Alcohol and other drugs-related crashes
8. Speeding
9. Aggressive driving

Target setting

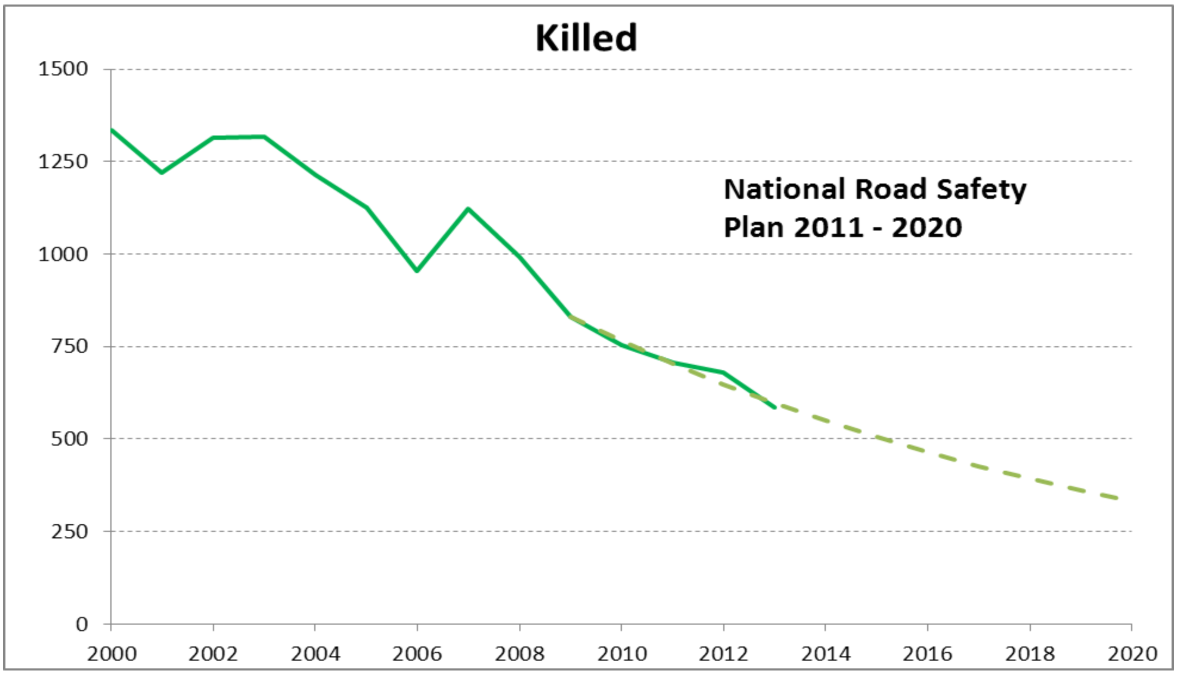
The main target is to decrease the fatality rate (deaths/ 100 000 population) to the European average. This corresponds to a 60% reduction in fatalities by 2020 in relation to 2009. The second target is a reduction by 40% in the number of persons seriously injured.

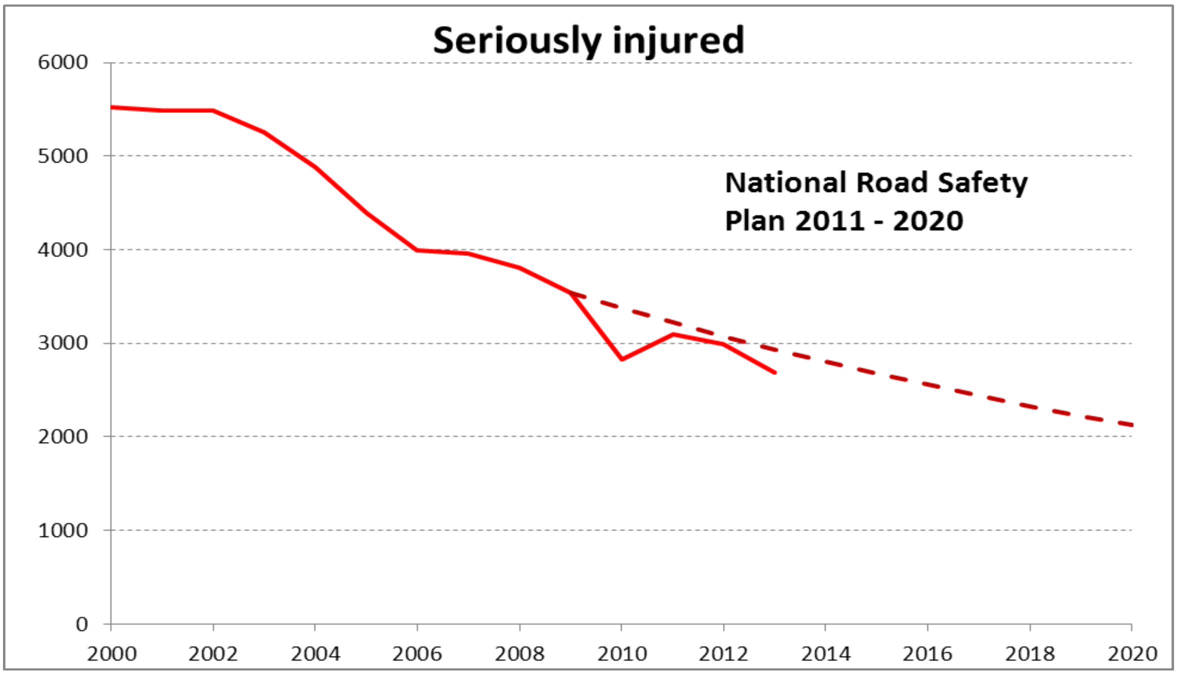
Monitoring

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

The main goals for 2013 have been fulfilled: the target for fatalities (within 24 hours) was 596 and the actual number of road deaths is 583; the target for seriously injured was 2 937 and the actual number 2 782.

Figure 5. **Trends in road fatalities towards national and EU[2] targets**





2. In 2010, the European Commission adopted the target of halving road deaths by 2020, compared to 2010 levels.

Evaluation of past road safety strategy

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, which is targeted more specifically to individual measures and regions with systematic monitoring.

7. Recent safety measures (2011-2013)

Vehicles

Gradual improvement of the technical inspection of vehicles

Infrastructure

Continuous improvement of the road infrastructure: identification and elimination of black spots.

8. Recent and on-going research

- ***In-depth traffic accident analysis*** *(in Czech:* Hloubková analýza dopravních nehod - HADN*)*

The objective of in-depth accident analysis is to obtain detailed information on causes and consequences of accidents. This information will be retrospectively analysed in order to garner sufficient knowledge to improve road infrastructure as well as vehicle technologies. The general outcome of in-depth accident analysis is improvement of road traffic safety.

Since 2011 the CDV started a practical realisation of in-depth accident analysis in the frame of the project of the Ministry of Interior of the Czech Republic. Specialists on the traffic infrastructure, vehicle technique, traffic psychology and health science investigate about 200 traffic accidents in the year, analyse and record them to the database.

http://www.cdv.cz/hloubkova-analyza-dopravnich-nehod-hadn/

http://hadn.cdvinfo.cz/o-projektu/

- ***Socio-economic costs of traffic accidents***

The metodology of evaluation of the socio-economic costs of traffic accidents is updated every year by CDV.

Useful websites and references

CDV, Transport Research Centre	www.cdv.cz
Ministry of Transport	www.mdcr.cz
Police of the Czech Republic	www.policie.cz
Road safety observatory	http://www.czrso.cz
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

Sources: IRTAD; Danish Road Directorate.

Inhabitants	Vehicles/1 000 inhabitants	Road fatalities in 2012	Fatalities /100 000 inhabitants in 2012
5.6 million	**523**	**167**	**3.0**

1. Road safety data collection

- Road fatality: persons who die within 30 days as a result of a traffic crash.
- Serious injuries: Those included in the police report under bodily injury and any type of injury other than "minor injuries only" count as seriously injured.
- Slight injury: Minor injuries only.

Data collection for serious injuries is only based on police reports. 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 six 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 in 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 possible, because the severity codes AIS and MAIS are not included in the Danish hospital registration system. Only diagnosis codes are included. Denmark is working on a process to convert diagnosis codes into AIS and MAIS.

Details of traffic-related casualties are also recorded in the national patient register. These details include injury figures originating from emergency departments or from hospital visits where the patient states that the injuries are the result of a road accident. From the national patient register, one can observe that the real accident figures are significantly higher if we compare the casualty figures from accidents reported by the police with injury data from Accident & Emergency (A&E) departments. Injuries to "vulnerable road users" in particular are under-reported by the police records. Although the majority of the injured road users are slightly injured, severe injuries are also under-reported.

The problem with the national patient register is that the information for each accident is very scarce compared with the information contained in police records. As there is no registration of the severity of the injury it is not possible to say if the person was actually injured or went to the hospital for a simple check. Also it is not possible to distinguish between drivers and passengers, and the crash location is not known.

Therefore systematic nationwide recording and use of A&E department data in addition to the more detailed information from the police would provide a better basis for decision-making, both nationally and locally, and would reinforce Danish road safety efforts if A&E data requirements are strengthened to the needed match to police records. To make this possible, the present system of recording visits to A&E departments needs to be improved. As the A&E department data includes more minor injuries than the police records, it is absolutely crucial that in future the A&E department data should contain precise details of the degree of injury to the persons involved or other possibilities to determine this by transforming diagnosis codes into severity codes. An improvement in A&E department records so that data can be used in a targeted way in road safety efforts requires substantial investment, e.g. in the form of additional resources in A&E departments for recording and training and for the subsequent quality assurance of the data.

2. Most recent safety data

Road crashes in 2012

Data for 2012 show a continuing downward trend in road crashes, with the total number of killed down by 24% compared to 2011. The number of road fatalities (167) was the lowest recorded in Denmark since national registration began in 1930.

Although there has been a general decrease in the number of casualties over the past ten years, the decrease has not been as marked for pedestrians and bicyclists as for other road users.

The number of alcohol- related injury crashes decreased compared to the previous five years.

Provisional data for 2013

The provisional figure for 2013 is 187 road deaths, an increase of 12% compared to the final 2012 figure.

The difference in the numbers of killed mainly occurred in the second half of 2013. It only corresponds to a few additional deaths by month with no significant explanation.

Looking at the final data for the first half year it seems that alcohol-related crashes decreased further compared to the previous years and compared to other crashes.

Provisional data for deaths in 2014 show a slight increase in the first two months compared to the same period in 2013. It does not represent a significant change as there are only 10-15 fatalities every month, therefore small changes in numbers can seem important when they are not. Nevertheless, more fatalities were actually expected in the first two months because there were very mild winter conditions, which could have led to higher speeds and a higher risk of fatal crashes.

3. Trends in traffic and road safety (1990-2013)

Traffic

Between 1990 and 2012, the number of motorised vehicles increased by 41% and the overall vehicle kilometres driven by around 25%.

From 2012 to 2013, the overall number of motorised vehicles increased by around 1%.

Information about traffic volume by traffic participant is not available for 2013 yet. Looking at the Traffic Index from the Road Directorate, traffic volume also seems to have increased by 1% from 2012 to 2013.

Change in the number of fatalities and injury crashes (1990-2012)

Between 1990 and 2012, the number of fatalities decreased by more than 70%. In the last four years, the reduction in fatalities accelerated, with a nearly 60% reduction between 2008 and 2012.

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.

Rates

Since 2000, the mortality rate (expressed in deaths per 100 000 population) and the fatality risk (expressed in deaths per billion veh-km) respectively decreased by 72% and 70%. In 2012, Denmark had a mortality rate of 3 per 100 000 population, one of the lowest rates among OECD countries.

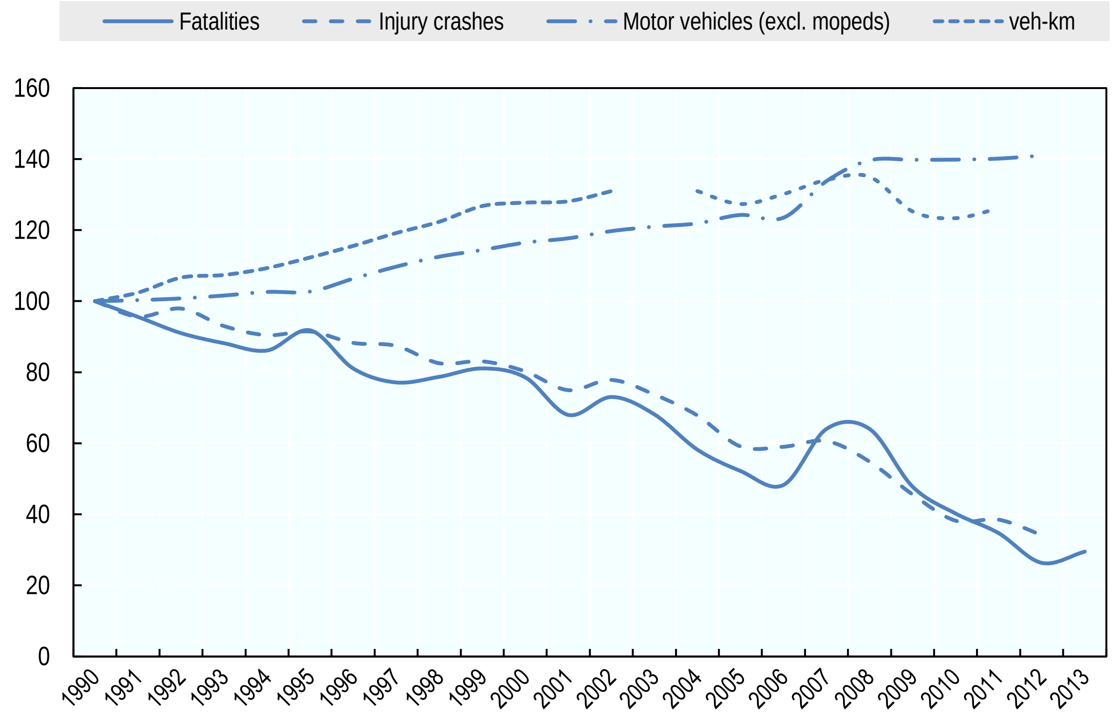
Table 1. **Road safety and traffic data**

						2012 % change from		
	1990	2000	2010	2011	2012	*2011*	*2000*	*1990*
Reported safety data								
Fatalities	634	498	255	220	167	-24.1%	-66.5%	-73.7%
Injury crashes	9 155	7 346	3 498	3 525	3 124	-11.4%	-57.5%	-65.9%
Injured persons hospitalised	5 347	4 366	2 068	2 094	1 809	-13.6%	-58.6%	-66.2%
Deaths per 100 000 population	12.3	9.3	4.6	4.0	3.0	-24.4%	-68.0%	-75.8%
Deaths per 10 000 registered vehicles	3.1	2.1	0.9	0.8	0.6	-24.6%	-72.3%	-81.3%
Deaths per billion vehicle kilometres	17.3	10.7	5.6	4.8	3.4	-28,6%	-68,1%	-80,4%
Traffic data								
Registered vehicles[1] (thousands)	2 068	2 409	2 892	2 898	2 916	0.6%	21.0%	41.0%
Vehicle kilometres (millions)	36 600	46 753	45 153	46 195	49 097	6,3%	5,0%	34,1%
Registered vehicles per 1 000 population)	402.7	452.0	522.5	521.2	522.5	0.3%	15.6%	29.8%

Source: IRTAD.

1 Registered vehicles excluding mopeds.

Figure 1. **Road safety and traffic data**



Source: IRTAD.

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 is moped riders, mainly due to the declining popularity of this transport mode. Motorcyclists form user group with the highest risk - 44 times higher than for a car occupant (in relation to the distance travelled).

The largest number of deaths and injuries occurred in passenger cars, which reflects the fact that cars are the most common form of transport on Danish roads. Two out of every five road users killed or injured were "vulnerable road users", i.e. pedestrians, cyclists or moped riders. Some 5% of those injured on the roads were motorcyclists, but if we look only at those killed, motorcyclists make up a much larger proportion. Hence, injuries to motorcyclists are often very serious. There are very few road users killed or injured in lorries, buses and vans, because they often escape injury thanks to the size and weight of their vehicles.

Table 2. **Road fatalities by road user group**

						2012 % change from		
	1990	2000	2010	2011	2012	*2011*	*2000*	*1990*
Bicyclists	110	58	26	30	22	-26.7%	-62.1%	-80.0%
Mopeds	44	47	11	14	14	0.0%	-70.2%	-68.2%
Motorcycles	39	24	22	23	10	-56.5%	-58.3%	-74.4%
Passenger car occupants	284	239	137	110	81	-26.4%	-66.1%	-71.5%
Pedestrians	118	99	44	33	31	-6.1%	-68.7%	-73.7%
Others incl. unknown	39	31	15	10	9			
Total	*634*	*498*	*255*	*220*	*167*	*-24.1%*	*-66.5%*	*-73.7%*

Source: IRTAD.

Age

Since 1990, all age groups have shared the reduction in fatalities.

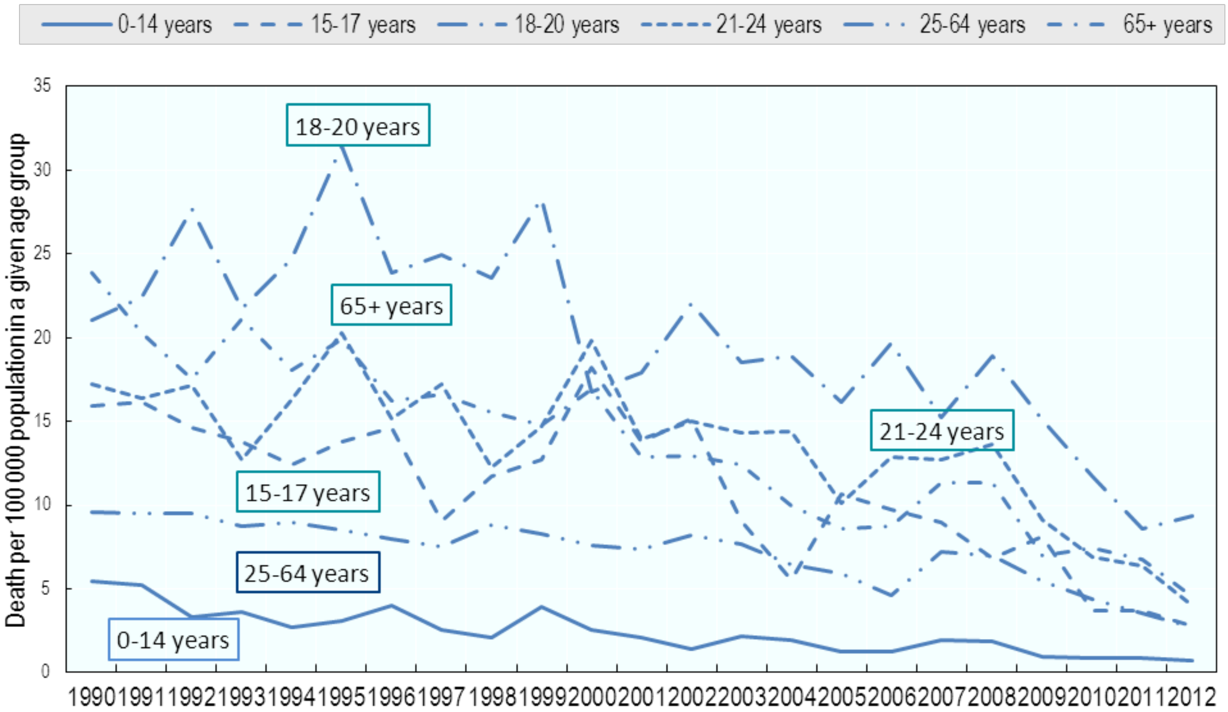
Young people, especially those aged 18-20, are still a high-risk group in terms of road safety, with a fatality risk of more than twice the general population.

Table 3. **Road fatalities by age group**

						2012 % change from...		
Age	1990	2000	2010	2011	2012	*2011*	*2000*	*1990*
0-5	9	8	0	3	2	n.a	-75.0%	-77.8%
6-9	15	6	3	0	3	n.a	-50.0%	-80.0%
10-14	24	11	6	6	2	-66.7%	-81.8%	-91.7%
15-17	35	30	8	8	6	-25.0%	-80.0%	-82.9%
18-20	46	30	24	18	20	11.1%	-33.3%	-56.5%
21-24	57	55	18	17	11	-35.3%	-80.0%	-80.7%
25-64	257	224	129	105	79	-24.8%	-64.7%	-69.3%
>65	191	134	67	63	44	-30.2%	-67.2%	-77.0%
Total incl. unknown	*634*	*498*	*255*	*220*	*167*	*-24.1%*	*-66.5%*	*-73.7%*

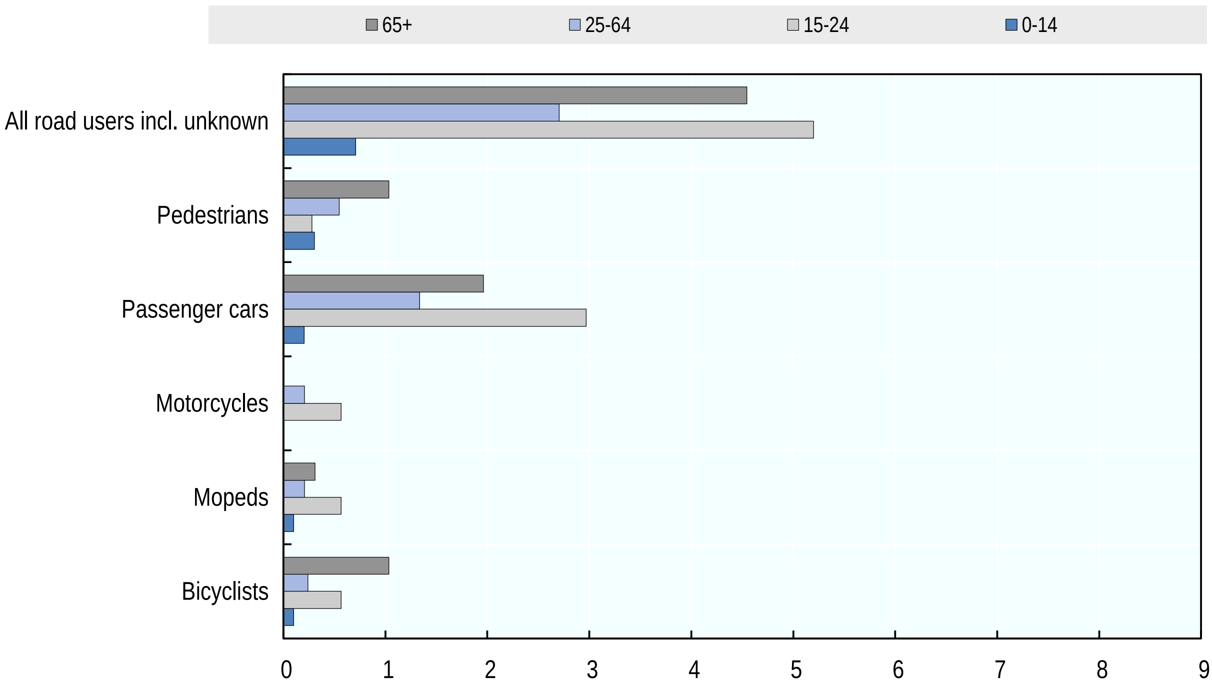
Source: IRTAD.

Figure 2. **Road death rates by age group**
Fatalities per 100 000 population in a given age group, 1990-2012



Source: IRTAD.

Figure 3. **Road death rate by age and road user group**
Fatalities per 100 000 population

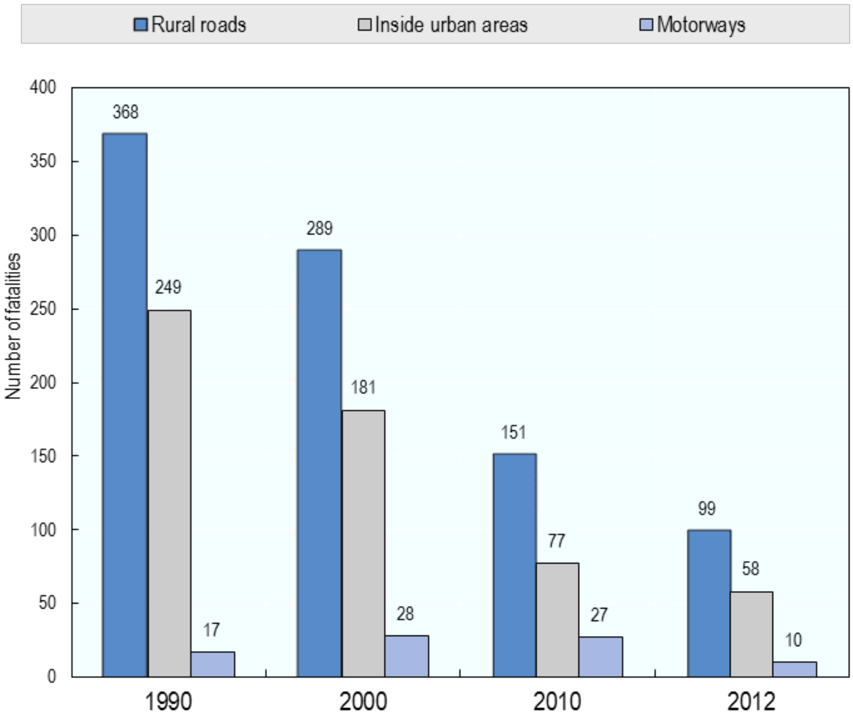


Source: IRTAD.

Road type

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. In addition, as speeds are higher on rural roads, this entails more severe injuries.

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



Source: IRTAD.

4. Economic costs of traffic crashes

The socioeconomic costs of road crashes are calculated using so-called transport economic unit prices. These are regularly calculated and updated by DTU Transport and include key indicators and unit prices to be used for valuation in socioeconomic analyses of the transport sector.

The unit prices for the socioeconomic costs of road accidents include not only the directly measurable expenses but also the so-called welfare loss. The welfare loss is a cost that represents a valuation of lost lives and capacity. The welfare loss can be taken as an expression of what road users generally think it is “worth” to prevent road accidents over and above the directly measurable costs such as hospital and health care charges, the costs of the police and emergency services, lost earnings and the costs of making good material damage.

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[2].

In 2010, traffic crashes represented a very significant cost for society, estimated at around EUR 1.5 billion.

Table 4. **Costs of road crashes, 2010**

Costs (EUR billion)	Unit Cost	Total
Fatalities		0.6
Severely injured		0.8
Slightly injured		0.1
Property / damage costs		*Included in the above costs*
Total (EUR)		1.5

Source: COWI.

5. Recent trends in road user behaviour

Impaired driving

In 25% of fatal crashes, alcohol, drugs and/or medication are thought to have been contributing factors.

Drink 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).

Drugs and driving

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.

Distraction

Distraction is becoming an important factor to be analysed to explain crash circumstances. The fatal accident investigations and in-depth investigations have shown that distraction is often an issue - both inside and outside the vehicle. Therefore external distraction has become a special focus of the new Danish Traffic Safety Action Plan.

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

In 38% of fatal crashes, inattention is thought to have been a contributing factor.

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

Fatigue

There is no information available.

Speed

In 41% of fatal crashes, speeding is thought to be a contributing factor.

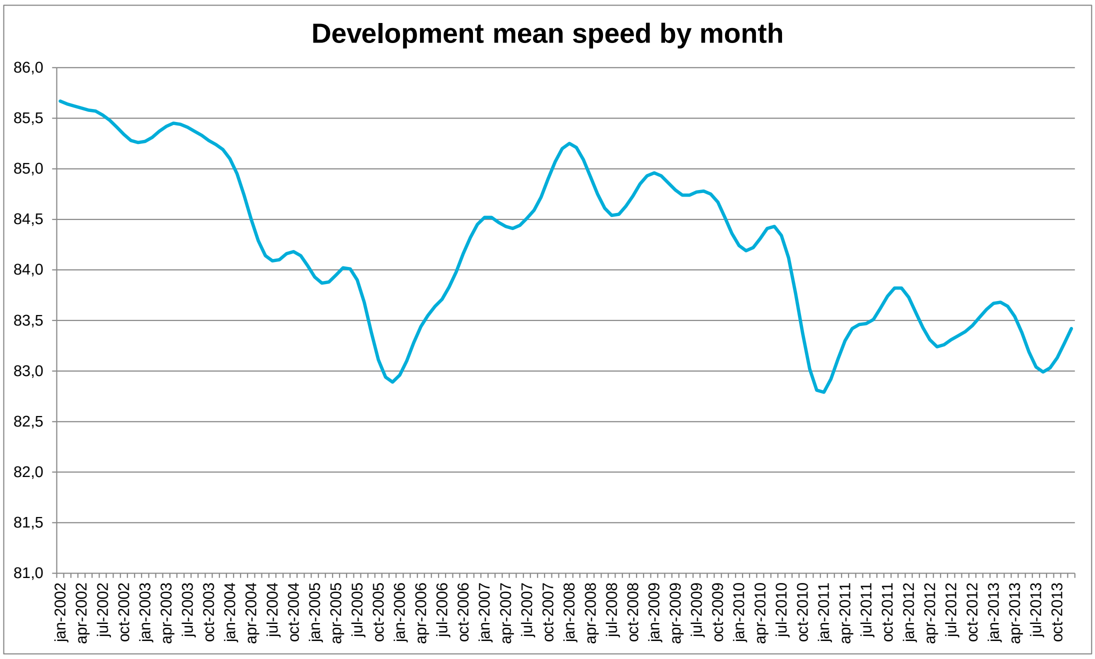
The table below summarises the main speed limits in Denmark. There is no reduced speed limit for young drivers.

Table 5. **Passenger car speed limits by road type, 2014**

	General speed limit Passenger cars	Comments
Urban roads	50 km/h	For heavy vehicles 50 km/h shall be obeyed even is there is a higher local limit
Rural roads	80 km/h	
Motorways	130 km/h	About half of the motorway network has although a signed speed limit of 110 km /h especially around the cities

Source: Road Directorate.

The following chart shows the development in mean speed for all types of road in general.



Source: Danish Road Directorate.

The information is based upon the Road Directorate speed barometer, where the speed development on different road types is monitored. Over time, there is a general decline in the mean speed. There are two specific low points which are due to heavy winter conditions.

Seat belts and helmets

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

In 28% of fatal crashes, failure to wear a seat belt and/or helmet is thought to have contributed to the extent of the injuries.

Helmets

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

There is no mandatory helmet use law for cyclists.

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

	2010	*2012*
Front seat		
General	92%	94%
Urban roads (drivers)	90%	94%
Rural roads (drivers)	95%	95%
Rear seats		
Adults	76%	81%

Source: Danish Road Directorate.

6. 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-operation 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.

Road safety strategy for 2013-2020

In May 2013, the new Traffic Safety Action Plan was launched with the following slogan “Every accident is one too many – a shared responsibility”. The Action Plan includes ten focus areas. For each of them, a set of suggested measures has been proposed and a performance indicator defined. The ten focus areas will be reviewed on a regular basis between now and 2020 by establishing measurement points as a basis for the necessary actions.

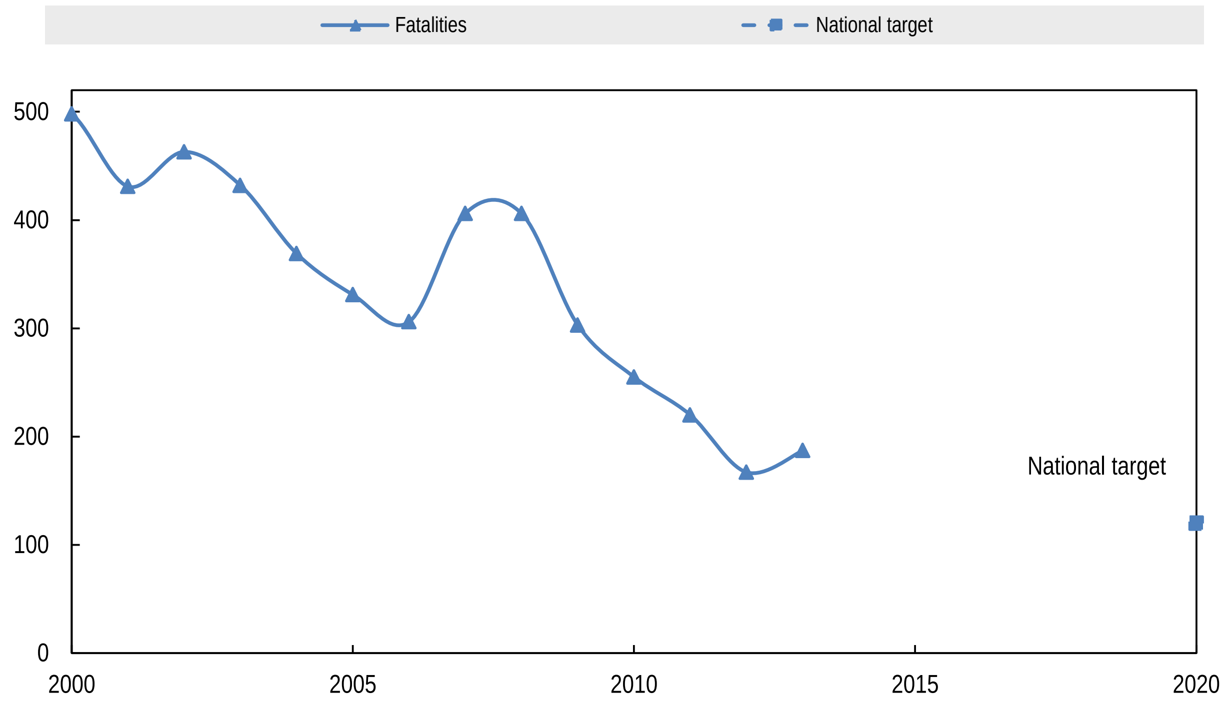
Focus areas	Measurement point
1. Speeding	Proportion of journeys exceeding the speed limit
2. Alcohol and drugs	Number of road users killed and injured in accidents where at least one driver of a motor vehicle has a blood alcohol level over 0.05%
3. Inattention	Proportion of drivers who admit to engaging in distracting actions while driving:
4. Failure to wear seat belts and helmets	Proportion of drivers and passengers who wear seat belts: Proportion of adult cyclists wearing helmets
5. Pedestrians	Number of pedestrians killed and injured
6. Cyclists and moped riders	Number of cyclists and moped riders killed and injured
7. Young drivers under 24	Number of deaths and injuries in accidents involving at least one car driver under 24 years old
8. Accidents with oncoming traffic	Number of persons killed and injured in accidents with oncoming traffic
9. Single-vehicle accidents	Number of persons killed and injured in single-vehicle accidents
10. Accidents at rural junctions	Number of persons killed and injured in accidents at rural junctions

Target setting

The Danish Road Safety Commission set ambitious targets for 2020: no more than 120 deaths, 1 000 serious injuries and 1 000 minor injuries by 2020. This follows the EU’s objective to halve the number of fatalities by 2020 in comparison to 2010. This is a more ambitious target than in previous action plans, and the aim is to reach the objective in a shorter time.

There are intermediate targets for the number of killed and injured for each year towards 2020. There is no specific sub-target for the focus but close monitoring will be made.

Figure 5. **Trends in road fatalities towards national target**



Source: IRTAD.

Evaluation of past road safety strategy

Denmark's 2000 Traffic Safety Action Plan set as its main target a 40% reduction in fatalities and serious injury crashes 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. The target was reached by the end of 2012, as there were 167 fatalities.

7. Recent and on-going research

The effect of bicyclists wearing reflective clothes is being evaluated in a randomised control trial at Aalborg University involving 8 000 bicyclists in Denmark (www.cykkeljakken.aau.dk – only in Danish).

Another research project at the university is focusing on safe solutions for bicyclist at urban intersections using a conflict technique.

Two research projects on alternative methods to identify hazardous road locations will terminate in 2014 at Aalborg University. The conclusions will be disseminated through journal papers and conferences later on in 2014 and 2015.

Useful websites and references

Danish Road Directorate	www.vejdirektoratet.dk
Technical University of Denmark	www.transport.dtu.dk
Aalborg University	http://www.aau.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
The Danish Road Safety Commission National Action Plan 2013-2020	http://www.faerdselssikkerhedskommissionen.dk/sites/kombelt.dev2.1508test.dk/files/filer/Danish%20National%20Action%20plan%202013-2020%20%E2%80%9CEvery%20Accident%20is%20one%20too%20many%20%E2%80%93%20a%20shared%20responsibility.pdf

Contact

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Finland

Source: IRTAD, Finnish Transport Safety Agency, TraFi

Inhabitants	Vehicles/1 000 inhabitants	Road fatalities in 2012	Fatalities /100 000 inhabitants in 2012
5.4 million	**710**	**255**	**4.7**

1. Road safety data collection

Definitions

- Road fatality: A person who died immediately after the crash or within the next 30 days.
- Serious injuries: Data on serious injuries are not collected into the official statistics at the moment. Finland is working actively to implement the European strategy on serious injuries using the MAIS 3+ definition.

Data collection

Data on traffic crashes 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 derived from statistics on causes of death. The data are also supplemented with information on crash locations from the Finnish Transport Agency's Digiroad information system; data from the Rescue Services' PRONTO statistics on resources and crashes; data on coercive measures from Justice Statistics; and with data on fatal drunk-driving crashes from the Road Crash Investigation Teams. The data on road traffic crashes 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 crashes 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 crashes. The coverage of crashes having caused personal injuries is around 20%. There are differences in the reporting of different types of crash. The coverage is the worst for cyclists injured in single crashes. These deficiencies are mainly due to the fact that many of these crashes are not reported to the police because, in a number of cases, the injuries are slight and compensation is settled between the parties involved. The majority of the missing crashes that have caused injuries are minor, since the Road Traffic Act only requires reporting of incidents to the police 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 crashes is published in Finland. The Traffic Safety Committee of Insurance Companies (VALT) compiles statistics on crashes 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 crashes, the VALT statistics are the most useful, as they include many of the minor crashes that the parties involved settle between themselves and report to the insurance company but not to the police. The Road Crash Investigation Teams investigate all fatal road traffic crashes 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 crashes, but the data collected are mainly intended for health-care services and cannot be properly used for traffic safety purposes. 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.

2. Most recent safety data

Road crashes in 2012

In 2012, 255 persons were killed and 7 088 injured in road traffic crashes. This corresponds, respectively, to a 13% and 11% decrease in comparison with data for 2011.

Provisional data for 2013

Provisional data for 2013 show a 2% increase in the number of road deaths. Fatalities among young people (15–24 years) decreased by around 20% while for the elderly (65+ years) fatalities increased by 20%.

3. Trends in traffic and road safety (1990-2013)

Traffic

Since 2000, total vehicle kilometres increased by 16% — a moderate evolution in comparison to other countries — but the vehicle fleet increased by 54%.

Between 1995 and 2007, total vehicle-kilometres increased annually by approximately 2%. Since 2007, the increase has been more moderate, with an annual average increase of 0.5%. The vehicle fleet continues to increase and motorisation has not yet peaked in Finland. This suggests that the observed slower increase in vehicle-kilometres is probably temporary and linked to the global economic downturn.

Change in the number of deaths and injury crashes (1990-2012)

Between 1990 and 2012, the number of deaths decreased by 60.7%. In recent years (2000-2012), deaths decreased by 35.6%. Pedestrian and bicyclist fatalities and those in urban areas decreased more than fatalities for car occupants and in rural areas.

No single measure can be identified as the main reason for this positive road safety development. Between 2000 and 2012, a number of measures were implemented including:

- Lower speed limits in most urban areas;
- Construction of pedestrian and bicycle paths;
- Construction of 250 km of new motorways;
- Installation of automatic speed cameras on nearly 2 000 km of main roads;
- Reform of driver education;
- Renewal of the car fleet, with better safety performance and occupant protection than 15 years ago.

Rates

Since 1990, the death rate per 100 000 population has decreased by 63.8%, while the number of vehicles per 1 000 population has increased by 48%. In 2012, the death rate per 100 000 population was 4.7.

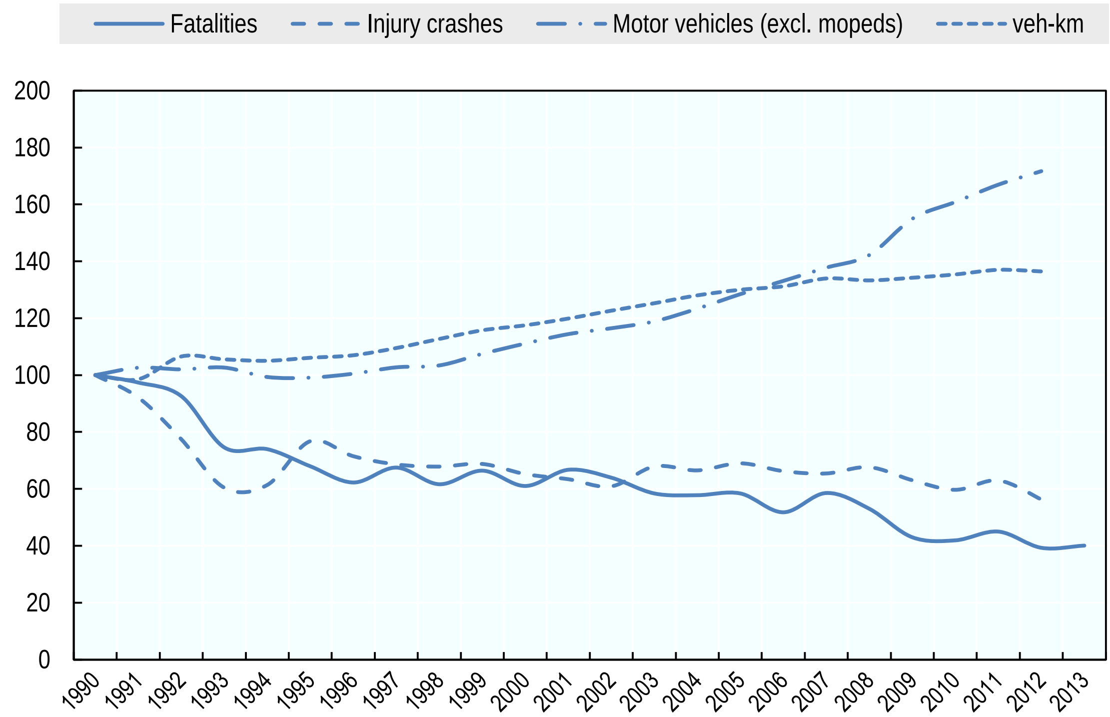
Table 1. **Road safety and traffic data**

						2012 % change from		
	1990	2000	2010	2011	2012	*2011*	*2000*	*1990*
Reported safety data								
Fatalities	649	396	272	292	255	-12.7%	-35.6%	-60.7%
Injury crashes	10 175	6 633	6 072	6 408	5 725	-10.7%	-13.7%	-43.7%
Deaths per 100,000 population	13.0	7.7	5.1	5.4	4.7	-13.1%	-38.3%	-63.8%
Deaths per 10,000 registered vehicles	2.9	1.6	0.8	0.8	0.7	-15.1%	-58.3%	-77.1%
Deaths per billion vehicle kilometres	16.3	8.5	5.1	5.4	4.7	-12.3%	-44.5%	-71.2%
Traffic data								
Registered vehicles[1] (thousands)	2 235	2 483	3 595	3 731	3 837	2.8%	54.5%	71.7%
Vehicle kilometres (millions)	39 750	46 710	53 815	54 460	54 235	-0.4%	16.1%	36.4%
Registered vehicles per 1,000 population)	449.3	480.1	671.8	694.1	710.4	2.3%	48.0%	58.1%

Source: IRTAD.

1. Registered vehicles excluding mopeds.

Figure 1. **Road safety and traffic data**
1990 = index 100



Source: IRTAD

Road users

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

However, the number of motorcyclists killed has doubled since 2000, but a significant decrease was observed in 2012 with a 25% in the number of motorcyclists killed.

Injury crashes involving mopeds more than doubled between 2000 and 2008, probably due to the increase of the moped fleet. An average of 1 000 crashes occurred annually between the years 2008 and 2011. In 2012 and 2013, there were significantly less moped crashes, around 750 per year, because of the new legislation requiring mandatory driving lessons, and because of the decrease in the registration of new mopeds.

Table 2. **Road fatalities by road user group**

						2012 % change from		
	1990	2000	2010	2011	2012	*2011*	*2000*	*1990*
Bicyclists	101	53	26	19	19	-	-64.2%	-81.2%
Mopeds	27	9	9	10	7	-30.0%	-22.2%	-74.1%
Motorcycles	28	10	16	28	21	-25.0%	110.0%	-25.0%
Passenger car occupants	343	224	159	172	147	-14.5%	-34.4%	-57.1%
Pedestrians	105	62	35	41	29	-29.3%	-53.2%	-72.4%
Others incl. unknown	45	38	27	22	32	45.5%	-15.8%	-28.9%
Total	*649*	*396*	*272*	*292*	*255*	*-12.7%*	*-35.6%*	*-60.7%*

Source: IRTAD

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 7 in 2012.

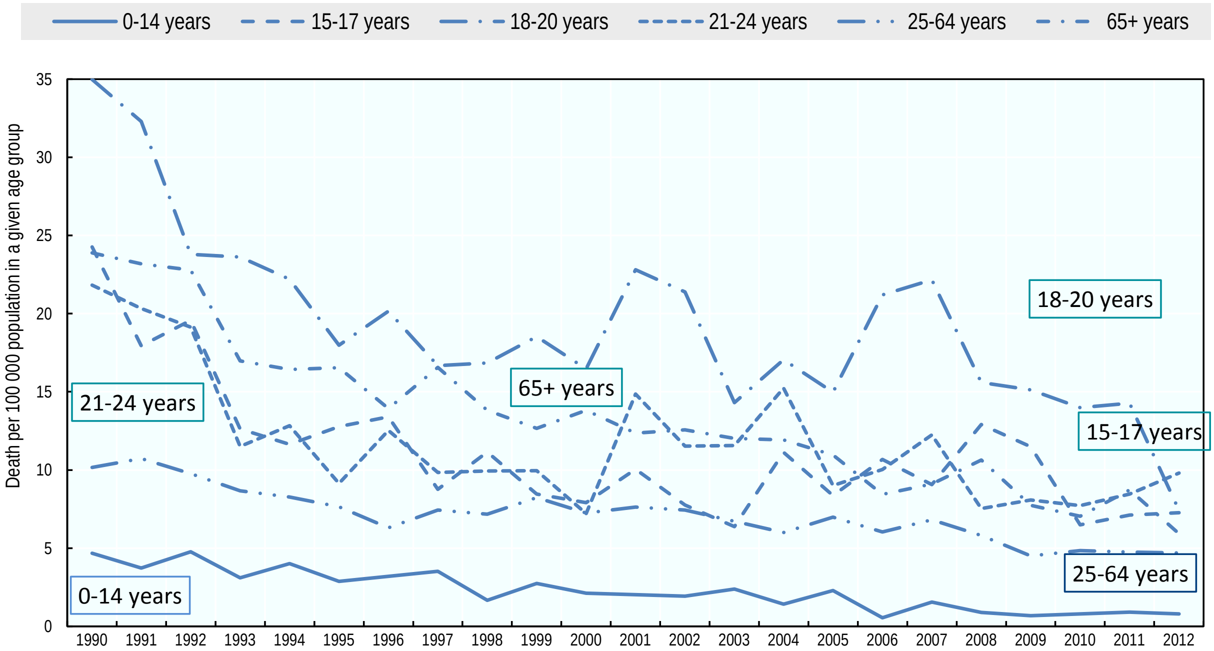
While the 18-20 age group traditionally had a mortality rate much higher than the other age groups, the significant reduction in their mortality in 2012, which was reduced by half, led to a record low in their fatality rate, i.e. three times less than in 2002. Preliminary figures for 2013 show that the mortality rate in this age group has remained at the same level. The reasons for this reduction have not yet been scientifically examined.

Table 3. **Road fatalities by age group**

						2012 % change from...		
Age	1990	2000	2010	2011	2012	*2011*	*2000*	*1990*
0-5	12	6	3	2	1	n.a	n.a	-91.7%
6-9	15	6	2	2	1	n.a	n.a	-93.3%
10-14	18	8	2	4	5	n.a	n.a	-72.2%
15-17	43	16	13	14	14	n.a	n.a	-67.4%
18-20	66	32	28	29	15	-48.3%	-53.1%	-77.3%
21-24	63	19	20	22	26	18.2%	36.8%	-58.7%
25-64	274	203	140	137	135	-1.5%	-33.5%	-50.7%
>65	158	106	64	82	58	-29.3%	-45.3%	-63.3%
Total incl. unknown	*649*	*396*	*272*	*292*	*255*	*-12.7%*	*-35.6%*	*-60.7%*

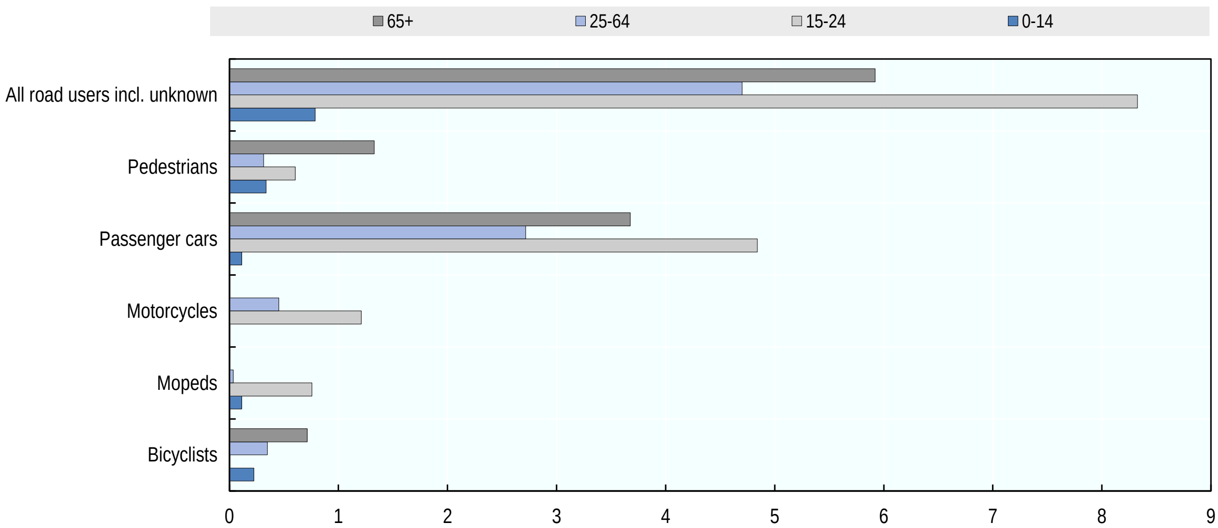
Source: IRTAD.

Figure 2. **Road death rates by age group**
Fatalities per 100 000 population in a given age group, 1990-2012



Source: IRTAD.

Figure 3. **Road death rate by age and road user group**
Fatalities per 100 000 population



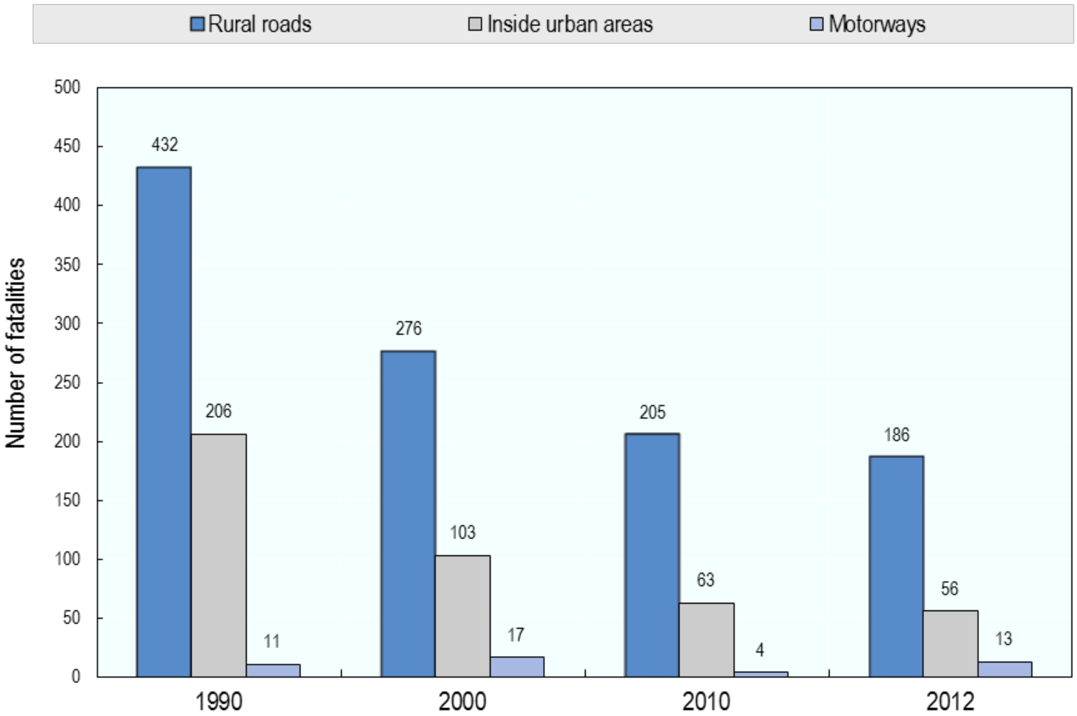
Source: IRTAD.

Road type

In 2012, 73% of fatalities occurred on rural roads, 22% in urban areas and 5% on motorways. Since 1990, the reduction in deaths 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 crashes. High-risk roads are usually those with a one-way carriage, no central fencing and 80 or 100 km/h speed limits.

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



Source: IRTAD.

4. Economic costs of traffic crashes

The economic and social costs of road crashes is estimated based on the following cost components: actual medical and intervention costs (health care, police, fire brigade, etc.), loss of production calculated through an estimation of lost labour time; and loss of human well-being, estimated on the basis of a willingness-to-pay method, using values from other Nordic countries.

Cost analysis is conducted and updated every five years. In the near future, health care information on crash severity will be integrated to improve the estimation of health costs.

In 2012, the cost of road crashes based on police reported crashes was EUR 2.3 billion. This does not include costs associated with non-reported crashes (in particular, a large proportion of bicycle crashes and property-damage-only crashes).

Table 4. **Costs of road crashes, 2012**

Costs (EUR)	Unit Cost	Total *
Fatalities	1 919 000	489 million
Injuries*	241 000	1 708 million
Property damage only crashes	2 950	81 million €
Total (EUR)		EUR 2.3 billion
Total as % of GDP		1,2 %

Source: Finnish Transport Agency (2010). Tieliikenteen ajokustannusten yksikköarvot 2010 (Unit prices for driving costs in 2010) http://www2.liikennevirasto.fi/julkaisut/pdf3/lo_2010-21_tieliikenteen_ajokustannusten_web.pdf

5. Recent trends in road user behaviour

Impaired driving

Drink driving

The maximum authorised blood alcohol content (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 declined, 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.

Distraction

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

Speed

Comprehensive speed data only exists for main roads. In the future, speed statistics will also cover regional and local roads, where speed information will be collected in connection with annual traffic counts.

While a high proportion of drivers exceed the speed limit, especially during the winter months with lower speed limits, the percentage of drivers speeding 10 km/h above the limit is relatively low: in 2012, 10% of drivers exceeded the speed limits in summer and 11% in winter.

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

The table below summarises the main speed limits in Finland.

Table 5. **Passenger car speed limits by road type, 2014**

	General speed limit
Urban roads	50 km/h
Rural main roads	100 km/h (summer) 80 km/h (winter)
Rural regional and local roads	80 km/h
Motorways	120 km/h (summer) 100 km/h (winter)

Source: TraFi.

There have not been any major changes in mean speed over the past 10 years. Reduction of the mean speed by 1 to 3 km/h has been observed on road sections where speed cameras have been installed.

According to the report from the Road Crash Investigation Team, speeding or inappropriate speed is a contributing factor in 42% of all motor vehicle fatal crashes.

Seatbelts and helmets

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

According to the road crash investigation team's report, 47% of car or van occupants killed did not wear a seat belt. It is estimated that a 100% seat-belt use would have saved 15 people in 2012.

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

	1980	*2000*	*2010*	*2011*	*2012*	*2013*
Front seat						
General			82%	89%		
Urban roads (driver)	22%	80%	91%	87%	90%	87%
Rural roads (driver)		89%	94%	95%	94%	95%
Rear seats						
Adults			84%	87%	87%	86%

Source: TraFi.

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 44% in 2013. 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 6b. **Helmet-wearing rate by cyclists**

	2005	2009	2010	2011	2012	2013
Helmet wearing by cyclists	29%	32%	33%	37%	37%	44%

Source: TraFi.

6. National road safety strategies and targets

Organisation of road safety

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.

Road safety strategy for 2011-2020

A new National Road Safety Strategy was published on 17 Feb 2012[2].

Targets

The strategy set the following targets:

- 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 5 750 injuries by 2020;;
- Long-term target: less than 100 fatalities by 2025.

Target setting

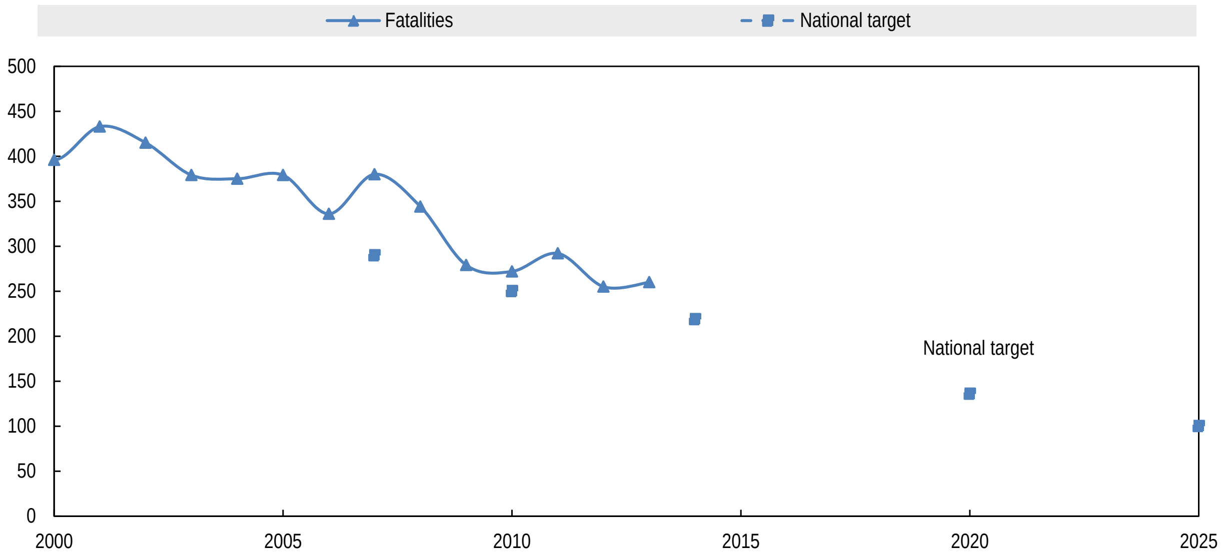
The target for 2020 is based on the target set by the European Committee for the EU.

[2]. Available in Finnish at: http://www.lvm.fi/c/document_library/get_file?folderId=1986563&name=DLFE-14137.pdf&title=OS0112_Liikenneturvallisuussuunnitelma_moniste

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, the number of fatalities and injuries, driving speed on main roads, the proportion of drink-drivers in traffic, the median age of the vehicle fleet and the utilisation rate of different safety devices.

Figure 5. **Trends in road fatalities towards national target**



Source: IRTAD.

Evaluation of past road safety strategy

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.

7. Recent safety measures (2011-2013)

Road safety management

Driving licence

- The new law on drivers' licences came into force on 19.1.2013, announcing some changes concerning licences and education.
- Light four-wheel vehicles (moped cars) and moped licences were diverged on 19.1.2013. A light four-wheeler is no longer allowed to operate with an ordinary moped licence.
- Conditions for the driver's licence for mopeds were modified on 1.6.2011. Training is mandatory and a theory examination is completed with a driving test.

Driver behaviour

Enforcement

- As of 2014-2015, the Finnish police will be equipped with a large number of plate-recognition devices installed in their vehicles.

Speed management

- In 2011, the first test site of automated speed enforcement based on average speed (section control), was set up. Unfortunately, the tested hardware was not reliable enough for permanent use. The mean speed was lowered by approximately 2 km/h during the test, which corresponds to the results obtained with traditional speed cameras.

Impaired driving

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

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 the 'Angry Birds' game.

Infrastructure

- A new planning guide for moped traffic was published in 2013, which recommends that mopeds circulate on the roadway instead of bicycle paths which was common practice in most urban areas. This measure was pre-tested in some areas in Northern Finland, and especially in the Oulu region, where it resulted in a significant reduction in moped crashes.

8. 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, the Finnish Transport Agency and the 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

- 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 the 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

- “Feedback on driving style” was developed and tested to enhance the traffic safety of young drivers in 2010-2011. The results were promising, and a wider test and study started in 2013. Feedback is built up based on the location and speed data received from satellites and digital roadmap data. Feedback on driving style is sent to the young driver and the owner of the car (often a parent) for joint consideration. In 2010-2011, the positive safety effects of feedback were found in regard to speeding. However, the number of test drivers was relatively low and differences between individual drivers were too great to draw clear conclusions.

Older research reports (in Finnish, with abstract in English) can be found at: *http://www.lintu.info/TeleISA.pdf*

Useful websites and references

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
Roads safety plan 2011 2014	http://www.lvm.fi/c/document_library/get_file?folderId=1986563&name=DLFE-15604.pdf&title=Tavoitteet%20todeksi.%20Tieliikenteen%20turvallisuussuunnitelma%20vuoteen%202014
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

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FRANCE

Source: IRTAD, ONISR France mainland

Inhabitants in 2012	Vehicles/1 000 inhabitants in 2012	Road fatalities in 2012	Fatalities /100 000 inhabitants in 2012
63.4 millions	**650**	**3 653**	**5.8**

1. Road safety data collection

Definition

- Fatality: person who died within 30 days following a road crash. Before 2005, fatalities were counted within 6 days. For international comparisons, a correction factor is applied for years before 2005.
- Hospitalised: non-fatal casualty who stayed longer than 24 hours in hospital.
- Slightly injured – non-fatal casualty who received medical care but did not stay in hospital longer than 24 hours.

Data collection

French official road safety information comes from the National Road Traffic Accident (RTA) database and presents results for mainland France only, unless specifically specified that overseas areas data are included.

Road traffic accidents (RTA) leading to injury are recorded by the police force onto their own software according to a dedicated format (BAAC). These files are then gathered centrally into a Web-based software and constitute the National RTA database. This process is managed by the French Road Safety Observatory (ONISR), with the assistance of technical teams from the French Research Centre on Risks, Environment, Mobility and Planning (CEREMA) and the network of local Observatories to check and complement the information as necessary.

The latest version of the BAAC file dates from a 2007 decree that characterises a road traffic accident involving physical injury (fatal or non-fatal). Proven suicides and intentional murders are not registered as RTA.

Monitoring the quality of data is also ensured partially by comparing with the Rhône register – information gathered in the Rhône area from hospitals. Information on the number of killed is very accurate, as are the records Serious injury crashes are usually recorded accurately as well. However, there are some variations across the country about the way slight injury accidents are recorded or not.

In the short term, as some expertise has been developed using both the Rhône register and the National RTA database, it is planned to build a national estimate for MAIS 3+ victims from these in order to provide the relevant information requested by the European Commission for their 2014 baseline.

2. Most recent safety data

Safety performance in 2012

Road deaths in France decreased by 7.8 % in 2012 in comparison with 2011, and by 8.5% in comparison with 2010. The number of road fatalities (3 653 persons) was the lowest since 1948. Both the number of injury crashes and hospitalised people decreased (by 7.1% and 8.5% respectively) in 2012 in comparison with 2011.

In 2011, unusual weather and calendar specificities (a dry year, the hottest since 2003) had been particularly unfavourable to road safety. Seasonality in 2012 was close to the average as regards temperatures, sunshine or rain. Progress in road safety was likely more spread across both years, and partly influenced by the economic downturn.

Provisional data for 2013

In 2013, the downward trend strengthened. Provisional data show a 10.5% decrease in the number of fatalities compared to 2012. A marked reduction was observed for children and young people under 24 (by 16%), and a more modest decrease for pedestrians and motorcyclists (by 5% each).

The progress between 2012 and 2013 was particularly significant during the first semester, which can be attributed to strong communication campaigns, particularly regarding the launch of new mobile automated speed cameras; bad weather conditions, which led to fewer leisure journeys – especially for PTW and pedestrians; and the increase in fuel price, which favoured ecodriving.

3. Trends in traffic and road safety (1990- 2013)

Traffic

Between 1990 and 2012, the number of motorised vehicles increased by 45% and the overall vehicle kilometres driven by 29%. Over the past 10 years, including 2013, traffic has been more or less stable. Slight variations can be observed according to fuel prices, and some downward trend in HGV traffic according to the economic downturn.

Change in the number of fatalities and injury crashes (1990-2012)

Between 1990 and 2012, the number of fatalities decreased by 67%. One can distinguish the following periods:

- **From 1990 to 2000** : In 1989 the publication of the White Paper on Road Safety paved the way for the future road safety policies on improving and enhancing enforcement that would come into effect 10 years later.

- In 1990, the maximum speed limit in built-up areas was set at 50 km/h.
- In 1990, the maximum blood alcohol content level (BAC) was lowered to 0.5 g/l.
- The demerit point system was introduced in 1992.
- Most motorway network construction was achieved during this period.
- Most vehicles were equipped with airbags.
- The educational continuum was implemented.

Despite these measures, fatalities only decreased by 20% over the period, as traffic increased by 20%. In 2000, 15 people were killed per billion veh-km driven.

- **From 2000 to 2010**: In July 2002, French President Jacques Chirac named Road Safety one of his 4 main priorities.
    - The first permanent automated speed cameras were introduced in 2003.
    - A Road Safety National Council was installed for both public and private stakeholders to meet and present action proposals to the government.
    - Probationary licences were introduced in 2004.
    - A driver caught exceeding the maximum blood concentration level would lose six points.

  This policy made it possible to break through the symbolic level of 5 000 fatalities per year in 2006. Fatalities fell by 51% over the 10 year period. Among the factors for this reduction, 75% could be attributed to the reduction in average speed and 11% to improved vehicle safety. At the same time, global traffic was up 7%. In 2010, 7 people were killed per billion veh-km driven; in 2013 this rate should be below 6.

- **Between 2010 and 2013**: fatalities decreased by 18%. The decrease was of 4% for pedestrians, nil for pedal cyclists, 36% for moped riders but 10% for motorcyclists, 24% for car users and 12% for HGV users. Fatalities among 18-24 year olds decreased by 23 %.

Rates

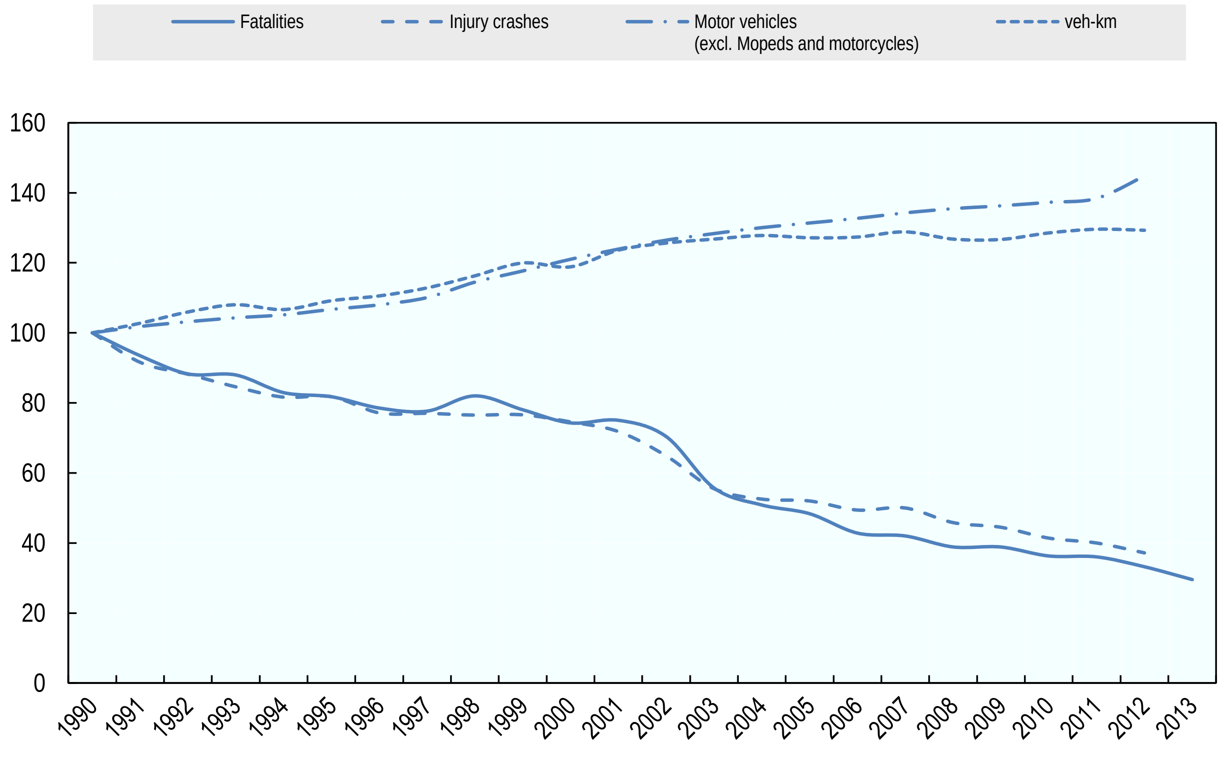
In 2012, the fatality rate expressed in terms of deaths per 100 000 population was 5.8 and the fatality risks, expressed in terms of deaths per billion veh-km, was 6.5; respectively, a 71% and 73% reduction compared to 1990 levels. During the same period, the number of vehicles per 1 000 population has increased by 29%.

Table 1. **Road safety and traffic data**

	1990	2000	2010	2011	2012	2012 % change from 2011	2000	1990
Reported safety data								
Fatalities	10 999	8 170	3 992	3 963	3 653	-7.8%	-55.3%	-66.8%
Injury crashes	162 573	121 223	67 288	65 024	60 437	-7.1%	-50.1%	-62.8%
Injured persons hospitalised	–	–	30 393	29 679	27 142	-8.5%	–	–
Deaths per 100,000 population	19.8	13.7	6.4	6.3	5.8	-8.3%	-58.0%	-70.9%
Deaths per 10,000 registered veh.	3.9	2.3	1.0	1.0	0.9	-0.1	-0.6	-0.8
Deaths per billion vehicle kilometres	25.7	15.6	7.1	7.0	6.5	-7.4%	-58.5%	-74.8%
Traffic data								
Registered vehicles[1] (thousands excl. mopeds)	28 106	33 452	37 625	37 941	41 236	8.7%	23.3%	46.7%
Vehicle kilometres (millions)	419 800	518 200	552 200	565 000	565 300	-0.1%	9.1%	34.7%
Registered vehicles per 1,000 population)	496	568	599	601	650	-	-	-

Source: ONISR

Figure 1a. **Road safety and traffic data**
1990 = index 100

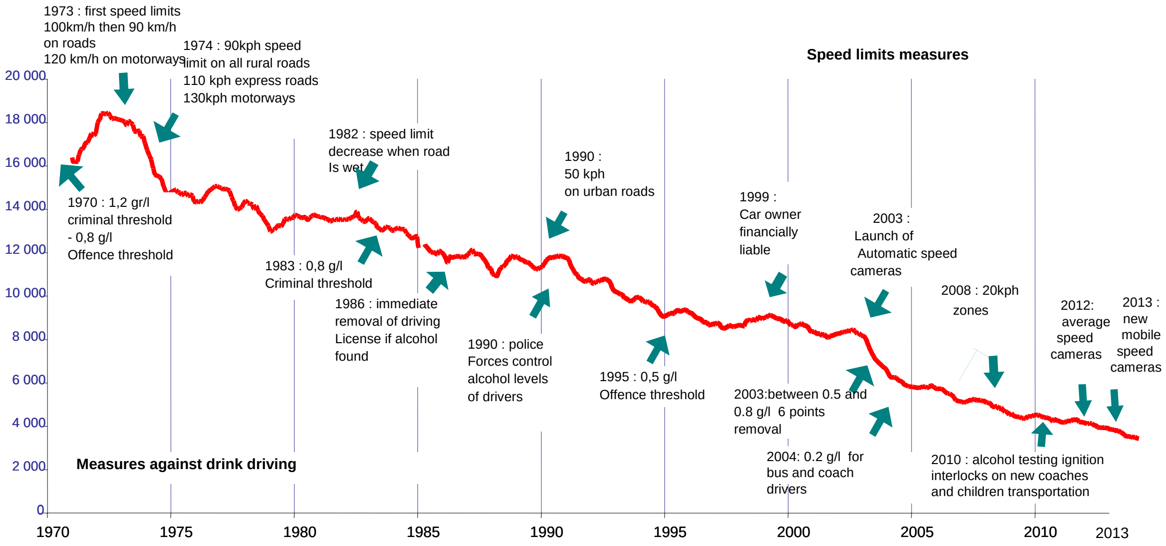


Source: ONISR

1. Registered vehicles excluding mopeds.

Figure 1b. **Road fatality trend in France, and road safety measures on speed and alcohol**

1970-2013 (12 month floating average)



Source: ONISR

Road users

Among the 310 lives saved in 2012 in comparison with 2011, 180 were car occupants (reduction of 8.7%), 96 were motorcyclists (reduction of 12.6%), 41 were moped riders (-18.6%) and 30 were pedestrians (-5.8%). There were, however, 23 more cyclists killed (+16.3%).

Since 2000, car occupants benefited the most from road safety improvements (-64.4%). The good results for mopeds (-60.7%) needs to be seen in the context of strong decrease in this travel mode. The number of motorcyclists killed between 2000 and 2012 decreased by only 29.1%. The good results in 2012 compensate for the strong increase (+8%) in 2011. 83% of motorcyclists killed in 2012 rode a motorcycle above 125 cm3.

Soft modes have experienced a less favourable trend. The number of pedestrians killed decreased by 41.6% between 2000 and 2012. After a strong increase in 2011 (+7%), pedestrian mortality returned in 2012 to the level of 2010. The number of cyclists killed decreased by 39.3% between 2000 and 2012, but faced a severe increase (+16.3%) in 2012. It can be noted that since 2000, cycling is developing in French city centres thanks to the availability of the easy bicycle rental services in main towns, and more bicycle friendly infrastructures both in, and outside, built-up areas.

Table 2. **Road fatalities by road user group**

						2012 % change from		
	1990	2000	2010	2011	2012	*2011*	*2000*	*1990*
Bicyclists	429	273	147	141	164	16.3%	-39.9%	-61.8%
Mopeds	702	461	248	220	179	-18.6%	-61.2%	-74.5%
Motorcycles	1 011	947	704	760	664	-12.6%	-29.9%	-34.3%
Passenger car occupants	6 729	5 351	2 117	2 062	1 882	-8.7%	-64.8%	-72.0%
Pedestrians	496	848	485	519	489	-5.8%	-42.3%	-1.4%
Others incl. unknown	1 632	290	291	261	275	5.4%	-5.3%	-83.1%
Total	10 999	8 170	3 992	3 963	3 653	-7.8%	-55.3%	-66.8%

Source: IRTAD

Age

Among the 310 lives saved in 2012, 60 are young people in the 18-24 age group, representing a decrease of 7%. The only age group which observed an increase are the 75+ year olds.

Between 2000 and 2012; the largest decrease was observed for teenagers and children (-69.6% for 10-14 year olds, -67.6% for the 6-9 year olds, -66.9% for the 0-5 year olds). The reduction for seniors above 65 was smallest (-44%).

In 2012, the 75+ represented 13.2% of all fatalities. This figure was 8.9% in 2000. This evolution is mainly due to the demographic evolution and the ageing of society. The 75+ represented nearly 50% of all pedestrian fatalities in 2012.

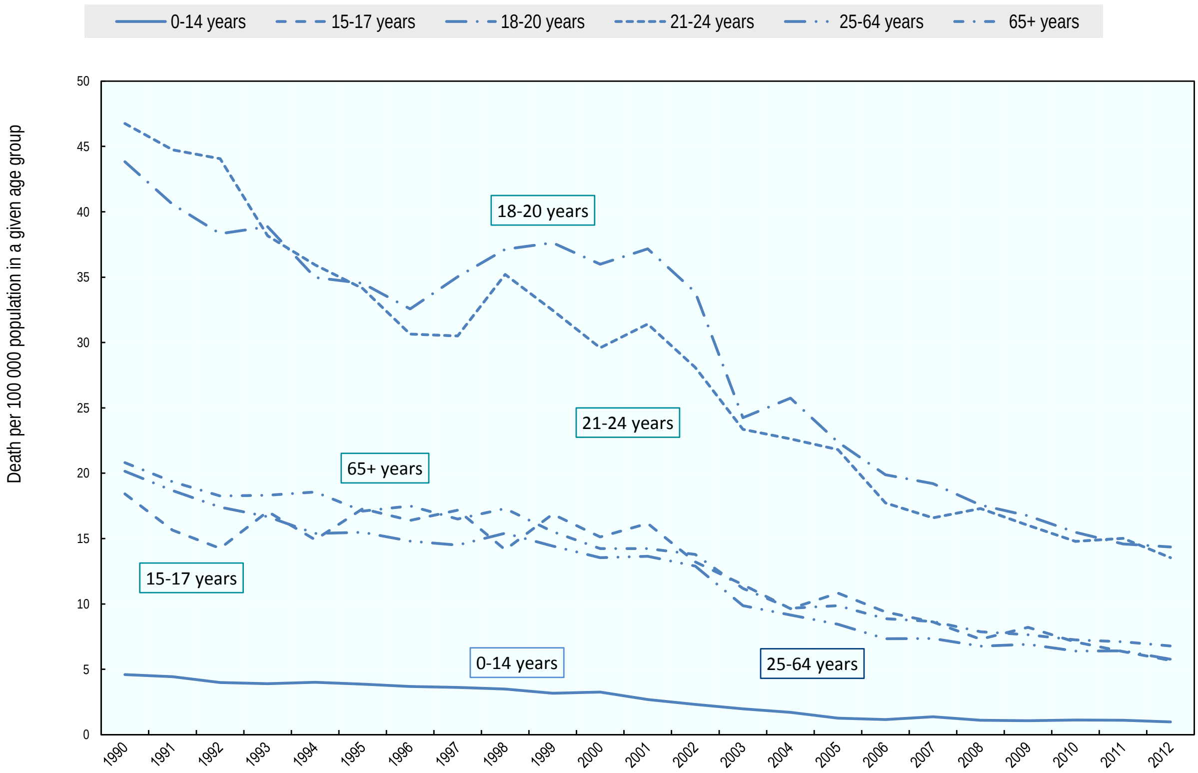
In 2012, nearly one quarter of fatalities involved a novice driver (holding a licence for less than two years). The risk (in terms of km driver) of a novice driver being killed is four times higher than that for an experienced driver.

Table 3. **Road fatalities by age group**

Age	1990	2000	2010	2011	2012	2012 % change from... 2011	2000	1990
0-5	204	125	45	48	41	-14.6%	-66.9%	-78.0%
6-9	124	68	27	29	22	-24.1%	-67.6%	-82.5%
10-14	207	173	58	51	52	2.0%	-69.6%	-75.4%
15-17	463	354	161	144	131	-9.0%	-62.6%	-72.2%
18-20	1 131	867	370	346	334	-3.5%	-61.0%	-71.0%
21-24	1 563	879	461	467	419	-10.3%	-51.8%	-73.7%
25-64	5 672	4 204	2 105	2 119	1 909	-9.9%	-54.1%	-67.0%
65-74	742	631	264	280	264	-5.7%	-55.3%	-62.0%
>75	865	727	500	478	481	0.6%	-29.3%	-40.5%
Total incl. unknown	10 999	8 170	3 992	3 963	3 653	-7.8%	-52.2%	-64.5%

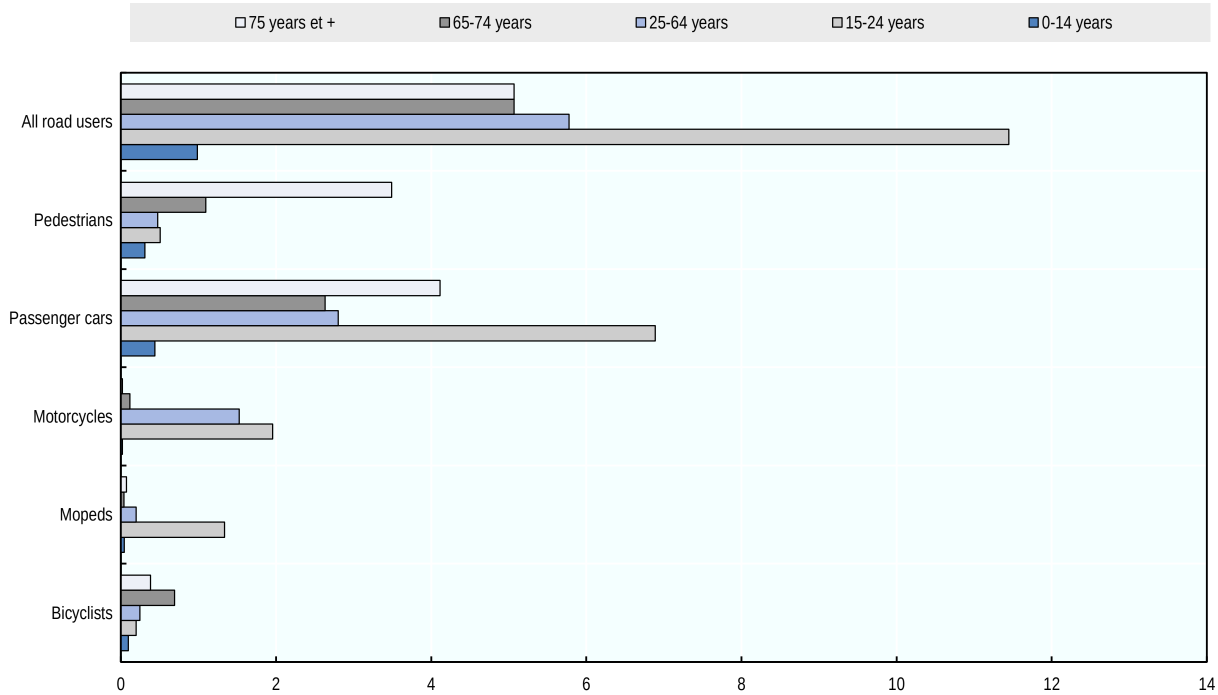
Source: IRTAD

Figure 2. **Road death rates by age group**
Fatalities per 100 000 population in a given age group, 1990-2012



Source: IRTAD

Figure 3. **Road death rate by age and road user group**
Fatalities per 100 000 population



Source: IRTAD

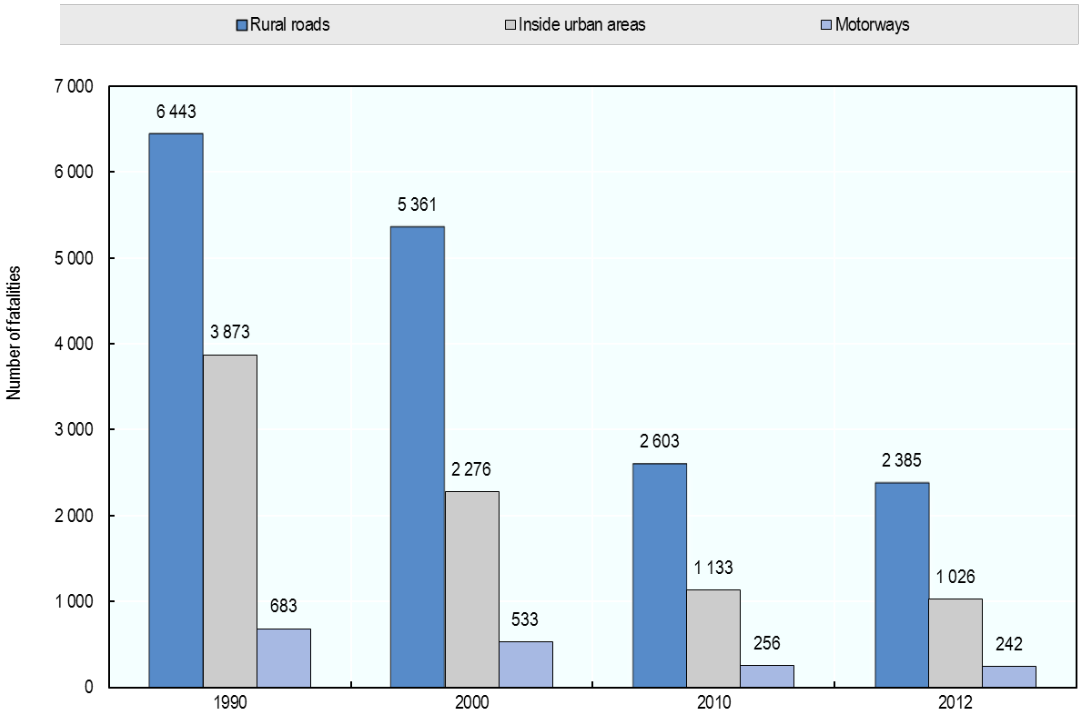
Road Type

France has a very large road network (more than 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.

In 2012, 65% of fatalities occurred on rural roads, 28% on urban roads and 7% on motorways. The reduction benefited the whole network.

More than half of people killed die on a 90 km/h speed limited single carriageway, outside built-up areas (road with a 90 km/h speed limit).

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



Source: IRTAD

4. Economic costs of traffic crashes

Traffic crashes represent a very significant cost for society, estimated in 2012 around EUR 22 billion, i.e. 1% of GDP. These costs have been steadily decreasing since 2005, due to the continuous improvement in safety level

Since 2003, the French Road Safety Observatory uses the same methodology to estimate road crash costs and updates every year the unit cost for a fatality, an hospitalised person, a slight injury and a damage only crash, based on inflation rate and household consumption.

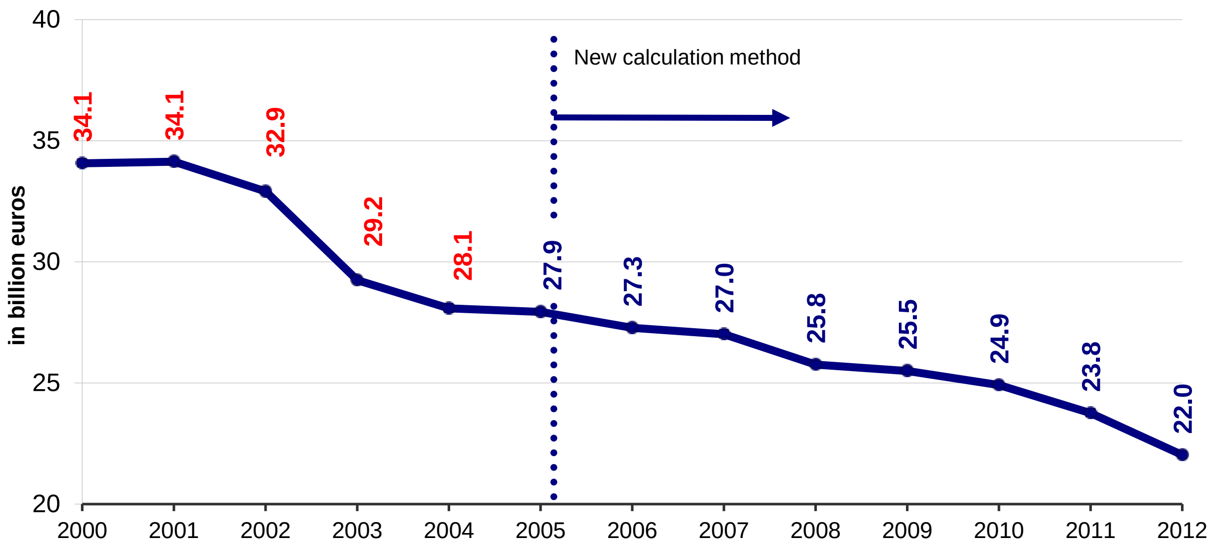
Injury crashes represent a cost of around EUR 9.5 billion, including EUR 4.9 billion for fatalities, 3.9 billion for hospitalised persons, 0.3 billion for slight injuries and 0.4 billion for property damage. Non-injury crashes entail property damage costs estimated at EUR 12.5 billion. This means that half of the crash costs concern property damage only crashes, and this figure does not take into account crashes without third party.

Table 4. **Costs of road crashes**
2012

Costs (EUR)	Unit Cost (EUR)	Total
Fatalities	1,342,072	4.9 billion
Hospitalised people	143,787	3.9 billion
Slight injuries	5,752	0.3 billion
Property damage costs of injury crashes	6,778	0.4 billion
Property damage of non injury crashes		12.5 billion
Total (EUR)		22 billion
Total as % of GDP		1%

Source: ONISR

Figure 5. **Costs of road crashes between 2010 and 2012**



Source: ONISR

5. Recent trends in road user behaviour

Impaired driving

Drink driving

It is an offence to drive with a blood alcohol content (BAC) level over 0.5 g/l. The maximum BAC level for bus drivers is 0.2 g/l.

In 2012, 5 240 injury crashes and 925 fatalities involved a driver with a BAC above the legal limit. The share of fatal crashes involving at least one driver with a BAC above 0.5 g/l has remained stable over the past 10 years at around 30%. Drinking and driving concerns all age groups.

Drugs and driving

In 2012, 531 fatalities (14.5% of all road deaths) involved a driver controlled positive for illegal drugs illegal drug. In reality, this figure is probably higher as it is estimated that in 38% of fatal crashes, results of the drug test are not included in the files.

Half of the drivers positive to a drug tests have a BAC level above the legal limit. A study among drivers estimated that 3% of crashes could be attributed to the consumption of medical drugs.

Distraction

Some studies show that between 25% and 50% of injury crashes are due to a lack of attention, but these incidents are difficult to report. In police files, the factor "distracted attention" was mentioned in 8.7% of fatalities in 2012.

Mobile phone: It is forbidden to drive with a hand-held mobile phone, but the use of hands-free mobile phones is tolerated. In 2012, a roadside survey showed that at any given time, 2% of car drivers were using a hand-held phone while driving.

A study undertaken in 2010 estimated that 10% of injury crashes could be attributed to phone use while driving.

Fatigue

Among contributing factors to a crash, police files include *sickness and fatigue.* According to these files, sickness and fatigue are a contributing factor in 8% of fatal crashes and this figure has remained stable over the past years.

Speed

In 2012, inappropriate or excessive speed was the main causation factor in at least 25% of fatal crashes.

Since 2000, the average speed during daytime has been reduced by 9.7km/h, corresponding to an 11% decrease. During the same period, road fatalities decreased by 55%. However, in 2012 a 0.3 km/h increase in average speed is observed, not because of the main light vehicle flow, but due to the weight of the positive variation in motorcyclists and HGV average speeds.

Between 2000 and 2012, the share of drivers above the speed limits was halved from 60% to 30%.

The table below summarises the main speed limits in France.

Table 4. **Passenger car speed limits by road type, 2014**

	General speed limit	Comments
Urban roads	50 km/h	
Rural roads	90 km/h	80 km/h by wet weather
Motorways	130 km/h	110 km/h by wet weather or for novice drivers

Source: ONISR

Seatbelts and helmets

Seat-belt wearing is compulsory in front seats since 1973 and in rear seats since 1990. The seat-belt wearing rate is among the highest in OECD countries; however, there is still room for improvement, especially for the rear seats. In 2012, the wearing rate on front seats was 98.5%. The wearing rate on rear seats is lower at 84%, with an important variation for children (90%) and adults (80%).

In 2012, 19% of vehicle occupants killed were not wearing a seatbelt (or the seatbelt was not well buckled) when the crash occurred.

Between 2000 and 2010, the number of persons killed in a road crash while not wearing a seatbelt decreased more significantly than the overall mortality (-65.4% vs -51%). This can be explained by a higher rate of seatbelt use and also a decreasing trend in crash impact speed. From 2004, measures came into effect whereby 3 demerit points (instead of 2) were attributed to the non-wearing of seatbelts while driving.

Table 5. **Seat-belt wearing rate by car occupants**

	2005	*2013*
Front seat		
General	97.1%	98.5%
Urban roads	94.2%	
Rural roads	98.3%	
Rear seats		84%
Adults	69.8%	80%
Children	83%	90%

Source: ONISR

Since 1973, all riders of motorised two-wheelers (mopeds and motorcycles) are required to wear helmets. The helmet-wearing rate of motorcyclists (above 50 cc) is high, at 93%. Nevertheless in 2012, 20 of the motorcyclists killed (3.5%) did not wear a helmet. For moped riders, the helmet-wearing rate is 95.8%. In 2012, 25 moped riders killed (13.4%) did not wear a helmet.

There is no mandatory helmet use law for cyclists.

6. National road safety strategies and targets

Organisation of road safety

Since the recent change of government in 2012, the Lead Agency for Road Safety (Road Safety Inter-ministerial Directorate – DSCR) reports to the Minister of the Interior. The Minister of the Interior chairs the Inter-ministerial Road Safety Committee (CISR), an Assembly of ministries' representatives, where decisions are taken. The French Road Safety Observatory (ONISR) reports to the Road Safety Director and is in charge of managing the Road Traffic Accident Database, analysing Road Safety Performance and leading studies and research in Road Safety to prepare for new measures. It is also in charge of assisting the National Road Safety Council (CNSR), composed of 50 members from public service, enterprises, victims and road users' representatives, in presenting Road Safety action proposals to the government.

Road safety strategy for 2011-2020

In order to reduce the number of road deaths by half over the period 2011-2020, and achieve less than 2 000 persons killed in a year on French roads by the end of the decade, the government needs to mobilise all means at its disposal. The National Road Safety Committee is expected to propose an action plan.

A series of measures has already been submitted to the Minister of Interior in 2013 (static information signs ahead of automated speed cameras, one-size plates for mopeds and motorcycles, prohibition of over-tinted glass for lateral car windows, high visibility vests for motorcyclists, etc.). Some of these are already implemented; for the rest, legislation is underway.

Target setting

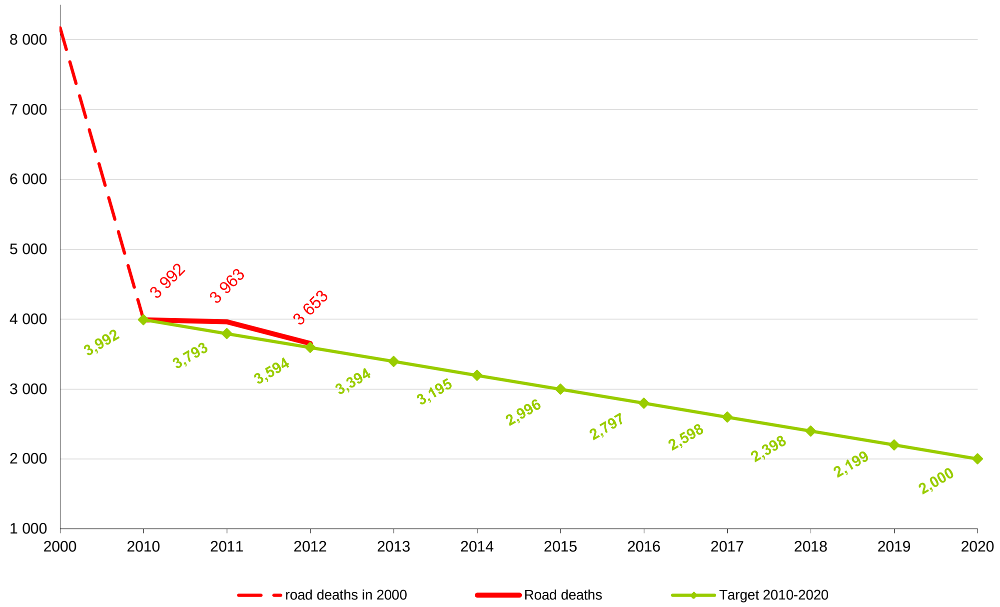
In line with the target set by the European Commission, France has the aim to reduce by half the number of fatalities by 2020. The key priorities to achieve this target are to:

- reduce fatalities among young people and novice drivers;
- reduce fatalities among motorised two wheelers;
- combat the main crash-contributing factors, like speed and impaired (alcohol/drug) driving.

Monitoring

So far, France is on track to achieve the target set for 2020.

Figure 5. **Trends in road fatalities towards national target**



Source: ONISR

7. Recent safety measures (2011-2013)

Road safety management

- The Road Safety Directorate, as Lead Agency for Road Safety, is an inter-ministerial agency and works closely with all relevant ministries, in particular the ministry of Ecology (in charge of Transport matters) but also the ministries of Education, Health, Work, and Justice. Its move to the Ministry of the Interior has enhanced its partnership with Police Forces, with benefits for more tailored education and enforcement actions and for the quality of data collection.

- An expert Committee advising the national Road Safety Committee (CNSR) produced a first report, in November 2013, on the main actions to be taken to progress towards the 2020 target. Intensive debates are taking place within the National Road Safety Committee to address the relevant proposals for action.

Licenses

- As a result of a European Directive, new driving licence categories were created and are in place since January 2013: AM for mopeds and A2 for motorcycles of average power, hence implementing progressive access to motorised two-wheelers based on their power.

Driver behaviour

Speed management

- Since 2002, an important programme of automated speed cameras has been rolled out. As a result, over the past 10 years average speed has been reduced by 10%. A study by L. Carnis and E. Blais[2] shows that up to three quarters of the decrease in fatalities is due to the implementation of this programme.

- At the end of 2012, there were 2 345 fixed speed cameras, 929 mobile speed cameras and 713 traffic light radars. The current objective is to modernise the cameras in place and to increase the total number of cameras to 4 200 devices (both for speed and traffic lights crossings).

- In 2013, 180 new devices were displayed but 169 were removed. The current 4 097 devices include :

  - 203 permanent speed cameras that distinguish between light vehicles and HGV;

  - 67 permanent average speed cameras;

  - 79 new mobile speed cameras (covering both directions while driving in the flow);

  - 45 train crossings radars.

Alcohol and drugs

- Many communication and prevention campaigns are carried out at both national, and local, level to raise awareness of the effects of alcohol and drugs consumption on crash risks. Most of these target young people who enjoy drinking at weekends when out. However controls, led by

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2. *http://www.sciencedirect.com/science/article/pii/S0001457512004137*

police forces (more than 10 million each year) also take place during the week. Drink driving crashes also involve more mature adults, driving in the evening after work.

- All motorised vehicles (except mopeds) should possess a breathalyser, although the intended penalty for not possessing one was removed in March 2013.
- Tribunals can now choose to sentence drink driving offenders to the compulsory use of an alcolock device on their vehicle.

Lack of attention

- A 2012 decree strengthened the penalties against the use of distracting devices:
  - use of a hand held mobile by a driver in traffic is punishable by a 4th class fine and the loss of 3 points (out of 12) from the driving licence;
  - The use of a screen device screen (video games, television) while driving is punishable by a 5th class fine, with a maximum fine of EUR 1 500. The device can also be seized by the police.

Seatbelt use

- Focus is now progressing towards improving child restraint usage. The European research project CaSPER has shown that, while 70% of children were in a seat appropriate for their age, less than half of those were properly secured.

Protective equipment for motorcyclists

- A guide was released in 2012 to promote the benefits of individual protective equipment. In 2014, a partnership with insurance companies, protective equipment providers and bikers' associations will launch an incentive scheme for motorised two-wheelers to purchase personal protective equipment as a package deal (gloves, boots, clothing and, possibly, an airbag suit).

Education and awareness

- In 2013, a new communication campaign was launched on the dangers of excessive or inappropriate speed: "The faster you drive, the more irreversible the consequences". National advertising campaigns to combat alcohol and drugs consumption when driving were widely disseminated (with the well-known character "SAM, the guy who drives and does not drink"). A new initiative took place concerning the text messaging ("When you look at your smartphone while driving, who looks at the road?").
- Important advertising campaigns for motorised two-wheeler users were conducted in 2012 and 2013. The purpose was to make motorcyclists aware of crash circumstances: the slogan "with motorcycles, the danger is in thinking that there is none!", won an award at the 2013 Global Road Safety Festival.
- The Road Safety Directorate (DSCR) financially supports many associations in their involvement in road safety. These associations are essential to addressing a variety of people, acting on the ground and contributing to prevention policies.

Infrastructure

- In order to better protect road workers, emergency services and police forces, penalties were strengthened in 2012 against driving on the hard shoulder or on a closed lane: a driver could lose 3 points when using those lanes, and 1 point when stepping on hard shoulder road markings.
- New motorways will be equipped with rumble strips on the edges of road markings to prevent crashes due to drowsiness. These will also be implemented while renewing existing road markings.

8. Recent and on-going research

- "**Cycling accidents and risk exposure**" (AVER) focuses on road trauma for road user categories: pedestrians, pedal cyclists, motorised two-wheelers and car drivers. It provides a better understanding of the crash risks when cycling, compared to others means of transport. (Amoros, E et al., IFSTTAR, August 2012, http://hal.archives-ouvertes.fr/hal-00941167).
- "**Pedestrian, urban environments and crossing decision**" (PETRA) investigates pedestrian carriageway crossings and the use of mental representations. Subjects of various ages were faced with a number of urban environment representations and, according to their understanding, decided whether or not to cross. The study showed few variations between children and adults. Among other factors, pavement quality and building density influenced the decisions. (GRANIE, Marie-Axelle et al., IFSTTAR, February 2012, http://fondation-securite-routiere.org/IMG/pdf_PETRA_Rapport_Final_v4.pdf).
- **An assessment of the safety effects of the French speed camera programme**. The study analysed crash and speed data and concluded that up to three quarters of the decrease in fatalities reported between November 2003 and December 2010 can be attributed to the implementation of automated speed cameras. (CARNIS, L., BLAIS, E, Accident Analysis and Prevention, n°51, 2013 pp. 301-309, An assessment of the safety effects of the French speed camera programme, http://www.sciencedirect.com/science/article/pii/S0001457512004137).
- "**An analysis of fatal accidents involving light vehicles outside built-up areas on county roads during the day**" shows that between 2001 and 2010, the share of crashes due to excess speed of 20 km/h and over was reduced from 25% to 6%; those due to excesses between 10 and 20 km/h decreased from 13% to 9%. The number of fatal crashes due to excesses below 10 km/h remains practically constant: in 2001, they used to account for 16% of fatal accidents due to excessive speed and in 2010 represent 46% of those. This estimation is based on annual speed measurements led by ONISR and the use of Nilsson's model. (VIALLON, V., LAUMON, B.: Fractions of fatal crashes attributable to speeding: Evolution for the period 2001-2010 in France, Accident Analysis and Prevention, N°52, 2013 pp 250-256, http://www.sciencedirect.com/science/article/pii/S0001457512004460).
- "**Accidents involving heavy goods vehicles on motorways**"- Bibliographic summary – SETRA – November 2012. This study shows the various causation factors of HGV accidents, proposes solutions to improve their HGV users' safety and that of the other road users. (http://www.setra.developpement-durable.gouv.fr/IMG/pdf/1230w-rapport-accidentalite.pdf).

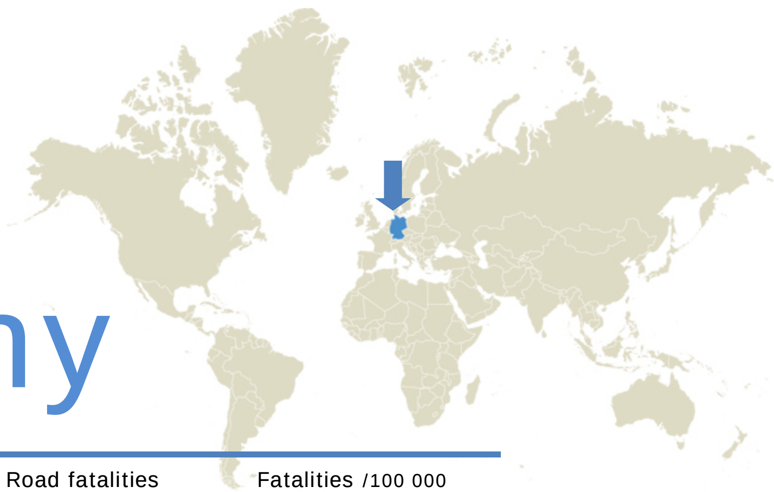
- **ESPARR ECO: Social and economic consequences of road traffic accidents: a victim approach**, December 2011. This is a first contribution to socio-economical stakes that allows the construction of a socio-economical fragility variable (lack of insurance, income loss…). It is centred on victims and on the socio-economic consequences of road accidents. The goal is to help the decision-maker to find the most appropriate measures to help victims (http://www.predit.prd.fr/predit4/document/42624)

Useful websites and references

Road safety Website	http://www.securite-routiere.gouv.fr
Road safety in France in 2012	http://www.securite-routiere.gouv.fr/content/download/29563/271205/file/Bilan%20(2012)%20La%20sécurité%20routière.pdf
IFSTTAR - The French institute of science and technology for transport, development and networks	http://www.ifsttar.fr/
CEREMA – The French research centre on risks, environment, mobility and planning (previously SETRA, CERTU, CETMEF and CETE)	http://www.cerema.fr/

Contact

For more information, please contact: onisr.dscr@interieur.gouv



Germany

Sources: IRTAD; BASt.

Inhabitants	Vehicles/1 000 inhabitants	Road fatalities in 2012	Fatalities /100 000 inhabitants in 2012
81.8 million	**632**	**3 600**	**4.4**

1. Road safety data collection

Definitions

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+.

Data collection

In Germany, crash data are collected by the police agencies of the different federal states (*Bundesländer*) and then consolidated at federal level.

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 hospitalisations, no information is available on the percentage of reported injuries.

2. Most recent safety data

Road crashes in 2012

In 2012, there were 3 600 fatalities on German roads. After the increase of 2011, the number of fatalities has decreased by 10%. It has also again fallen below the 2010 value. The number of injury crashes decreased by 2%.

In 2012, the decrease in the number of fatalities was observed for nearly all groups of road users, with the biggest decrease for motorcycles (-17%) and pedestrians (-15%). The decrease was registered on all kinds of road, whereas the biggest decrease compared to 2011 is shown for motorways (-15%) and rural roads (-12%). There have been reductions in fatalities for all age groups.

Provisional data for 2013

Provisional data for the year 2013 is available until November (by road user type, location and age group). So far the number of fatalities has clearly decreased compared with the corresponding period in 2012. In particular, the first two months of 2013 show strong decreases, by 21% in January and 30% in February.

While other factors play an important role for the long-term development of fatality and crash figures, this short-term development in both winter months results mainly from different weather conditions. The winter of 2012-13 was characterised by a continuous freeze. In general, periods of bad weather cause a decrease in traffic and more cautious behaviour by traffic participants. Weather conditions can be considered accountable for the strong decrease in fatality numbers at the beginning of the year.

After the increase in fatality numbers in 2011, the development in 2012 went in the opposite direction again. This trend is also observable in 2013. There are decreases for all road user types, especially passenger cars (-14%).

In 2013 there were, respectively, an 11% and a 12% decrease in fatality numbers on urban and rural roads. A corresponding increase (+8%) is noticeable on motorways.

The development of fatality figures by age group shows only decreases. The number of fatally injured persons reduces in every age group. Most noteworthy is the strong decrease within the group of young people (<15 years: -24%; 15-17 years: -18%; 18-24 years: -22%), on the one hand, and the relatively low decrease within the age group 65+ (-3%) on the other hand.

Table 1. **Provisional data for 2013 compared to 2012**

Fatalities		January-November		
		2012*	2013*	Change
Road User Type	Motorcycles	583	563	-3%
	Passenger Cars	1 655	1 424	-14%
	Cyclists	387	331	-14%
	Pedestrians	453	464	2%
Location	Urban Roads	973	868	-11%
	Rural Roads	2 025	1 781	-12%
	Motorways	358	387	8%
Age Group	<15	71	54	-24%
	15-17	102	84	-18%
	18-24	585	455	-22%
	25-64	1 694	1 566	-8%
	65+	904	875	-3%
Groups of Special Interest	Novice drivers (18-21)	248	228	-8%
	Drink driving	264	233	-12%

* Provisional figures

Source: BASt.

3. Trends in traffic and road safety (1991-2013)

Traffic

Between 1991[1] and 2012, the number of motorised vehicles increased by 16% and the overall vehicle kilometres driven by 25%.

Provisional figures for 2013 indicate that the overall traffic volume slightly increased by 0.6%, from 719 billion veh-km in the year 2012 to 724 billion veh-km in 2013.

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. Only the kilometrage of goods vehicles and the number of accidents with goods vehicles involved is slightly influenced by economic development.

Change in the number of fatalities and injury crashes (1991-2012)

Between 1991 and 2012, the number of fatalities decreased by 68%, whereas the number of injury crashes fell by only 22%. In recent years (2000-2012), the number of fatalities decreased by more than 50%, while the number of people seriously injured decreased only by 35%.

The decrease in the number of crashes and fatalities is due to various changes in all fields of road safety: traffic safety-related behaviour and education as well as infrastructure and vehicle safety. The improvements in road safety are due to several measures taken and regulations introduced in the past ten years. Some main highlights include:

- road safety education in schools;
- accompanied driving programme and alcohol prohibition for novice drivers;
- road safety audits;
- treatment of accident black spots;
- improvements in passive and active vehicle safety;
- addressing special fields of road safety, such as child restraint systems, trees on the roadside or underrun protection for guard rails to prevent serious motorcycle accidents.

Rates

Since 1991, the death rate per 100 000 population has decreased by 69%, while the number of vehicles per 1 000 population has increased by 16%.

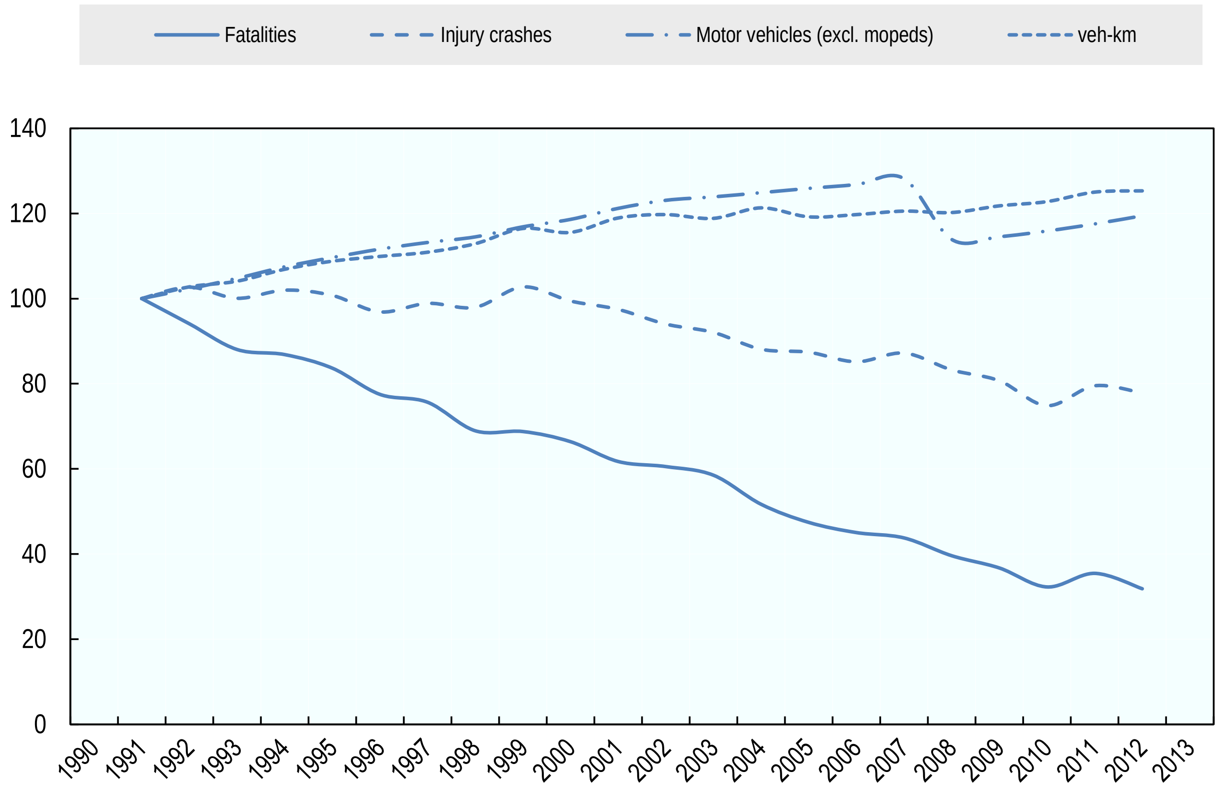
1. 1991 is the first year following German reunification.

Table 2. **Road safety and traffic data**

	1991	2000	2010	2011	2012	2012 % change from 2011	2012 % change from 2000	2012 % change from 1991
Reported safety data								
Fatalities	11 300	7 503	3 648	4 009	3 600	-10.2%	-52.0%	-68.1%
Injury crashes	385 147	382 949	288 297	306 266	299 637	-2.2%	-21.8%	-22.2%
Injured persons hospitalised	131 093	102 416	62 620	68 985	66 279	-3.9%	-35.3%	-49.4%
Deaths per 100 000 population	14.2	9.1	4.5	4.9	4.4	-10.3%	-51.8%	-69.0%
Deaths per 10 000 registered vehicles	2.6	1.5	0.7	0.8	0.7	-11.6%	-52.4%	-73.3%
Deaths per billion vehicle kilometres	19.7	11.3	5.2	5.6	5.0	-10.4%	-55.8%	-74.6%
Traffic data								
Registered vehicles[2] (thousands)	43 313	51,365	50 184	50 902	51 735	1.6%	0.7%	19.4%
Vehicle kilometres (millions)	574 100	663 302	704 800	717 600	719 300	0.2%	8.4%	25.3%
Registered vehicles per 1 000 population)	543.1	625.2	613.5	622.6	632.1	1.5%	1.1%	16.4%

Source: IRTAD.

Figure 1. **Road safety and traffic data ***
1991 = index 100



Source: IRTAD.

* From 2008, registered vehicles exclude temporarily decommissioned vehicles in Germany.

2. Registered vehicles excluding mopeds. From 2008, registered vehicles exclude temporarily decommissioned vehicles in Germany.

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 since 1991, with the reduction being strongest for passenger car occupants (-74%).

The decrease in the number of fatalities in 2012 can be seen in nearly all groups of road users, with the biggest decrease for pedestrians (-15%) and motorcyclists (-17%).

As in the year before, the number of fatally injured bicycle users increased slightly (2%). The number of fatally injured moped users increased by 33% after a decrease in 2011. It should be noted here that the absolute numbers of fatally injured moped users is rather small.

Table 3. **Road fatalities by road user group**

						2012 % change from		
	1991	2000	2010	2011	2012	*2011*	*2000*	*1991*
Bicyclists	925	659	381	399	406	1.8%	-38.4%	-56.1%
Mopeds	243	157	74	70	93	32.9%	-40.8%	-61.7%
Motorcycles	992	945	635	708	586	-17.2%	-38.0%	-40.9%
Passenger car occupants	6 801	4 396	1 840	1 986	1 791	-9.8%	-59.3%	-73.7%
Pedestrians	1,918	993	476	614	520	-15.3%	-47.6%	-72.9%
Others	421	353	242	232	204	-12.1%	-42.2%	-51.5%
Total	11 300	7 503	3 648	4 009	3 600	*-10.2%*	*-52.0%*	*-68.1%*

Source: IRTAD.

Age

In 2012, there was a decrease in fatalities for nearly all age groups. The largest decrease (-17%) was recorded in the 18-24 year age group, followed by the 25-64 year olds, with a decrease of 11%.

The 18-20 age group is the most at risk in Germany, followed by the 21-24 group. The 18 to 20 year-olds have a mortality rate almost triple that of the general population.

In terms of road deaths among the 18 to 24 year-olds, motor vehicle occupant fatalities are the principal problem. Graduated licensing and accompanied driving programmes therefore are important measures to counter driver inexperience, particularly among those aged 18 to 20 years.

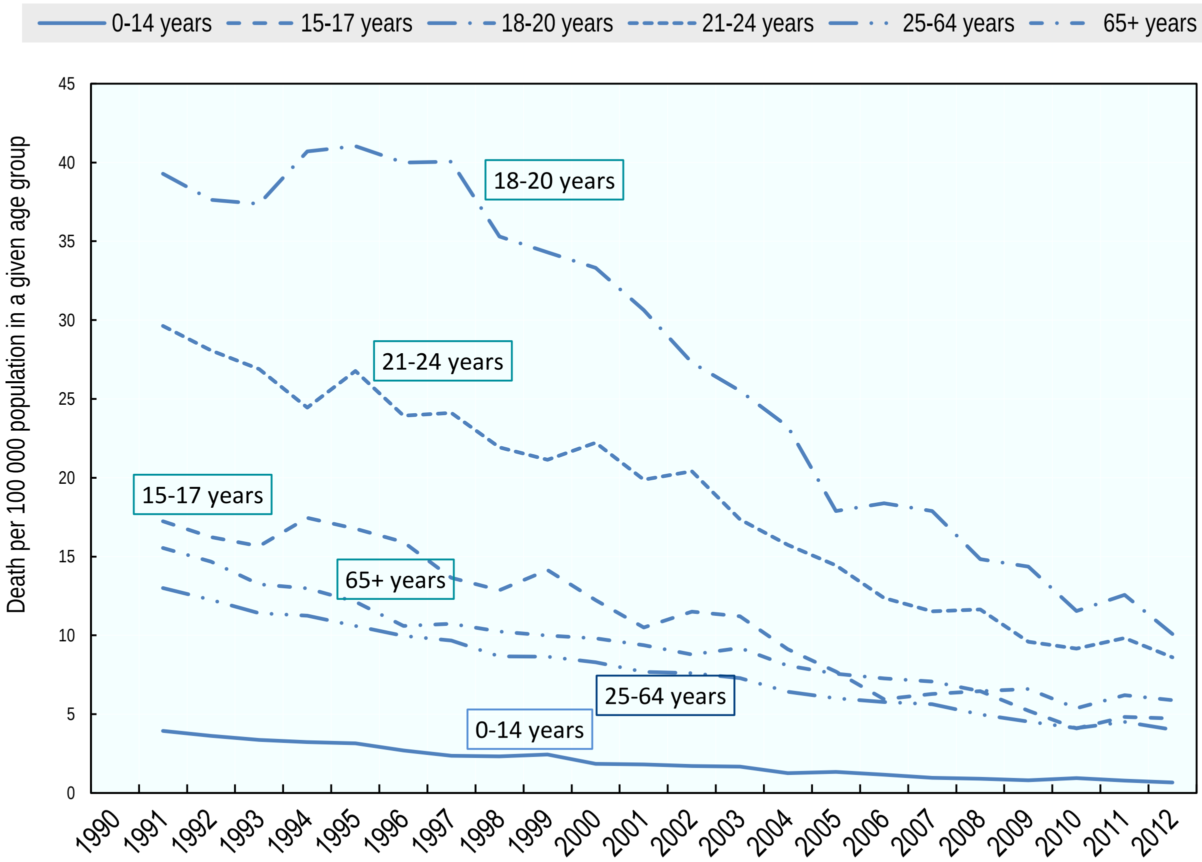
Since 2000, the number of fatalities decreased in all age groups. But while the number of fatalities decreased by 50% and more for the age groups less than 65 years, the reduction for the elderly is the slightest (24%). This is largely attributed to the demographic change.

Table 4. **Road fatalities by age group**

Age	1991	2000	2010	2011	2012	2012 % change from 2011	2000	1991
0-5	201	58	39	29	21	-27.6%	-63.8%	-89.6%
6-9	140	63	21	16	20	25.0%	-68.3%	-85.7%
10-14	170	119	44	41	32	-22.0%	-73.1%	-81.2%
15-17	415	336	101	116	113	-2.6%	-66.4%	-72.8%
18-20	1 204	933	327	343	262	-23.6%	-71.9%	-78.2%
21-24	1 545	803	363	394	349	-11.4%	-56.5%	-77.4%
25-64	5 754	3 876	1 842	2 025	1 809	-10.7%	-53.3%	-68.6%
>65	1 853	1 311	910	1 044	994	-4.8%	-24.2%	-46.4%
Total	*11 300*	*7 503*	*3 648*	*4 009*	*3 600*	*-10.2%*	*-52.0%*	*-68.1%*

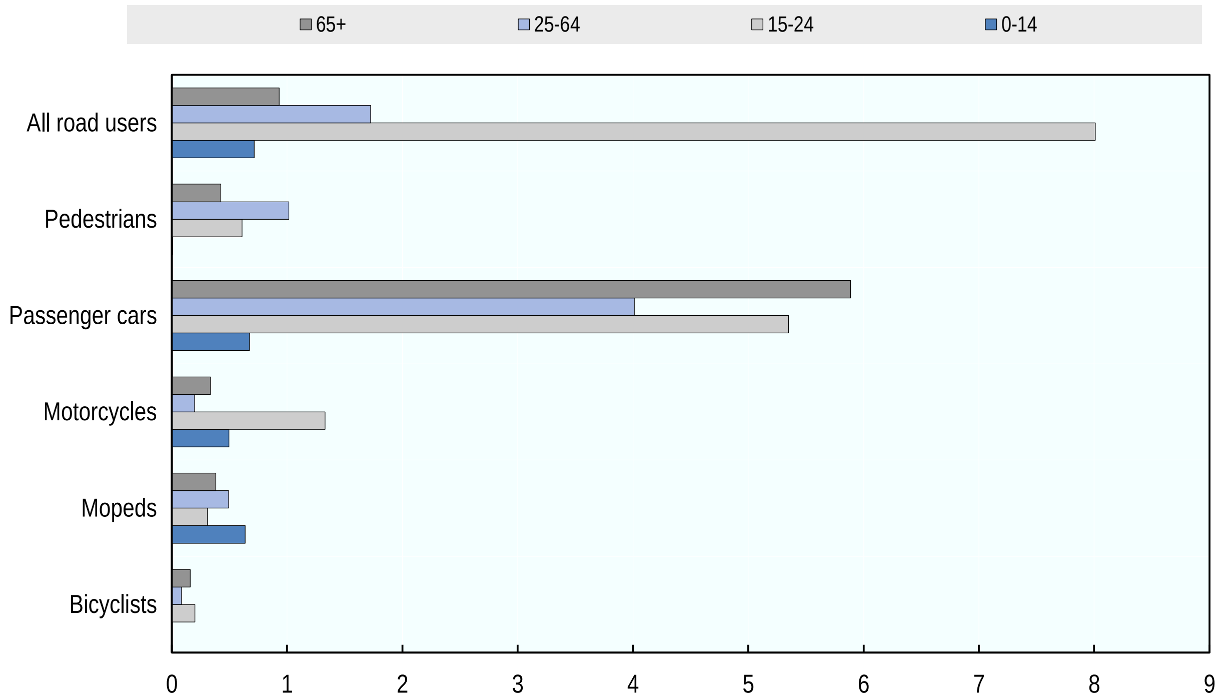
Source: IRTAD.

Figure 2. **Road death rates by age group**
Fatalities per 100 000 population in a given age group, 1990-2012



Source: IRTAD.

Figure 3. **Road death rate by age and road user group**
Fatalities per 100 000 population



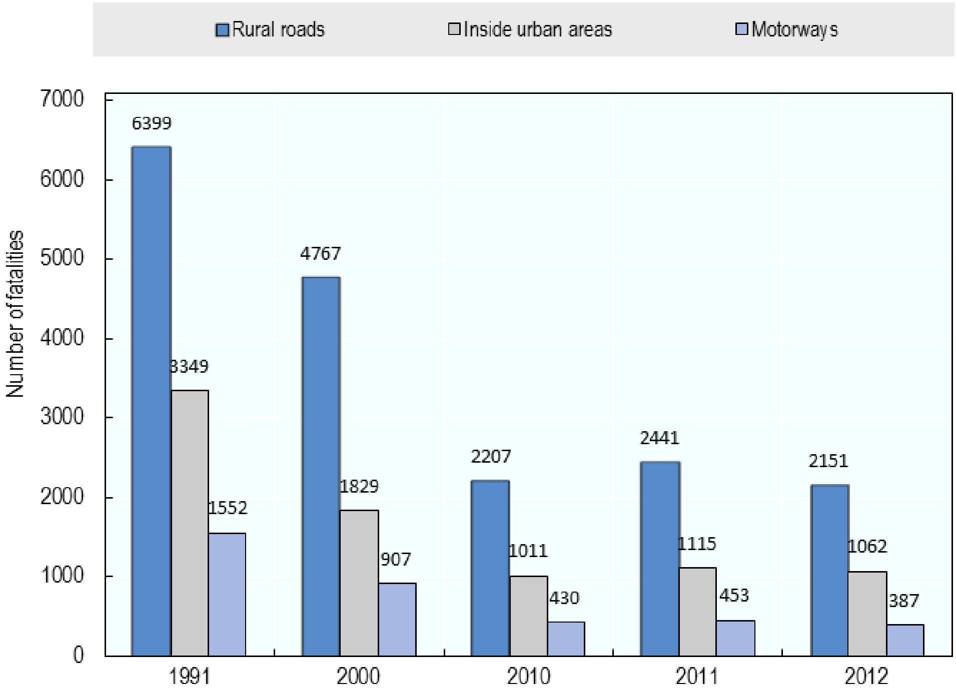
Source: IRTAD.

Road type

In 2012, there was a decrease in fatalities on all road types, with the highest decrease on motorways (-15%) and on rural roads (-12%), with the smallest magnitude of decrease occurring on urban roads (-5%).

Rural roads are the most dangerous for road users, as 60% 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. **Road fatalities by road type**



Source: IRTAD.

4. Economic costs of traffic crashes

The Federal Highway Research Institute (BASt) calculates the costs of road crashes on an annual basis. The costs of road traffic crashes to Germany's national economy are based on the capital approach, encompassing costs for personal injuries and damage to goods.

The calculated costs include:

- direct costs (e.g. for medical treatment, vehicle repair/replacement);
- indirect costs (for police services, the legal system, insurance administration, replacement of employees);
- lost potential growth (including the shadow economy);
- lost added value of housework and voluntary work;
- humanitarian costs;
- cost 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 2012 at around EUR 32 billion, i.e. 1.2% of GDP.

Table 5. **Costs of road crashes, 2012**

	Unit Cost 2012 [€]	Total in 2010 [billion €]	Total in 2011 [billion €]	Total in 2012 [billion €]
Fatalities	1 161 892	3.73	4.72	4.18
Hospitalised people	116 151	7.17	7.81	7.73
Slight injuries	4 829	1.46	1.54	1.63
Property / damage costs	7 494	18.07	18.05	18.57
Total	12 624	30.44	32.12	32.11
Total as % of GDP		1.2%	1.2%	1.2%

Source: BASt.

5. Recent trends in road user behaviour

Impaired driving

Drink driving

In Germany, driving with a BAC over 0.05% (0.5g/l) is punishable by a fine, licence suspension and possibly jail. In addition, drivers with a BAC between 0.03% and 0.05% 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 2012, alcohol use was cited as a contributing factor in 9.4% of all fatalities (involved in accidents with any amount of alcohol in their blood, including those below the 0.05% threshold).

Drugs and driving

Driving under the influence of drugs is considered an offence by §24a, 2 of the German Road Traffic Act. A driver is considered "under the influence" if the drug can be found in his blood – irrespective of the amount or concentration of the drug in the blood. This regulation refers to a selected list of drugs. Drugs used as medication and administered as intended are exempted.

In 2012, there were 1 425 drug-related accidents in Germany causing 34 fatalities and 1 944 injuries. The figures are rising (2000: 1 080), together with the possibilities for education of the police to detect the influence of drugs.

Distraction

The use of hand-held 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 have not been distracting or dangerous.

Fatigue

For the police it is quite difficult to identify fatigue as the cause of an accident. That is why only in 0.6% of all injury crashes fatigue is registered as the cause of the crash.

Speed

The table below summarises the main speed limits in Germany.

Table 6. **Passenger car and truck speed limits by road type, 2014**

	General speed limit Passenger cars	General speed limit trucks > 3.5 t
Urban roads	50 km/h	50 km/h
Rural roads	100 km/h	60 km/h
Motorways	130 km/h (recommended)	80 km/h

Source: BASt.

Inappropriate speed was a factor in nearly 35% of fatal crashes and about 16% of injury crashes in 2012. Speed is often cited as a factor in combination with other high-risk behaviour, such as drink-driving.

Seatbelts and helmets

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

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

The helmet-wearing rate by riders of motorised two-wheelers is high, at 99%.

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).

Table 7. **Seat-belt wearing rate by car occupants**

	2000	*2012*	*2013*
Front seats			
General	94%	98%	97%
Urban roads	90%	97%	96%
Rural roads	95%	99%	97%
Motorways		99%	98%
Rear seats			
Adults	82%	98%	97%
Children		99%	98%

Source: BASt

6. 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 are also organised at the level of the 16 federal states, which means that the enforcement of traffic laws is the responsibility of each federal state.

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 the 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, co-operative 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 hazards. Activities also focus on rural roads and on reducing not only the number of fatalities, but also the number of serious injuries.

Target setting

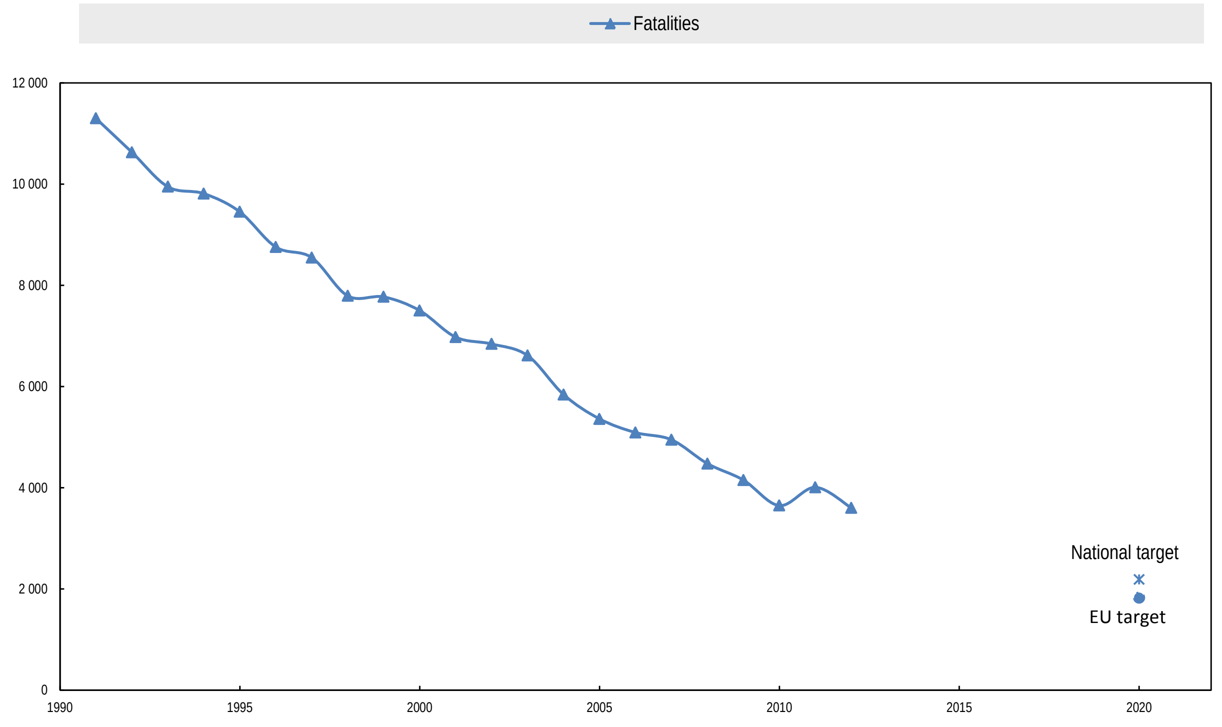
For the first time, a quantitative target of -40% for fatalities by the year 2020 was set. The target was defined on the basis of scientific research regarding the expected development of road safety until the year 2020 (R. Maier *et al*., 2012a)[4].

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 is based on the assumption that the efforts to improve road safety are continued as 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 carried out through the Road Accident Prevention Report, which is prepared every two years and submitted to the German *Bundestag*. The report provides information about the general development of road safety and measures implemented in the two years since the last report, as well as ongoing and concluded major research and planned projects and measures. The next report will be launched in Autumn 2014.

Figure 5. **Trends in road fatalities towards national and EU[5] targets**



Source: BASt

4. R. Maier *et al.*, 2012, *The development of traffic safety and its general conditions up to the year 2015/2020*, BASt; Bergisch Gladbach.

5. In 2010, the European Commission adopted the target of halving road deaths by 2020, compared to 2010 levels.

Evaluation of past road safety strategy

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.

7. Recent safety measures (2011-2013)

Cycling safety

In September 2012, the German Cabinet agreed on the 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, *inter alia*, the extension of promotional activities to support cycling, a raised awareness of cycling as a mode of transport in rural areas and 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.

Demerit point system

The German demerit point system for drivers has been restructured and modernised profoundly. Since 1 May 2014, the new German demerit point system has entered into force. It has been designed to be more comprehensible and reasonable, with the aim of increasing the acceptability of the system, decrease bureaucracy and, as a result, increase road safety. For instance, the new system takes into account matters of road safety more clearly than before. Demerit points are especially given to all traffic offences which have an impact on road safety, the higher the impact, the more demerit points are given.

Traffic offences are categorised into three categories (up to 3 points). Beginning with zero points, drivers can compile 8 points before their driving licence is withdrawn. In the escalation process traffic offenders are firstly entered into the register (0-3 points). Two warnings are issued (at 4-5 points and 6-7 points) and the driving licence will be withdrawn at 8 points.

The new demerit point system also includes the option of reducing demerit points before entering the second warning stage by completing a voluntary seminar. This seminar combines pedagogical as well as psychological elements and aims at enhancing the offenders' knowledge on road safety regulations and increasing their acceptance of such regulations. The effectiveness of such seminars is under evaluation in the next five years.

Traffic regulation

Since 1 April 2013, several changes to the German road traffic regulations have been implemented. The changes aim at increasing road safety and reducing the number and complexity of traffic signs. In particular, the safety of cyclists will be improved by these changes; e.g. the speed limit for all vehicles on roads with priority for cyclists is generally set at 30 km/h.

Driver behaviour

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. Those 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[6].

Education and awareness

The longstanding campaign, “*Runter vom Gas*” (Stop speeding!), has released different modules, 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 climate (with the focus on cyclists) was started in May 2013.

Accompanied driving

Permanent implementation of “Accompanied Driving from age 17” (AD17): In January 2011 “Accompanied Driving from age 17” (AD17) as a new preparatory model for novice drivers was permanently implemented in the law. AD17 means lay-accompanied practice until age 18 after completion of a full driving school education and passing the driving test. The model had been piloted over several years. From the results of a comprehensive summative evaluation it turned out that AD17 caused a 20 percent lower accident risk in the first two years of solo driving compared to the accident risk of traditionally prepared new drivers (Schade, F. –D. & Heinzmann, H.-J., 2013. Summative evaluation of accompanied driving from age 17; Download: http://bast.opus.hbz-nrw.de/volltexte/2013/621/).

AD17 is a voluntary measure targeted at novice drivers opting for the earliest possible start of driving and deciding to acquire the driving license category B/BE prior to age 18. Since 2008 when AD17 was implemented in all federal states of Germany growing proportions of new drivers opted for it (2008: 35%, 2009: 38%; 2010: 44%; 2011: 46%; 2012:48%). Thus growing shares of new drivers are to be found in the safest mode of preparing for entrance into motorised traffic participation.

Vehicles

- Since December 2010, winter tyres have become mandatory. All mud and snow tyres (M+S tyres) are considered as winter tyres. This also includes "all-season tyres“. Heavy goods vehicles (classes M2, M3, N2 and N3) are required to at least use winter tyres on the driving axle.

6 *Source* : www.bast.de/cln_033/nn_82230/EN/e-Aufgaben/e-abteilung-v/e-referat-v5/e-projektplan-telematik/e-projektplan.html

- Two major changes have been implemented regarding licence plates in Germany. From 1 July 2012, a new exchangeable number plate has been introduced. This new licence plate can be used for two vehicles of the same class and can easily be switched manually from one to the other vehicle. Since May 2014, the replacement of number plates in the case of a change of ownership or relocation of the vehicle within Germany has become dispensable.

Infrastructure

- The HGV toll for goods vehicles with a permissible gross weight of 12 tonnes or over has been in force on German motorways since 2005. From 1 August 2012, the HGV toll has been expanded to selected national roads. This adds about 1 135 kilometres of road to the existing regime. Additional revenues of EUR 100 million are expected. The revenues are ring-fenced and will be used for the preservation and extension of road infrastructure in Germany.

8. Recent and on-going research

- *Atlas of traffic accidents involving children [Neumann-Opitz, N. et al.: "Kinderunfallatlas – Regionale Verteilung von Kinderverkehrsunfällen in Deutschland", Bergisch Gladbach, Bundesanstalt für Straßenwesen, 2012 (Berichte der Bundesanstalt für Straßenwesen: Reihe M, Mensch und Sicherheit; Heft M232)]*

  There are considerable regional differences in the Federal Republic of Germany as regards the frequency and type of traffic accidents involving children. The latest atlas of traffic accidents involving children is an analysis of the safety situation during the period 2006-2010, thereby providing information on the regional situations.

  The atlas of traffic accidents involving children also serves as a basis for the carrying out of comparisons between the local traffic safety situation of children and the situation in other districts and municipalities. As the analysis is merely based on the figures included in the official accident statistics, which only include traffic accidents to which the police were called, it is to be expected that there is a high incidence of unreported traffic accidents involving children, so that additional efforts are advisable in order to reduce traffic accidents.

- *Profiles of elderly drivers involved in accidents (PROSA) [Pottgießer, S. et al.: "Profile von Senioren mit Autounfällen", Bergisch Gladbach, Bundesanstalt für Straßenwesen, 2012 (Berichte der Bundesanstalt für Straßenwesen: Reihe M, Mensch und Sicherheit; Heft M228)]*

  Rising life expectancy as well as the low birth rate is leading to an aging society in Germany. This can be linked with a relative increase of elderly drivers. More and more elderly people are leading active lifestyles and undertaking leisure activities. Cars are very important to them since they provide consistent mobility and independence. However, it is important to realise that a reduction in physical and psychological performance might relate to the process of aging and influence the fitness to drive. This brings the issue of accident risks of elderly drivers into focus. One hundred and eighty elderly drivers with a minimum age of 65 years, who have had a car accident in the last five years, were interviewed. The participants were questioned about individual impairments, personality traits, driving and accident history. In addition, a sub-sample of 50 seniors took part in a medical examination, traffic-related psychological diagnostic and an on-road driving-test. The results point out that age itself is not a predictor for individual performance and accident risk. There are rather specific combinations of age-correlated losses and illness which seem to lead to a raised risk. This heterogeneity should be focused on interventions as well as within future research.

- *Assessment of driver fatigue [Platho, C. et al.: "Erfassung der Fahrermüdigkeit", Bergisch Gladbach, Bundesanstalt für Straßenwesen, 2013 (Berichte der Bundesanstalt für Straßenwesen: Reihe F, Fahrzeugtechnik; Heft F89)]*

  Fatigue at the wheel is seen to be the cause of almost 20% of all road traffic accidents, where it is noticeable that a disproportionate number of these are serious accidents. Fatigue measurement systems serve to detect signs of fatigue and fatigue warning systems demand that the driver takes a break should anything conspicuous be detected. The German Federal Highway Research Institute (BASt) has commissioned HFC, Human-Factors-Consult GmbH in Berlin, with an analysis of the possibilities and acceptance of the existing systems and the development of requirements for use in various areas on the basis of a quality criteria catalogue.

  The detection quality of vehicles' fatigue warning systems, which users felt was low, as well as the knowledge that demands for a break to be taken were only heeded to a certain extent, appear to make it advisable to not only place the fatigue detection and the design of the system's warning instructions under greater scrutiny, but also examine the lack of driver self-awareness. In addition to further technical developments, the greater awareness of car drivers regarding fatigue should also be enforced. The use of measuring procedures for individual fatigue detection during traffic checks, which are not possible at present, also requires further research.

- *Willingness-to-pay for road safety – preparatory study [Bahamonde-Birke, F. Et al.: "ZAhlungsbereitschaft für Verkehrssicherheit - Vorstudie", Bergisch Gladbach, Bundesanstalt für Straßenwesen, 2013 (Berichte der Bundesanstalt für Straßenwesen: Reihe M, Mensch und Sicherheit; Heft M242)]*

  The evaluation of road safety projects following a cost-benefit approach requires the valuation of road accidents as a fundamental input. According to the current German evaluation methodology, only the direct and indirect economic costs of road accidents are taken into account, while the intangible consequences, such as pain, sorrow, loss of quality of life and the willingness-to-pay of the population to reduce/avoid these consequences, are not considered. The study summarises the state-of-the-art for assessing the willingness-to-pay (WTP) in a traffic safety context and presents a comprehensive and systematic overview of the scientific literature. The most popular approaches for assessing the WTP are analysed regarding their theoretical foundations, the current state-of-the-praxis and the empirical evidence.

  Among the alternatives analysed, the SC approach represents the current state-of-the-art for determining people's WTP for non-market goods. Nevertheless, most empirical evidence relying on this method is related to the valuation of travel time (VOT) and to the value of reliability (VOR). It must be stated, that during the last years, a gap between the state-of-the-art (SC methods) and the state-of-the-praxis (other methods) has arisen, which should be filled with empirical evidence. There is a significant need for research, particularly in Germany. This work provides recommendations for further investigation on the subject.

Useful websites and references

Federal Ministry of Transport, Building and Urban Affairs Road safety program 2011-2020	http://www.bmvi.de/DE/Home/home_node.html http://www.unece.org/fileadmin/DAM/trans/doc/2012/wp1/NatDev-2012_road-safety-programme-2011.pdf
Federal Highway Research Institute (BASt) Research reports Electronic BASt-archive	http://www.bast.de/EN/Home/home_node.html http://www.bast.de/EN/Publications/Reports/Reports_node.html http://bast.opus.hbz-nrw.de/
German Federal Statistical Office Accident statistic reports	https://www.destatis.de/EN/Homepage.html https://www.destatis.de/DE/ZahlenFakten/Wirtschaftsbereiche/TransportVerkehr/Verkehrsunfaelle/Verkehrsunfaelle.html
Federal Motor Transport Authority	http://www.kba.de/cln_031/nn_124384/sid_E642E6F5F90A73B75E2D7018A7CCFC48/nsc_true/EN/Home__en/homepage__node.html?__nnn=true
German Road Safety Council e.V.	http://www.dvr.de/
National cycling plan	http://www.nationaler-radverkehrsplan.de/en/eu-bund-laender/bund/
German In-Depth Accident Study (GIDAS)	http://www.bast.de/EN/FB-F/Subjects/e-gidas/e-info-gidas.html

Contact

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Greece

Source: IRTAD, NTUA, EL.STAT

Inhabitants	Vehicles/1 000 inhabitants	Road fatalities in 2012	Fatalities /100 000 inhabitants in 2012
10.8 million	**715**	**984**	**9.1**

1. Road safety data collection

Definitions

Road fatality: any person killed immediately or dying within 30 days as a result of a road crash.

Data collection

The Hellenic Statistical Authority (EL.STAT) holds, since the early 60s, the official road accident database of Greece. This contains disaggregated road accident data and detailed information concerning drivers, road accident casualties and vehicles involved. 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; it is 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, person(s) and vehicle(s) characteristics, as well as 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, and holds both a database of registered vehicles and 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 whereas, in recent years, scrapped vehicles are systematically removed from the database. 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 them.

2. Most recent safety data

Road crashes in 2012

In 2012, there were 984 road fatalities, a 13.8% reduction in comparison with 2011. This number is the lowest since 1974. As in the three previous years the decrease in fatalities 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 also have been altered, but no studies to support this are available yet.

Serious (1 422) and slight injuries (13 791) show similar positive road safety trends between 2011 and 2012 (-14.6% and 8.3% respectively).

Provisional data for 2013

Provisional data for 2013 show again a very strong decrease in fatalities, with an expected 11.5% reduction (870 fatalities estimated, based on provisional data). This is an impressive result, totalling a 40.2% reduction in road fatalities in four years, since 2009, and turning Greece away from being among the lowest performing countries in the EU.

3. Trends in traffic and road safety (1990-2013)

Traffic

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 in vehicle fleet is less than 1%. The annual increase in the motorcycle fleet is steadily higher (about 2%) than that in the passenger car fleet for the same period.

The overall traffic volume decrease for the period 2009-2012 varies between 15% (urban roads) and 30% (toll motorways) in the various types of road network of Greece.

Change in the number of fatalities and injury crashes (1990-2012)

The number of fatalities reached a peak in 1995. Between 1990 and 2012, the number of fatalities decreased by nearly 50%; however, this reduction started mainly in 2006. Between 2006 and 2012, the number of fatalities decreased by 41%.

During the last decade, an important decrease was observed in road fatalities for young people, as well as in fatalities outside urban areas and in the number of people killed in crashes involving HGVs. Conversely, there was less improvement regarding people killed on motorways, elderly road users, motorcycle fatalities, foreign drivers and female drivers.

In recent years (2009-2012), the number of fatalities decreased by 32%. 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.

Rates

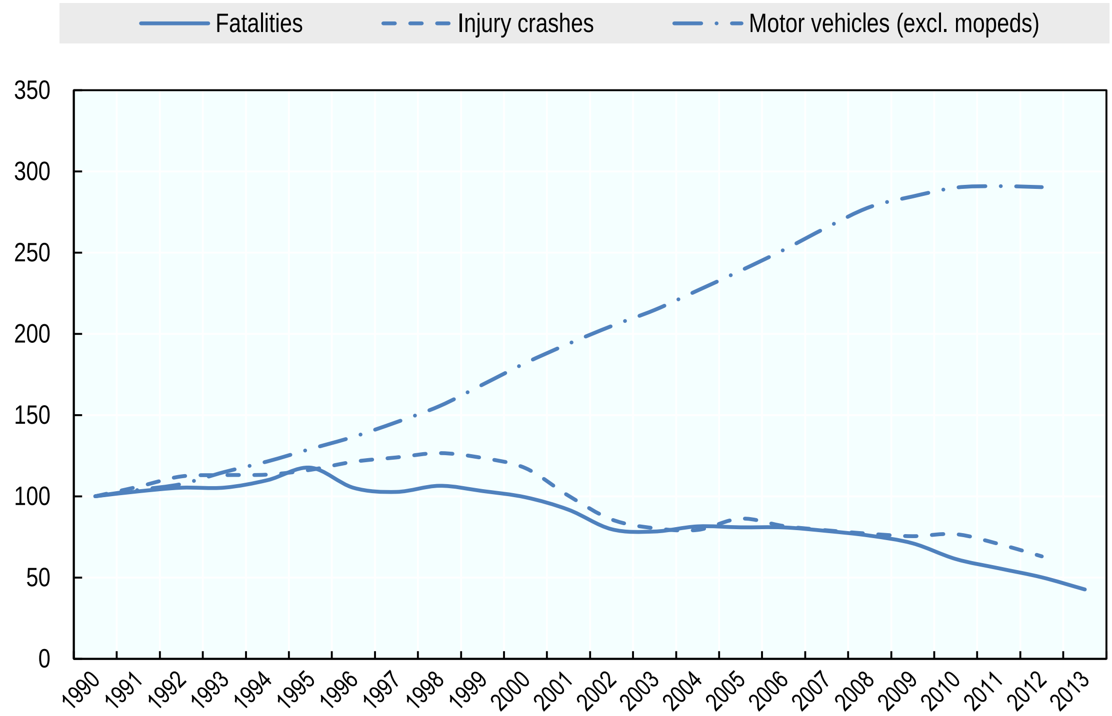
In 2012, Greece had a mortality rate, expressed in terms of deaths per 100 000 population, of 9.1 – less than half the level of 2000.

Table 1. **Road safety and traffic data**

	1990	2000	2010	2011	2012	2012 % change from 2011	2012 % change from 2000	2012 % change from 1990
Reported safety data								
Fatalities	2 050	2 037	1 258	1 141	984	-10.0%	-49.6%	-49.9%
Injury crashes	19 609	23 001	15 032	13 849	12 353	-10.8%	-46.3%	-37.0%
Deaths per 100,000 population	20.3	18.7	11.1	10.1	9.1	-8.8%	-50.8%	-54.6%
Deaths per 10,000 registered vehicles	7.4	4.0	1.6	1.4	1.2	-9.8%	-68.4%	-82.7%
Traffic data								
Registered vehicles[1] (thousands)	2 780	5 061	8 062	8 087	8 070	-0.2%	59.5%	190.3%
Registered vehicles per 1,000 population)	274.7	464.2	713.1	715.0	714.8	0.0%	54.0%	160.2%

Source: IRTAD

Figure 1. **Road safety and traffic data**



Source: IRTAD

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%.

1. Registered vehicles excluding mopeds.

Table 2. **Road fatalities by road user group**

	1990		2000		2010		2011		2011 % change over 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%

2012 data were not available when this report was prepared.
Source: IRTAD

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.

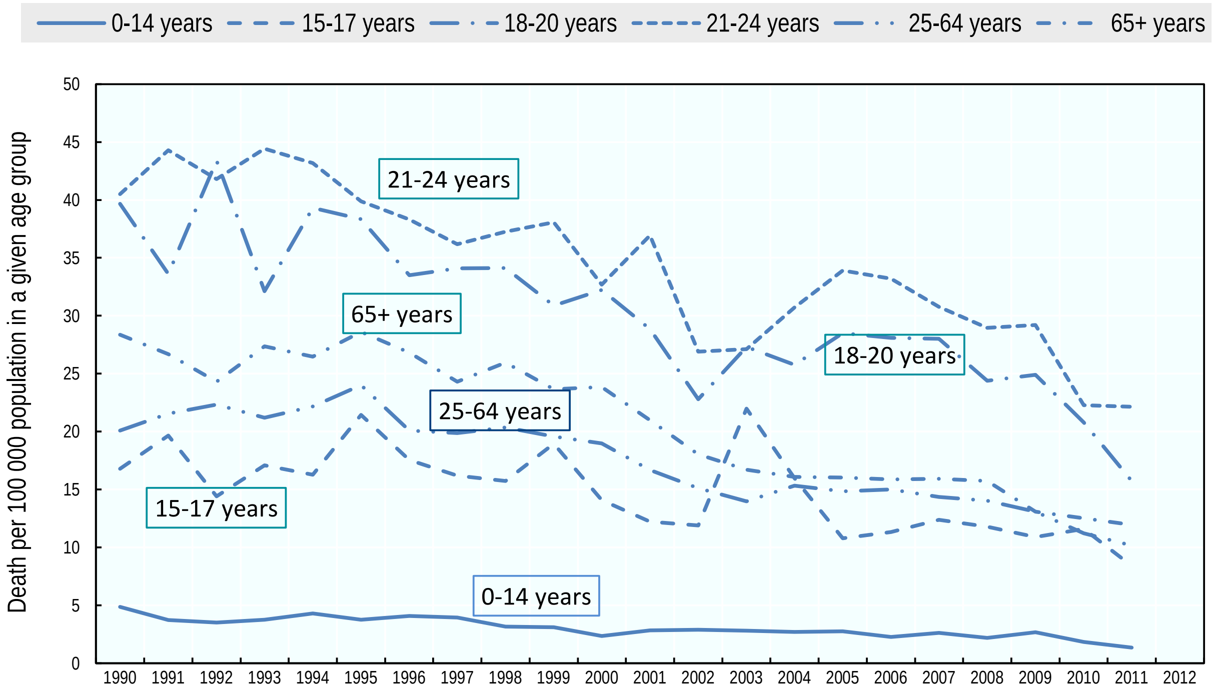
Young people still have a higher risk than the overall population, more than those of the overall population.

Table 3. **Road fatalities by age group**

	1990	2000	2010	2011	2011 % change over 2010	2000	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 incl. unknown age	2 050	2 037	1 258	1 141	-9.3%	-44%	-44%

2012 data were not available when this report was prepared
Source: IRTAD

Figure 2. **Road death rates by age group**
Fatalities per 100 000 population in a given age group, 1990-2011



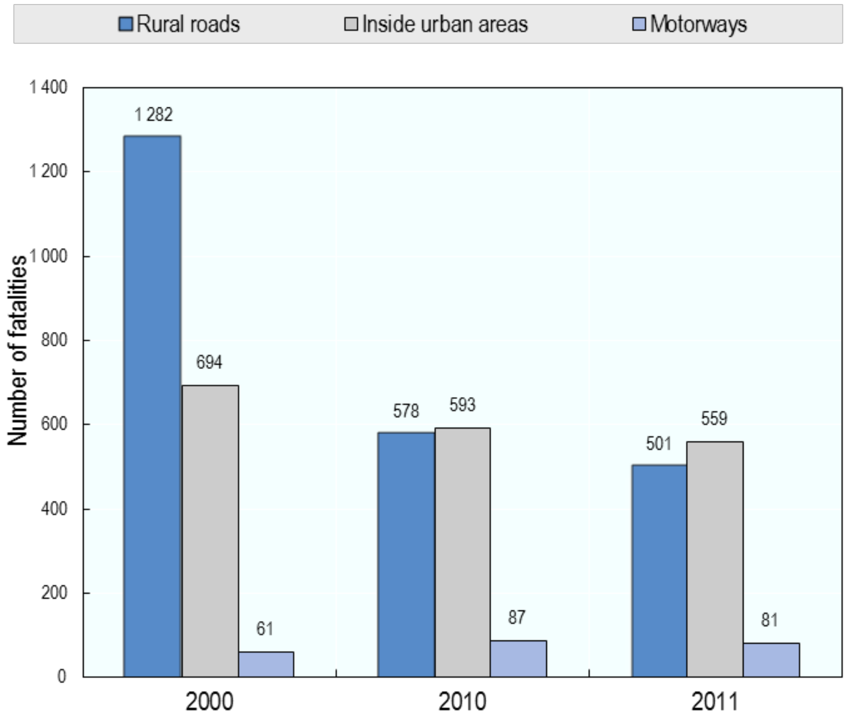
Source: IRTAD

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. **Road fatalities by road type**



Source: IRTAD

4. Economic costs of traffic crashes

Traffic crashes represent a very significant cost for society, estimated in 2011 at around EUR 3.41 billion, representing almost 1.5% of GDP (Hellenic Institute of Transportation Engineers).

The cost is almost tripled if the real number of injuries and of 'material damage only' crashes 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 4. **Costs of road crashes, 2011**

Costs (EUR billion)	Unit Cost	Total
Fatalities		2.32
Injury and disability		1.09
Property / damage costs		-
Total (EUR)		3.41
Total as % of GDP		*1.45%*

Source: Hellenic Institute of Transportation Engineers

5. Recent trends in road user behaviour

Impaired driving

Drink driving

According to the Greek Road Code, the maximum permissible BAC is 0.5 g/l, when it is measured by blood sample, and 0.25 mg/l when measured by breath testing.

Since 2007, a lower limit (0.2 g/ l) applies to professional drivers (heavy goods vehicles, school buses and coaches), motorcycles and moped riders.

The percentage of fatal crashes involving a driver with a BAC above the limit is not accurately recorded. However, 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.

Drugs and driving

According to the Greek Road Code, driving under the influence of drugs is prohibited. However, no further definitions are provided. No data are available for drug related crashes.

Distraction

In Greece, it is forbidden to use a hand-held phone or headphones while driving. Only wireless, hands-free devices are allowed.

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%).

Fatigue

No studies on the effect of fatigue on road safety were carried out in Greece.

Speed

Speeding is perhaps the most critical factor for road accidents in Greece. Speeding enforcement varied during the last decade, with a direct impact on the progress of road safety trends in Greece, as borne out by related research. The recent important decline of road fatalities in Greece might be correlated to less speeding as a result of the economic crisis (steep fuel price increase, more ecological driving, etc.).

The table below summarises the main speed limits in Greece.

Table 5. **Passenger car speed limits by road type, 2014**

	General speed limit Passenger cars	Comments
Urban roads	50 km/h	
Rural roads	90 km/h	
Motorways	130 km/h	Variable speed limits are implemented when Variable Message Signs are available

Source: IRTAD

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 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.

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

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.

It is estimated that the increase of powered two-wheelers helmet-wearing rate from the current 46-75% to 95% (EU average) might save up to 200 lives (out of a total of 984) annually.

6. 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. No systematic road safety training is taking place at any level in Greece.

Quite a few NGOs are strongly advocating for 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.

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.

Target setting

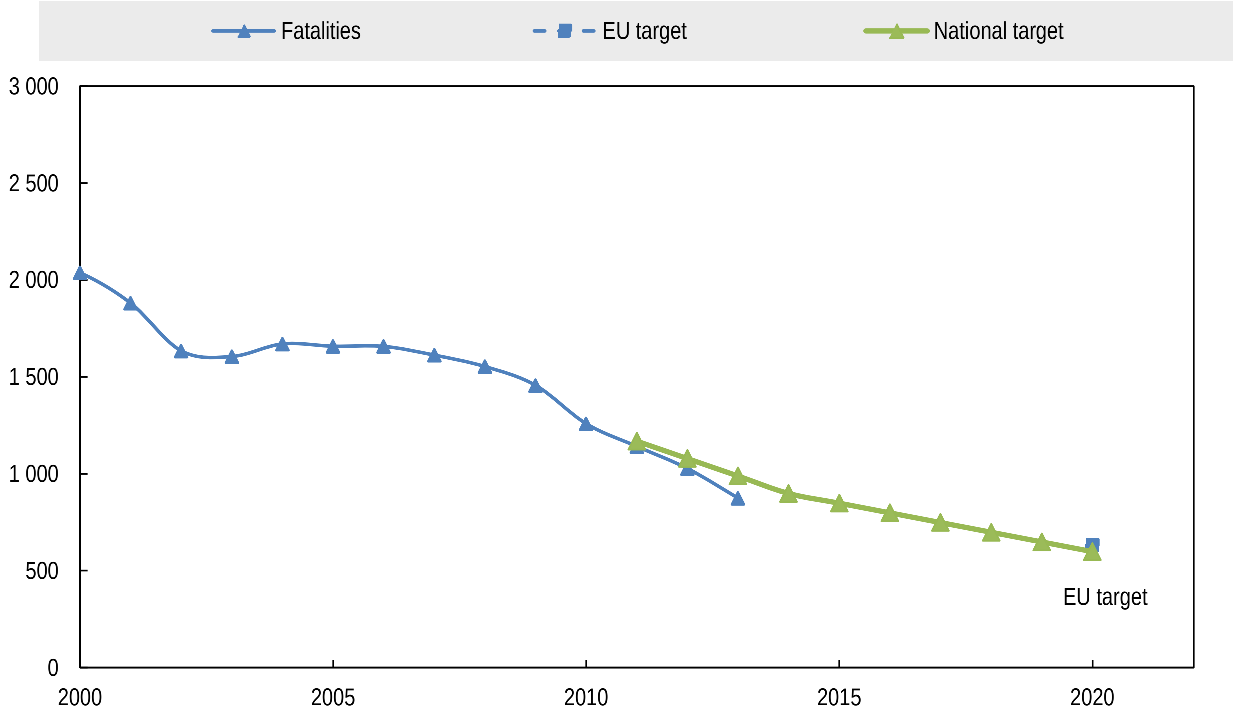
The strategic plan adopts the European target of reducing the number of road fatalities by 50% between 2010 and 2020, together with specific intermediate targets, i.e. reduction by 90 road fatalities per year between 2010 and 2014 (target already achieved due to the crisis) and 50 road fatalities per year between 2014 and 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

Since 2010, a significant road fatalities reduction was achieved, attributed also to the deep economic crisis in Greece, putting Greece well on track both for the national and European targets set.

Figure 4. **Trends in road fatalities towards national and EU[2] targets**



Source: IRTAD

Evaluation of past road safety strategy

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 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 were never allocated to the related road safety actions. Therefore, any efforts made by public and private stakeholders had limited impact.

7. Recent safety measures (2011-2013)

Generally, 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

2. In 2010, the European Commission adopted the target of halving road deaths by 2020, compared to 2010 levels.

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.

Road safety management

- Road safety management is the responsibility of both the national and the regional authorities. During the last decade, more and more regional and local authorities have established and implement regional road safety plans (sometimes within the urban mobility plans) which start to bring results.

Driver behaviour

- National, regional and local authorities and other road safety stakeholders work on driver behaviour through enforcement, campaigns and training, without however monitoring properly all these actions in order to draw conclusions on the size of these efforts and their impact on road casualties. They usually focus on Speed management, Impaired driving, Seatbelt and helmet use, and distracted riving.

Vehicles

- All European Union rules on vehicles are properly transposed into the Greek legislation and followed by the European vehicle industry, resulting in higher safety standards of all new vehicles entering into circulation in Greece. Improved vehicle passive and active safety is considered one of the reasons for the significant reduction of road casualties (especially of persons killed and seriously injured) both in the European Union and in Greece.

Cycling safety

- To respond to the increase in cycling traffic, the Greek government is progressively introducing cycling safety measures, comprising cycle lanes, new rules (shared use of bus lanes) and campaigns.

Infrastructure

- Due to the continuous difficult economic conditions, the budget for road maintenance and safety intervention is significantly reduced. The major programme for motorway development, totalling 2 500 km of toll motorways (including new 1 400 km) has restarted in 2013.
- The European Directive on road infrastructure safety management (TEN-T road network only) has been transposed into the national legislation, however its implementation is very slow due to lack of resources and the necessary administrative structures.

Post-crash care

- The extensive programme on reforms of the Greek public administration as well as national health system includes restructuring of, and possible improvements to, the post-crash care system. The effect of these reforms on road casualty reduction cannot be measured yet, not only because it is too early but also because of serious cuts in all national economy sectors.

8. Recent and on-going research

The National Technical University of Athens (NTUA) and the Hellenic Institute of Transport (HIT/CERTh) are 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 and references

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

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Hungary

Source: IRTAD, KTI

Inhabitants	Vehicles/1 000 inhabitants	Road fatalities in 2012	Fatalities /100 000 inhabitants in 2012
10 millions	**361**	**605**	**6.1**

1. Road safety data collection

Definitions

- Road fatality: person who dies within 30 days as a result of a traffic crash.
- Seriously injury: any person who, due to the crash, 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.

Data collection and analysis

The data of personal injury crashes are collected by the police. This is the basis of the official Hungarian road crash statistics as well.

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.

In order to respond to the EC and IRTAD recommendations to collect data on serious injuries based on MAIS3+ definition, experts from the health sector are involved in the European JAMIE project aiming at the development of an international injury database. Another option being investigated is the translation of ICD codes into AIS codes.

Based on earlier research results, it is estimated that between 15 and 30% of serious injuries and more than 40% of slightly injured are not reported in the police records.

2. Most recent safety data

Road crashes in 2012

In 2012, there was a 5% decrease in the number of fatalities in comparison with 2011. This continues the good progress made in 2008-2011. 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.

Data for 2013

The final figure for 2013 is 591 road deaths, a decrease of 2.2 % compared to the 2012 final figure. The number of injury crashes increased by 3.4% and the number of people seriously injured by 9.1%.

3. Trends in traffic and road safety (1990- 2013)

Traffic

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.

Based on the preliminary data for fuel consumption (2% increase), it seems that the traffic volume increased in 2013 compared to the previous year.

Change in the number of fatalities and injury crashes (1990-2012)

Between 1990 and 2012, the number of fatalities fell by 75% and the number of injury crashes by 45%. In the same period, the number of registered vehicles increased by more than 66%.

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. The worst year for Hungarian road safety was in 1990, 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 reduction of more than 50% 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 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.

Rates

In 2012, Hungary reached its lowest level in fatalities per 100 000 population, with a rate of 6.1 — four times lower than its maximum in the 1990s.

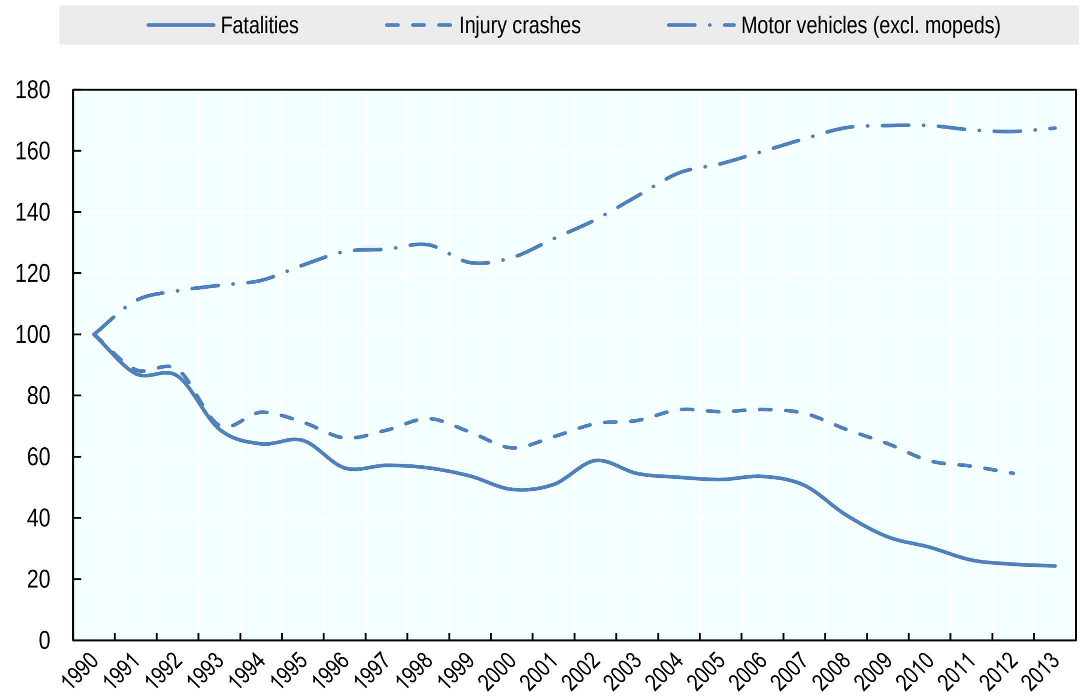
Table 1. **Road safety and traffic data**

						2012 % change from		
	1990	2000	2010	2011	2012	*2011*	*2000*	*1990*
Reported safety data								
Fatalities	2 432	1 200	740	638	605	-5.2%	-49.6%	-75.1%
Injury crashes	27 801	17 493	16 308	15 827	15 174	-4.1%	-13.3%	-45.4%
Deaths per 100 000 population	23.4	11.7	7.4	6.4	6.1	-4.9%	-48.2%	-74.1%
Deaths per 10 000 registered vehicles	11.2	4.4	2.0	1.8	1.7	-4.9%	-62.1%	-85.0%
Traffic data								
Registered vehicles[1] (thousands)	2 163	2 706	3 640	3 609	3 598	-0.3%	33.0%	66.3%
Registered vehicles per 1 000 population)	208.5	264.7	363.5	361.4	361.3	0.0%	36.5%	73.3%

Source: IRTAD

1. Registered vehicles excluding mopeds.

Figure 1. **Road safety and traffic data**
Index 100= 1990



Source: IRTAD

Road users

All user groups have benefited from important safety improvements since 1990 (when fatalities peaked), with the largest benefits for pedestrians. In 2012, though, the number of pedestrians increased significantly by 25.8%, while the mortality of all other road users decreased.

Table 2. **Road fatalities by road user group**

						2012 % change from		
	1990	2000	2010	2011	2012	*2011*	*2000*	*1990*
Bicyclists	313	182	92	85	84	-1.2%	-53.8%	-73.2%
Mopeds	95	33	19	31	25	-19.4%	-24.2%	-73.7%
Motorcycles	143	52	49	52	39	-25.0%	-25.0%	-72.7%
Passenger car occupants	974	500	330	268	253	-5.6%	-49.4%	-74.0%
Pedestrians	803	346	192	124	156	25.8%	-54.9%	-80.6%
Others incl. unknown	104	87	58	0	48	n.a.	n.a	n.a.
Total	*2 432*	*1 200*	*740*	*638*	*605*	*-5.2%*	*-49.6%*	*-75.1%*

Source: IRTAD

Age

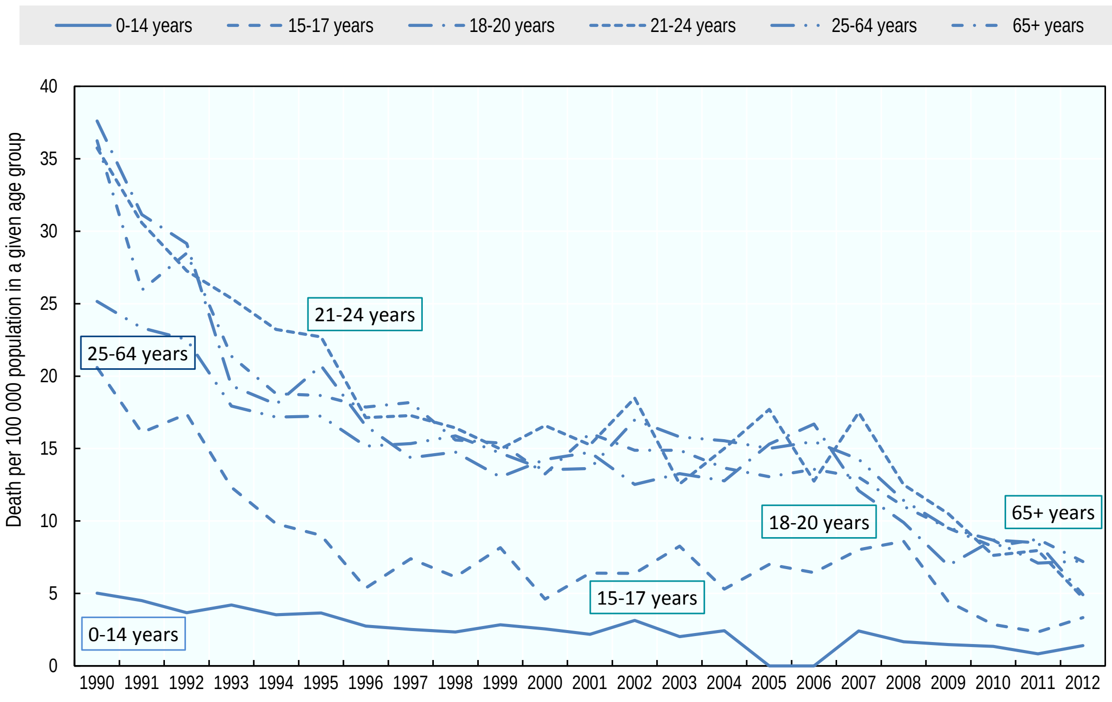
Since 1990, the reduction in fatalities has benefitted all age groups. When examining traffic-related deaths on the basis of population, the age group most at risk is the 25-64 year olds, followed by 65 years and older.

Table 3. **Road fatalities by age group**

						2012 % change from...		
Age	1990	2000	2010	2011	2012	*2011*	*2000*	*1990*
0-5	28	17	6	1	5	n.a	n.a.	-82.1%
6-9	39	9	3	7	6	n.a	-33.3%	-84.6%
10-14	40	18	11	4	10	n.a	-44.4%	-75.0%
15-17	99	18	10	8	11	n.a	-38.9%	-88.9%
18-20	162	64	33	32	18	-43.8%	-71.9%	-88.9%
21-24	191	114	40	41	27	-34.1%	-76.3%	-85.9%
25-64	1 365	736	488	399	407	2.0%	-44.7%	-70.2%
>65	498	203	137	146	121	-17.1%	-40.4%	-75.7%
Total incl. unknown	*2 432*	*1 200*	*740*	*638*	*605*	*-5.2%*	*-49.6%*	*-75.1%*

Source: IRTAD

Figure 2. **Road death rates by age group**
Fatalities per 100 000 population in a given age group, 1990-2012

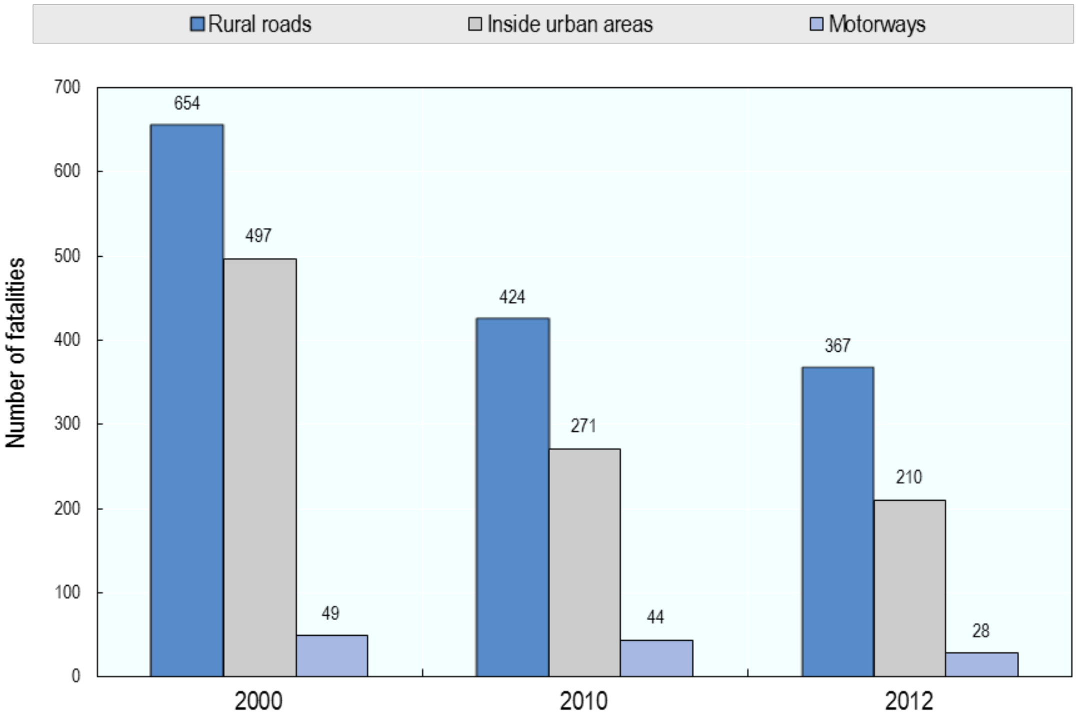


Source: IRTAD

Road Type

In 2012, 61% of road fatalities died on a rural road. Since 1990, the greatest reduction in fatalities has occurred in urban areas.

Figure 3. **Road fatalities by road type**



Source: IRTAD

4. Economic costs of traffic crashes

Traffic crashes represent a very significant cost for society, estimated in 2012 at around HUF 650-700 billion (approx. EUR 2.15-2.30 billion), i.e. 2.5% of GDP. These costs are calculated using both a willingness to pay and "human capital" approaches (Hollo, 2013)[2].

As it is very costly to undertake in-depth assessment of traffic crash costs based on a "willingness to pay" methodology, KTI regularly estimates the costs of traffic crashes based on the method of McMahon and Dahdah[3]. Since the GDP/capita decreased in recent years, the values for 2013 are lower than before.

2. Holló, P., I. Hermann, *Updated costs of road traffic crashes in Hungary*. (in Hungarian) Közlekedéstudományi Szemle (Scientific Review of Transport), June 2013, No. 3, pp. 22-27.

3. McMahon, K. and S. Dahdah: *The true cost of road crashes, Valuing life and the cost of a serious injury*, 2008

Table 4. **Costs of road crashes, 2013**

Costs	Unit Cost USD	Total USD
Fatalities	885 640	
Hospitalised people	221 410	
Slight injuries	3 933	
Property / damage costs		
Total		1.88 billion
Total as % of GDP		1.5%

Source: Hollo, 2013

5. Recent trends in road user behaviour

Impaired driving

Drink driving

In the Hungarian statistical system there are only data registered about the alcohol consumption of the person who caused the crash. There are no such data about the alcohol consumption of (innocent) participants. It means that alcohol related crash is reported as such when the person responsible for the crash is under the influence of alcohol.

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 2012, the number of personal injury crashes caused by driving under the influence of alcohol increased by 3.2% in comparison with 2011. It means that 11.2 % of all personal injury crashes were caused by driving under the influence of alcohol.

Distraction

Hungary identifies distracted driving in fatal and injury crashes. Mobile/cell-phone use, or texting/SMS, are not identified specifically in the categorisation 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.

Speed

According to on site police investigations speeding is a contributing factor in around 40% of fatal crashes caused by the driver. Automatic speed cameras are being introduced.

The table below summarises the main speed limits in Hungary.

Table 5. **Passenger car speed limits by road type, 2014**

Urban roads	50 km/h
Rural roads	90 km/h
Motorways	130 km/h 110 km/h on motor roads

Source: IRTAD

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.

In 2013, the wearing rate was 87% for front-seat occupants and 68% for rear-seat occupants, which is low in comparison to other countries.

The use of child restraint systems has significantly increased in the past decade (see figure 4)

It is estimated that 63.5% of car occupant fatalities did not wear a seatbelt when the crash occurred. According to the estimations of Prof. Dr. Péter Holló[4], in 2012, 40 fatalities and 127 serious injuries could have been prevented by an increase of the average safety belt wearing rate to 95%.

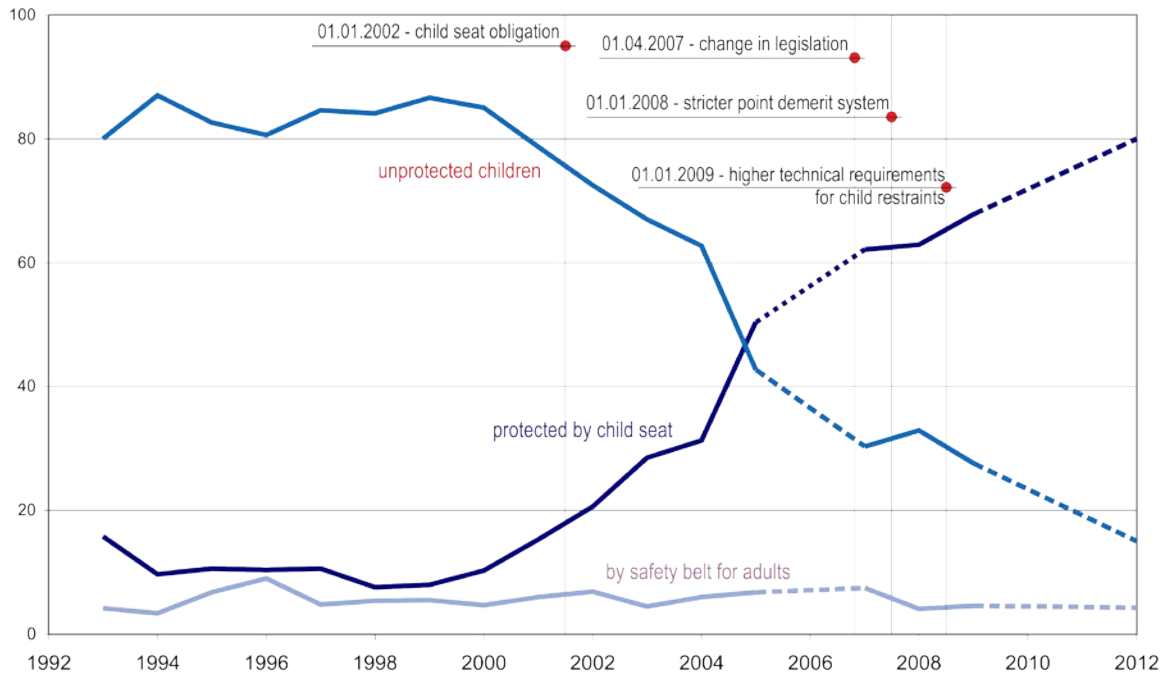
Table 6. **Seat-belt wearing rate by car occupants**

	2000	*2013*
Front seat		
General	49%	87%
Urban roads (driver)	35%	85%
Rural roads (driver)	48%	86%
Rear seats	8%	68%
Adults		57.3%
Children	15%	89%

Source: KTI

4. Holló: Road Safety in Hungary, CEDR (Conference of European Directors of Roads), "Improvements in the field of road safety" meeting, Budapest 20-21 March 2014

Figure 4. **Usage rate of child safety devices in Hungary**



Source: KTI

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%.

There is no mandatory helmet use law for cyclists.

6. 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.

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).

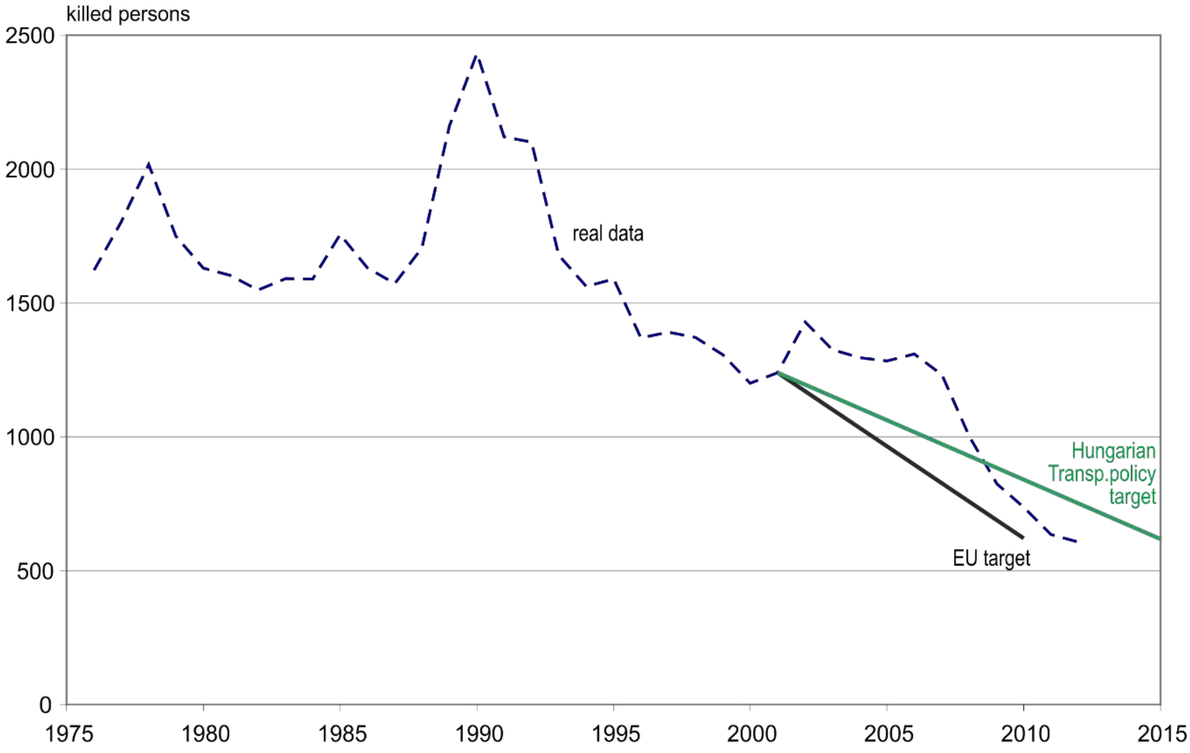
Target setting

In addition to the 2015 target, Hungary adopted the EC target to reduce by 50% the number of road fatalities by 2020, in comparison with 2010 level.

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 in road fatalities towards national and EU[5] targets**



Source: KTI

Evaluation of past road safety strategy

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).

5. In 2010, the European Commission adopted the target of halving road deaths by 2020, compared to 2010 levels.

7. Recent safety measures (2011-2013)

Driver behaviour

Speed management

- The number of automatic speed cameras is increasing progressively.

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.

Seatbelt and helmet use

- Since July 2011, non-usage of child-restraint systems and the non-use of helmets have been included in the demerit point system. The national campaign to increase the usage rate of child safety restraints began also in 2012.

Education and awareness

- In 2012 the Lifelong Journey Programme, which is a road safety education programme for children and young people, undertook a number of road safety campaigns.
- The Police started a big national campaign on perception by car drivers and conspicuity. Car drivers can register on a website and get a free lighting test by the participating garages, and a free vision test by the participating opticians.

Enforcement

- Automatisation of the sanction process. The reception and management of the documents recording the traffic offences are being automatised, eliminating the possibility of human intervention.

Motorcycles

- 2012: Year of biker's safety: The Ministry of National Development, the Police, and the government supported a national campaign from April to October to promote the safety of powered-two-wheelers.

Infrastructure

- Road transport audit process is being enhanced with the training of qualified people.

8. Recent and on-going research

KTI is conducting a number of road safety research projects. More information can be found at: www.kti.hu. It also takes part in several EU projects, including:

- Providing Safe Solutions for Today’s Traffic Systems (PRO SAFE)
- Road safety in South East European Regions
- South East Neighbourhood Safe Routes (SENSOR)

Useful websites and references

KTI- Institute for Transport Science	www.kti.hu
•Providing Safe Solutions for Today’s Traffic Systems (PRO SAFE)	http://www.pro-safe.hu/index.php/introduction
•ROad safety in South East European Regions (ROSEE)	http://www.rosee-project.eu/hu
•South East Neighbourhood Safe Routes (SENSOR)	http://www.sensorproject.eu

Contact

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Iceland

Source: IRTAD, Icelandic Road Administration

Inhabitants	Vehicles/1 000 inhabitants	Road fatalities in 2012	Fatalities /100 000 inhabitants in 2012
319 575	**823**	**9**	**2. 8**

1. Road safety data collection

Definitions

- Road fatality: person who dies within 30 days as a result of a traffic crash.
- 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.

Data collection

Crash 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 crash is added to the files along with detailed information on location, vehicles as well as other fields.

100% of all fatal crashes are recorded in the database. In depth-study is undertaken for each fatal crash. By law, every injury crash 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.

As the number of fatalities in Iceland is low, fatality data is not compared between single years, but between five consecutive years' series.

2. Most recent safety data

Road crashes in 2012

In 2012, 9 people were killed in road traffic. The 5-year average for 2008-2012 was 11 killed per year, and 22 for the previous 5-year period (2003-2007), thus reflecting a significant reduction in the number of people killed on the road.

The year 2012 was overall a good year in regards to traffic safety in Iceland. The number of people killed and injured was almost at a record low. The number of seriously injured motorcyclists was 17 compared to the average of 34 in the previous five years. The number of young drivers (17-20 years old) involved in a traffic crash was 146 compared to the average of 286 in the previous five years. The number of crashes caused by drink driving has been on the decline for a few years and in 2012 for the first time in decades, nobody was killed in Iceland as a result of driving under the influence of alcohol.

The number of foreign drivers, cyclists and pedestrians injured on Iceland's roads is increasing, reflecting the growing number of foreign tourists in Iceland and of people actively cycling and walking.

Fatalities data for 2013

In 2013, 15 persons were killed, an increase of 6 fatalities compared to 2012.

3. Trends in traffic and road safety (1990-2013)

Traffic

Between 2008 and 2012, traffic volume (in v-kms) has remained stable.

Change in the number of fatalities and injury crashes (1990-2012)

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 2012, the number of fatalities overall followed a decreasing trend with some fluctuations over the years (the highest figure was observed in 2000 with 32 fatalities, and the lowest figure was 8 fatalities in 2010). The number of injury crashes increased by 30%. The reason for this apparent increase in injury crashes 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.

Rates

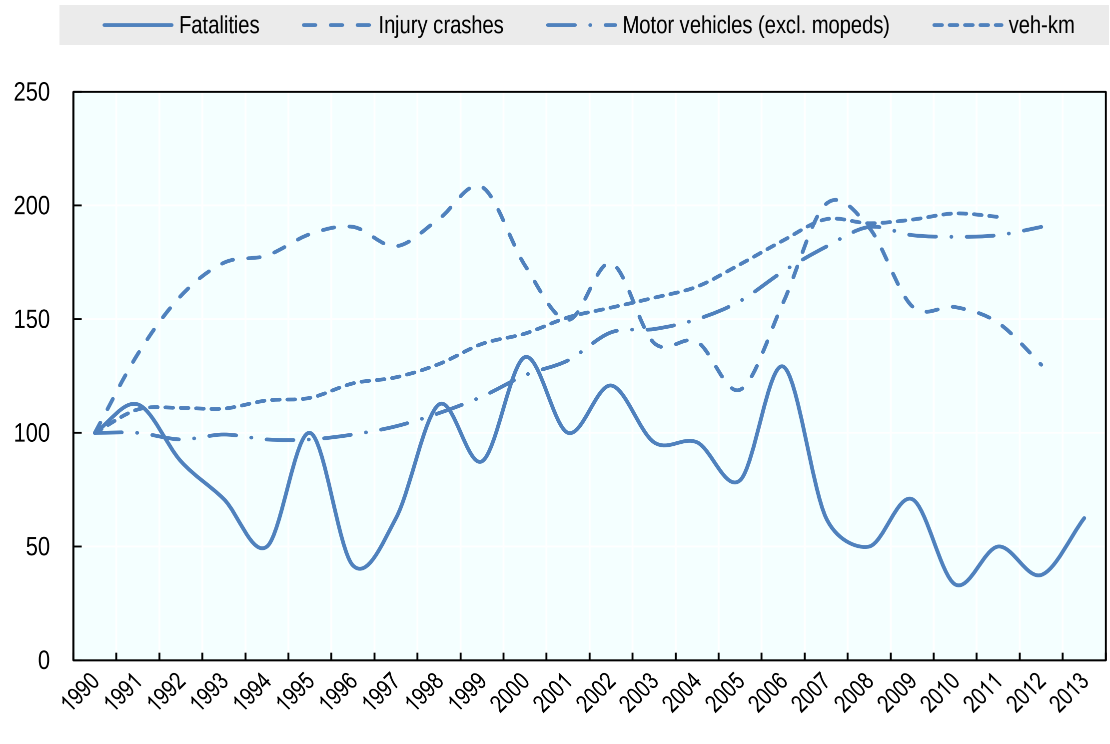
In 2012, the mortality rate (expressed in terms of deaths per 100 000 population) was 2.8, among the lowest of all OECD countries.

Table 1. **Road safety and traffic data**

	1990	2000	2010	2011	2012	2012 % change from 2011	2012 % change from 2000	2012 % change from 1990
Reported safety data								
Fatalities	24	32	8	12	9	Figures too small for meaningful comparisons		
Injury crashes	564	979	876	837	733	-12. 4%	-25. 1%	30. 0%
Deaths per 100,000 population	9. 5	11. 5	2. 5	3. 8	2. 8	-25. 3%	-75. 4%	-70. 2%
Deaths per 10,000 registered vehicles	1. 7	1. 8	0. 3	0. 5	0. 3	-26. 4%	-81. 5%	-80. 3%
Deaths per billion vehicle kilometres	14. 9	13. 8	2. 5	3. 8	2. 9	-24. 0%	-79. 0%	-80. 5%
Traffic data								
Registered vehicles[1] (thousands)	138	173	257	258	263	1. 9%	52. 0%	90. 6%
Vehicle kilometres (millions)	1 612	2 316	3 168	3 143	3116	-0. 9%	34. 5%	93. 3%
Registered vehicles per 1,000 population)	543. 8	620. 0	809. 1	810. 2	823. 0	1. 6%	32. 7%	51. 3%

Source: IRTAD

Figure 1. **Road safety and traffic data**



Source: IRTAD.

Road users

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

1. Registered vehicles excluding mopeds.

Table 2. **Road fatalities by road user group**

	1990	2000	2010	2011	2012	2012 % change from 2011	2012 % change from 2000	2012 % change from 1990
Bicyclists	0	0	0	0	0	Figures too small for meaningful comparisons		
Moped riders	0	0	0	1	0			
Motorcyclists	3	1	1	0	0			
Passenger car occupants	15	25	4	7	6			
Pedestrians	6	1	2	4	2			
Others incl. unknown	0	5	1	0	1			
Total	*24*	*32*	*8*	*12*	*9*	*-25. 0%*	*-71. 9%*	*-62. 5%*

Source: IRTAD

Age

The table below shows a breakdown of fatalities by age group.

Table 3. **Road fatalities by age group**

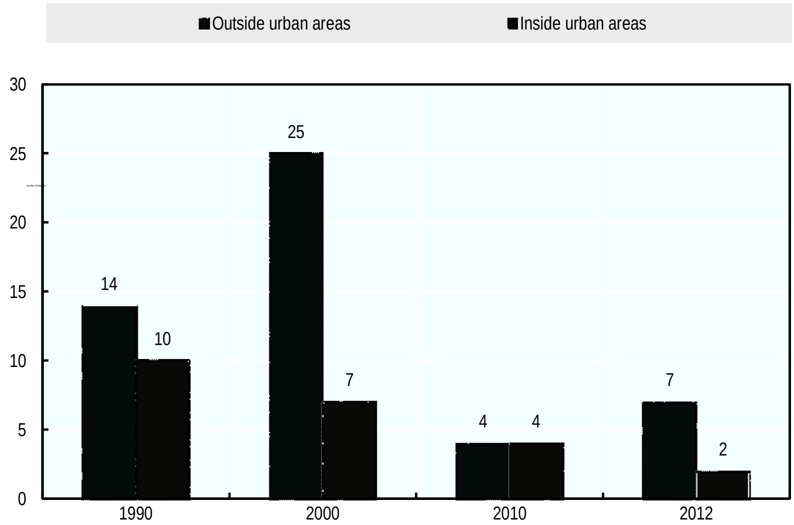
Age	1990	2000	2010	2011	2012	2012 % change from... 2011	2012 % change from... 2000	2012 % change from... 1990
0-5	1	0	0	1	0	Figures too small for meaningful comparisons		
6-9	1	0	0	0	0			
10-14	1	0	0	1	0			
15-17	2	5	0	4	0			
18-20	4	4	2	0	0			
21-24	3	1	1	0	2			
25-64	9	16	3	4	3			
>65	3	6	2	2	4			
Total	*24*	*32*	*8*	*12*	*9*	*-25. 0%*	*-71. 9%*	*-62. 5%*

Source: IRTAD.

Road type

In 2012, 2 persons were killed on roads inside urban areas while 7 were killed outside urban areas.

Figure 2. **Number of fatalities**



Source: IRTAD.

4. 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 crash and therefore how much money would have been saved had the crash not occurred. This method does not take into account the psychological effects of those close to victims nor some expenses from the public insurance system and from the pension funds.

The latest study[2] 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. A new study is expected to be conducted in the near future.

Table 4. **Costs of road crashes, 2009**

Costs (EUR billion)	Unit Cost	Total
Fatalities		0. 012
Injury and disability		0. 097
Property / damage costs		0. 076
Total (EUR)		0. 185
Total as % of GDP		1. 2%

Source: Hagfræðistofnun (2012).

2. Hagfræðistofnun Háskóla Íslands (2012), *Kostnaður við umferðarslys á Íslandi árið 2009* http://ww2.us.is/files/C12_04_Umferdarslys_2.pdf

5. Recent trends in road user behaviour

Impaired driving

Drink driving

The maximum authorised blood alcohol content is 0.5 g/l. In Iceland, during 2008-2012, on average, 21% of those killed and 9% of those seriously injured were involved in road crashes where one of the drivers had been drinking alcohol or using drugs.

Drugs and driving

The legislation on drugs and driving is to be found within the Traffic Laws of Iceland. They state that nobody can drive a vehicle while under the influence of illegal narcotic substances. The penalties are the suspension of a driver's licence for 3-24 months for a first offence but 2-5 years after that.

Drugs are involved in 9-10% of fatal crashes and about 4% of other serious accidents (with serious injuries).

Distraction

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.

Fatigue

Many crashes happen when drivers are tired. In Iceland, however, the measure of accidents caused by fatigue is, in fact, the number of accidents where a driver is very drowsy, almost falling asleep or even fell asleep while driving. Under this criteria, the number of fatalities caused by this kind of fatigue is about 5% and the number of seriously injured caused by fatigue is about 3-4%

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).

The table below summarises the main speed limits in Iceland.

Table 5. **Passenger car speed limits by road type, 2014**

Urban roads	50 km/h
Rural roads	90km/h paved roads 80 km/h gravel roads
Motorways	n. a.

Source: IRTAD.

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 crashes (i. e. car occupants) were not wearing seat belts. The figure was 40% in 2010, 29% in 2011 and 57% in 2012.

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**

	2011	2013
Front seat		
General	85%	84%
Urban roads	76%	79%
Rural roads	91%	93%
Rear seats		
Adults + children	72%	65%

Source: IRTAD.

6. National road safety strategies and targets

Organisation of road safety

Two organisations manage road safety in Iceland. The Icelandic Road and Coastal Administration (Vegagerðin) handles the infrastructure; the actual road improvements, and the Icelandic Transport Authority (Samgöngustofa) 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 the 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 and Sweden 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 a 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 is 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 (aged 17-20);
- elimination of fatalities due to lack of seat-belt 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 as well as on the basis of data regarding specific types of accident.

Crash data are monitored throughout the year based on monthly data 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 the low rate of persons killed per capita. The challenge is to stay in that group.

Table 7. **Trends in road fatalities 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.

7. Recent safety measures (2011-2013)

Driver behaviour

Speed management

- Speed enforcement (both traditional and automatic speed controls) 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 (mentioned 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 licence 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.

Education and awareness

- 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 force the seatbelt is actually subjected to 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 to 20-year-old drivers was, on average, 308 per year during the period 2006-2010, and this figure dropped to 146 in 2012.
- Road safety campaigns are regularly conducted. The focus is mainly on speeding, seatbelt wearing and drink driving. Other emerging safety issues are addressed to the extent possible, including fatigue and the use of mobile phones. A recent campaign focused on motorcycle side impacts, which occur when the car driver does not see the motorcycles or misjudges their speed. After this campaign the number of side impacts involving motorcycles dropped by more than 50% in one year.

Vehicles

- 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, as well as *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. 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 a 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 were 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. In 2013 work on installing a median barrier on a 2+2 road from the capital area to the international airport started. This road already had a wide median.
- Rumble strips (both shoulder and median) were introduced in 2007. These have been very well received, but their effectiveness remains to be proved.

8. Recent and on-going research

The Icelandic Road and Coastal Administration (IRCA) will be working on several before and after studies in 2014. This includes the evaluation of the effects of automatic speed control on the number of accidents at a certain road section as well as evaluating the effects of major infrastructure improvements on road safety. In addition IRCA will study accidents in wintertime[3] where foreign drivers are involved on a popular tourist route in Iceland.

Useful websites and references

Safe Travel	http://www. safetravel. is
Road Traffic Directorate	www. samgongustofa. is
Iceland Road Administration	www. vegagerdin. is
Road Accident Analysis Group	www.rnsa.is

Contact

For more information, please contact: audur. th. arnadottir@vegagerdin. is

3 Occurring when winter conditions are prevailing.

Ireland

Source: IRTAD, Road Safety Authority

Inhabitants	Vehicles/1 000 inhabitants	Road fatalities in 2012	Fatalities /100 000 inhabitants in 2012
4.6 million	**524**	**162**	**3.5**

1. Road safety data collection

Definitions

- Road fatality: deaths resulting from a road crash within 30 days.
- Serious injury: is an 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, crushing, severe cuts and lacerations, severe general shock requiring medical treatment.
- Slight injury: is an injury of a minor character, such as a sprain or bruise.

In Ireland, the official road collision data is generated by two agencies. Members of An Garda Siochana (Irish Police Force) 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 serious injury collisions are likely to be under-reported.

In 2012, the RSA commissioned a study examining the feasibility of adopting MAIS+3 definition of serious injury and linking Irish hospital data with the police data. The report concluded that it is feasible for Ireland to convert hospital data to MAIS3+ format. It also concluded that Ireland has good national databases for police recording of collisions (PULSE), and hospital recording of injuries due to collisions (HIPE). A number of common variables have been identified in each database for matching purposes, and recommendations for statistical techniques for matching have been given. Therefore Ireland can comply with the EC requirement to match these two datasets to improve injury reporting, and work is on-going to meet these requirements.

2. Most recent safety data

Road crashes in 2012

In 2012 there were 162 road collision fatalities, an average of 14 deaths per month, which is the lowest recorded number of fatalities since 1959 when safety records began. However, there was an increase in the number of injury crashes from 2011 to 2012.

Total fatalities reduced by 13% in 2012 compared with 2011. Substantial reductions have been recorded in pedestrian casualties (38% reduction). The number of car users who were killed in 2012 showed a reduction of 6% compared to 2011. Fatalities among motorcyclists increased marginally on the 2011 level of 18 fatalities.

In 2012, 20% of all the people killed were male aged 17-24. Thirty-seven percent of drivers killed were aged 17-24. Twenty-two percent of people killed were aged 65 and over; and 22% aged 25-34.

Data for 2013

2013 saw an increase in year-on-year fatalities (190) for the first time since 2005; exceeding the number of fatalities in 2012 (162) by 17% and, by a narrow margin, the number of fatalities in 2011 (186). There was an increase in motorcyclist, car user and pedestrian fatalities (42%, 27% and 7% increase respectively) between 2012 and 2013.

Provisional data for the first quarter of 2014 show 43 fatalities. Of the total, drivers suffered the highest proportion of fatalities (53%) followed by pedestrians at 26%.

3. Trends in traffic and road safety (1990- 2013)

Traffic

Since 2000, the population has increased by 21%, registered motor vehicles (total fleet) by 43%, the number of driver licence holders (both full and learner permit) by 33% and fuel consumption for all road transport (i.e. road freight, private car and public passenger services) has increased by 11%. Contributing to the increase in exposure is an increase in the proportion of individual licence holders to adult population (17 years and over). This was 71% in 2000, but by 2012 this proportion had increased to 77%.

Since the economic downturn in 2008, the number of goods vehicles (light and heavy) on the road decreased by 12%. Likewise, the fuel consumption for all road transport has decreased by 19% since 2008. However, the number of goods vehicles on the road in 2012 has increased by 50% on the 2000 level. The number of laden journeys undertaken by goods vehicles during 2012 (10.1 million) fell by 1% compared to 2011.

Provisional figures for 2013 indicate that the overall traffic volume has increased by 2% in 2013 compared to 2012. The number of driver licence holders (both full and learner permit) decreased by 1% since 2012.

Change in the number of fatalities and injury crashes (1990-2012)

Fatalities for all user groups decreased significantly since 2000. Total fatalities reduced by 61%.

The main changes in policies and legislation in the past 10 years that have influenced road safety are outlined below:

- The introduction of the penalty points system for speeding offences in November 2002;
- Operation of the Safety Camera Network to produce 6 000 hours of enforcement per month (November 2010);
- Operation of mandatory alcohol testing checkpoints introduced in July 2006;

- Targeted operations of traffic law enforcement with a particular emphasis on safety offences (including excessive and inappropriate speeding, impaired driving, restraint / helmet use; mobile phone use; defective vehicles) (early 2000s);
- The change in the maximum authorised BAC level from 0.8 g/l to 0.5 g/l (0.2 g/l for young drivers and professional drivers) in 2010;
- Implementation of mass media campaigns which target the main causal factors for collisions, deaths and serious injuries for all road users, but in particular the high risk groups (early 2000s).
- Integrated mass media campaigns with the policing plans of An Garda Siochana and other enforcement agencies (early 2000s).
- Implementation of educational interventions aimed at the high risk 17 to 24 year age group (i.e. "He drives she dies" campaign).
- Implementation of specific educational measures aimed at vulnerable road users. In particular: use of high visibility material for pedestrians, cyclists and motor cyclists; awareness of intoxicated pedestrians; use of personal protection equipment for cyclists and motorcyclists; awareness of blind spots on heavy good vehicles; care for young and older people;
- Expansion of the range of road safety-related offences covered by way of penalty points and administrative fines introduced in August 2012.

Rates

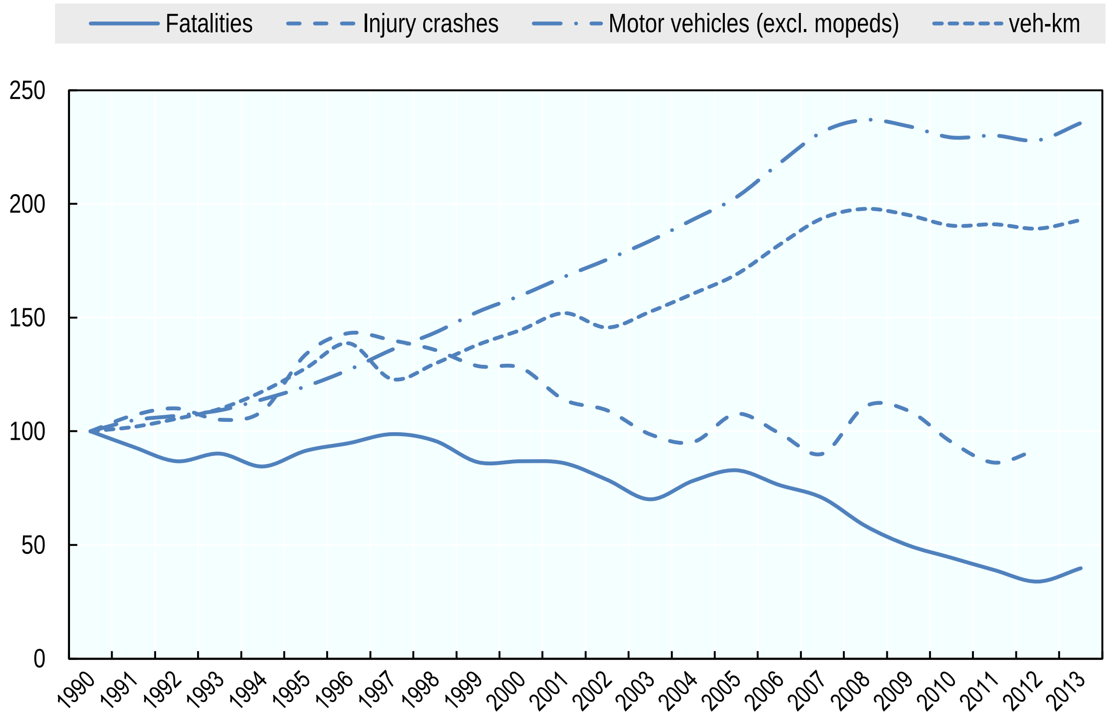
Since 2000, the risk has been more than halved for three risk indicators (i.e. deaths per 100 000 population, Deaths per 10 000 registered vehicles and Deaths per billion vehicle kilometres). In 2012, the death rate per 100 000 population was 3.5, one of the lowest rates among OECD countries.

Table 1. **Road safety and traffic data**

						2012 % change from		
	1990	2000	2010	2011	2012	*2011*	*2000*	*1990*
Reported safety data								
Fatalities	478	415	212	186	162	-12.9%	-61.0%	-66.1%
Injury crashes	6 067	7 757	5 780	5 230	5 610	7.3%	-27.7%	-7.5%
Deaths per 100,000 population	13.6	11.0	4.7	4.1	3.5	-14.0%	-68.1%	-74.3%
Deaths per 10 000 registered vehicles	4.5	2.5	0.9	0.8	0.7	-12.1%	-72.6%	-85.1%
Deaths per billion vehicle kilometres	19.2	11.5	4.5	3.9	3.4	-13.1%	-70.5%	-82.3%
Traffic data								
Registered vehicles (thousands)	1 054	1 684	2 416	2 425	2 403	-0.9%	42.7%	128.0%
Vehicle kilometres (millions)	24 896	36 001	47 414	47 561	47 088	-1.0%	30.8%	89.1%
Registered vehicles per 1,000 population	300.5	445.8	540.8	530.6	524.0	-1.2%	17.5%	74.4%

Source: IRTAD

Figure 1. **Road safety and traffic data**
Index 100 = 1990



Source: IRTAD

Road users

Fatalities for all user groups have declined over the period 2002 and 2012. Total fatalities reduced by 57% in 2012 compared with 2002. Substantial reductions have been recorded in all road user categories, with the highest reduction in pedal cycle, pedestrian, motorcycle and car user fatalities (71%, 66%, 57% and 56% reduction respectively) between 2002 and 2012.

Table 2. **Road fatalities by road user group**

						2012 % change from		
	1990	2000	2010	2011	2012	*2011*	*2000*	*1990*
Bicyclists	46	10	5	9	8	-11.1%	-20.0%	-82.6%
Motorised two wheelers	41	39	17	17	19	5.6%	-51.3%	-53.7%
Passenger car occupants	206	260	130	95	89	-6.3%	-65.8%	-56.8%
Pedestrians	150	85	44	47	29	-38.3%	-65.9%	-80.7%
Others	35	21	16	17	17	0.0%	-19.0%	-51.4%
Total	*478*	*415*	*212*	*186*	*162*	-12.9%	-61.0%	-66.1%

Source: IRTAD

Age

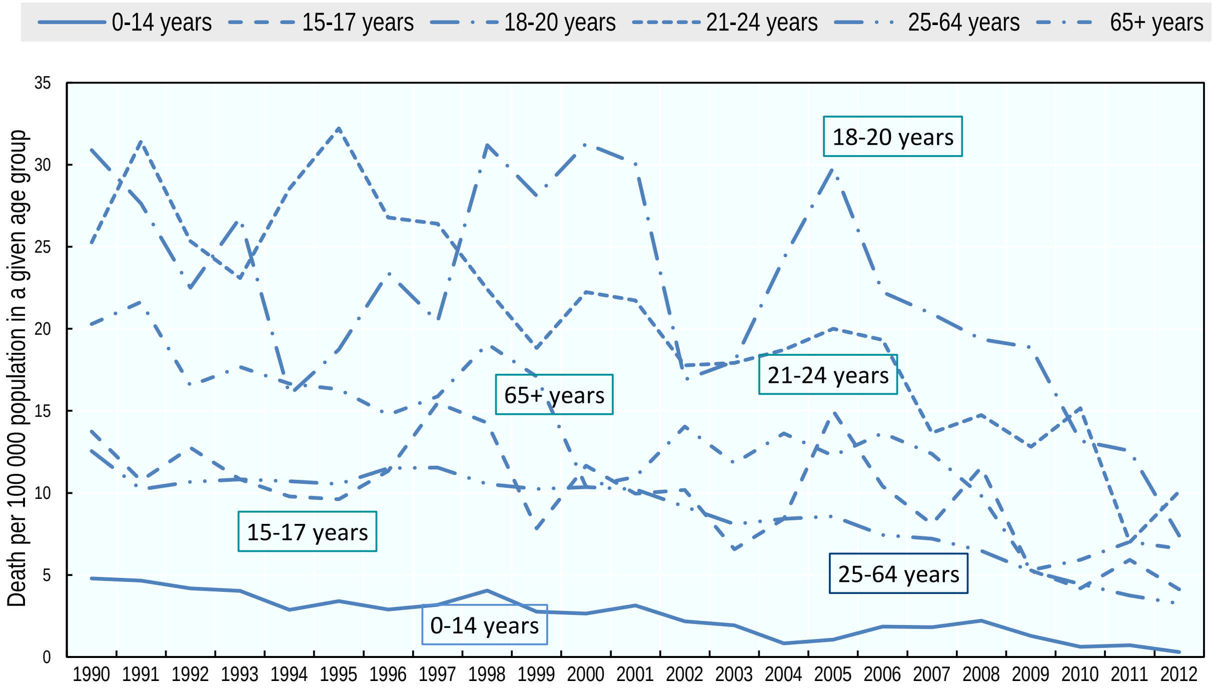
There is reduction in fatalities for all age groups over the period 2002-2012. The most impressive reduction was among the youngest age groups; fatalities decreased by 73% among 0-9 year olds and by 89% among 10-16 year olds. Fatalities among 17-24 year olds, 25-34 year olds, 35-49 year olds and 50-64 year olds have decreased by 53%, 58%, 52% and 53% respectively. Improvements have been less marked for the 65+ age group (40% reduction). In 2012, there were no fatalities among the 10-14 age group.

Table 3. **Road fatalities by age group**

						2012 % change from...		
Age	1990	2000	2010	2011	2012	*2011*	*2000*	*1990*
0-5	15	8	3	2	2	n.a	n.a	-86.7%
6-9	12	6	2	2	1	n.a	n.a	-91.7%
10-14	19	8	1	3	0	n.a	n.a	n.a
15-17	28	23	7	10	7	-30.0%	-69.6%	-75.0%
18-20	56	63	21	22	12	-45.5%	-81.0%	-78.6%
21-24	53	54	35	17	23	35.3%	-57.4%	-56.6%
25-64	195	195	109	93	81	-12.9%	-58.5%	-58.5%
>65	81	44	30	37	36	-2.7%	-18.2%	-55.6%
Total incl. Unknown	*478*	*415*	*212*	*186*	*162*	*-12.9%*	*-61.0%*	*-66.1%*

Source: IRTAD

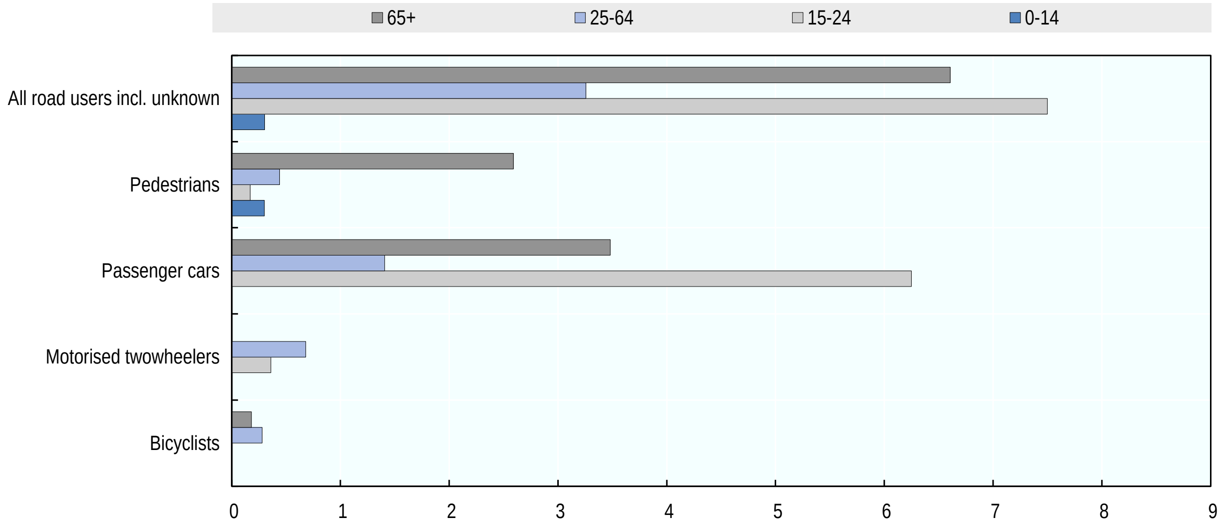
Figure 2. **Road death rates by age group**
Fatalities per 100 000 population in a given age group, 1990-2012



Source: IRTAD

Those aged 18-20 and 21-24 have, historically, had the highest fatality risk. In 2012, the fatality risk for 21-24 year olds exceeded that of 18-20 year olds.

Figure 3. **Road death rate by age and road user group**
Fatalities per 100 000 population in 2012



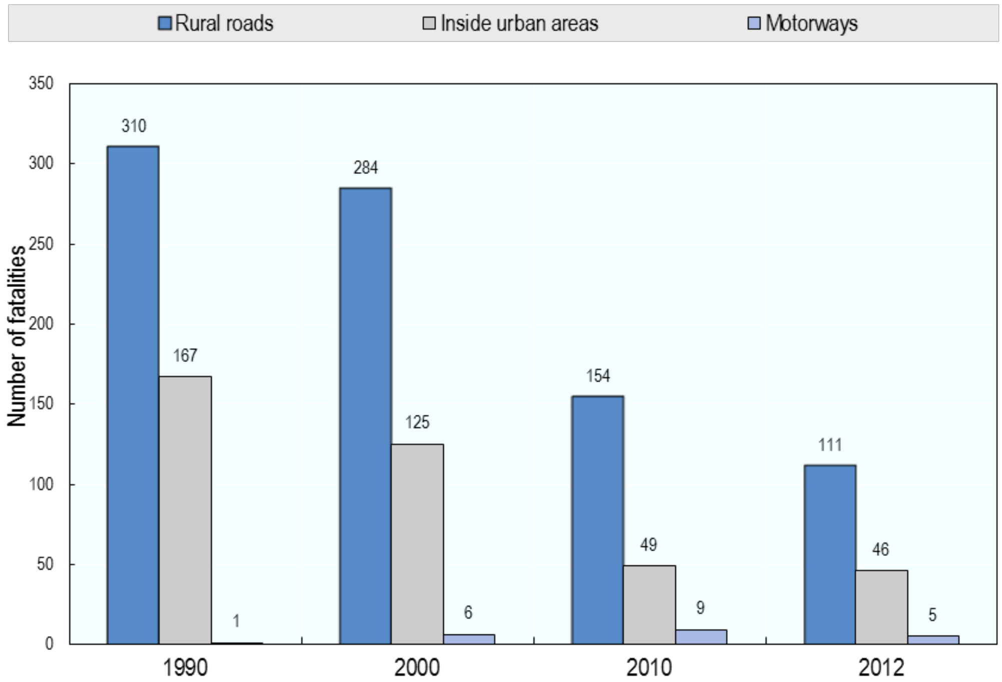
Source: IRTAD

Older road users (65+) and those aged 15-24 had the highest fatality risk of all road user groups in 2012. Pedestrians aged 65+ are particularly vulnerable, also car users aged 15-24.

Road Type

A large majority of fatal crashes occur on rural roads. 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 4. **Road fatalities by road type**



Source: IRTAD

4. Economic costs of traffic crashes

Traffic crashes represent a very significant cost for society, estimated in 2012 at around EUR 773 million, i.e. 0.58% of GDP.

The cost of collisions was based on those as outlined in the 2004 Goodbody Economic Consultants' report, commissioned by the Department of Transport[1]. An updating mechanism was used in order to inflate the year 2002 cost values to 2012 values, using the growth in Gross National Product (GNP) per person employed.

Table 4. **Costs of road crashes, 2011**

Costs (EUR)	Unit Cost	Total
Fatalities	2.706 million	411 million
Serious injuries	361 531	120 million
Slight injuries	35 607	183 million
Property damage and other costs	2 849	59 million
Total (EUR)		773 million
Total as % of GDP		0.58%

Source: Road Safety Authority

1. Goodbody Economic Consultants (2004) *Cost Benefit Parameters* and *Application Rules for Transport Project Appraisal* http://www.transport.ie/upload/general/5830-1.pdf

5. Recent trends in road user behaviour

Impaired driving

Drink 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. In 2007, it was estimated that drink-driving (driver with a BAC > 0.2 g/l) was a factor in 15.5% of fatal crashes.

Drugs and driving

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).

Distraction

It is illegal to drive while using a hand-held mobile phone.

An observational survey of drivers' mobile phone use when driving was carried out in 2013. In total there were 13 652 observations made in which 582 drivers were observed to be using a hand-held mobile phone. This represents an overall non-compliance rate of 4%.

Fatigue

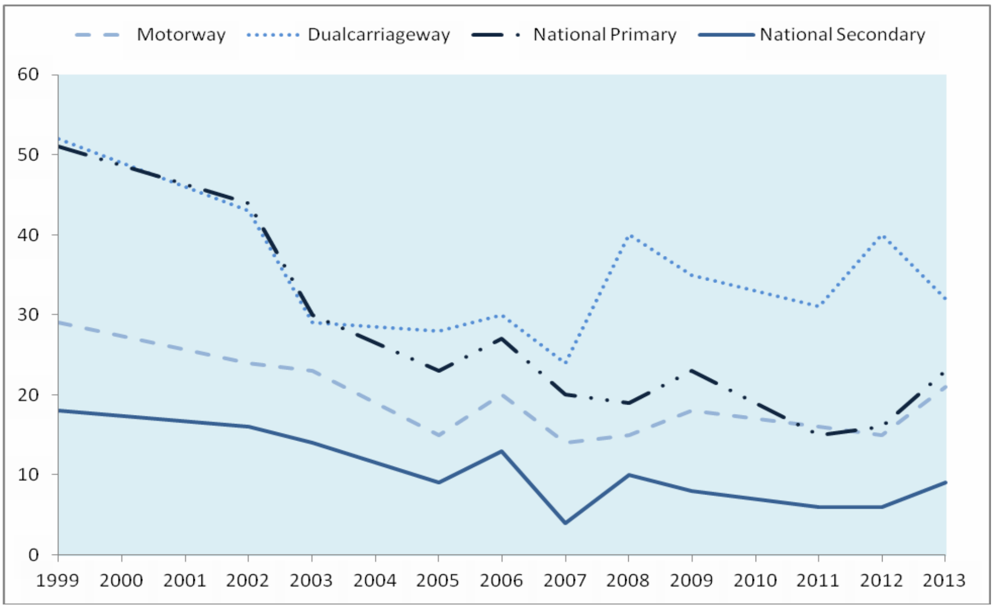
According to a survey of over 1 000 drivers in Ireland in 2013, approximately 1 in 10 (11%) stated they fell asleep at the wheel while driving.

Speed

In 2013, a total of 12 410 cars were surveyed on the road network in Ireland. Of the cars surveyed, 43% (5 345) were travelling on urban roads, and 57% were travelling on rural roads. The survey measured car free speed; that is, the speed at which drivers choose to travel when unconstrained by road geometry (e.g. sharp bends), weather conditions (e.g. rain), or traffic conditions (e.g. congestion or road works).

- 22% of all cars observed on rural roads were speeding (i.e. driving at a speed greater than posted speed limit);
- 61% of all cars observed on urban roads were speeding.
- On motorways, dual carriageways, national primary and national secondary roads, the proportion of cars complying with speed limits has increased since 1999.

Figure 5. **Percentage of cars exceeding speed limit on rural roads**
1999-2013



Source: Road Safety Authority

The table below summarises the main speed limits in Ireland.

Table 5. **Passenger car speed limits by road type, 2014**

	General speed limit
Urban roads	50km/h or 60km/h
Rural roads	80km/h or 100km/h
Motorways	120km/h

Source: Road Safety Authority

Seatbelts and helmets

The 2013 survey on Irish roads showed that the seatbelt wearing rate for front occupants of cars and light goods vehicles was 93%. Overall seat-belt wearing rate for adults (drivers, front and rear passengers) was 93%.

Table 6. **Seat-belt wearing rate by car and light goods vehicle occupants**

	2013
Front seat	
General	93%
Urban roads	96%
Rural roads	93%
Rear seats	
Adults	89%
Children	96%

Source: Road Safety Authority

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

A roadside observation survey of pedal cyclist and motorcyclist usage of helmets and high visibility clothing was carried out in 2013. The survey was undertaken at 150 urban sites across Ireland. As expected, there was a very high percentage of motorcyclists wearing helmets (98%), as it is a legal requirement. The percentage of pedal cyclists wearing a helmet was 52%.

Table7**. Motorcyclists and pedal cyclists helmet wearing**
2013

Type	Gender	Wearing Helmet		Helmet Wearing Rates
		Yes	No	
Motorcyclists	Male	4 097	82	98%
	Female	119	6	95%
	Total	4 216	88	98%
Pedal Cyclists	Male	6 935	6 815	50%
	Female	1 814	1 399	56%
	Total	8 749	8 214	52%

Source: Road Safety Authority

6. National road safety strategies and targets

Organisation of road safety

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.

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 midterm 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.

Figure 5. **Trends in road fatalities towards national and EU[2] targets**

Source: IRTAD

7. Recent safety measures (2011-2013)

Road safety management

- Twenty two separate pieces of secondary legislation, designed to improve road safety standards in general, were introduced during 2012. This included additional penalty point offences regulations, bringing a further seven offences into the penalty points system and fourteen offences into the fixed charge system.

Vehicles

- The Road Safety Authority (Commercial Vehicle Roadworthiness) Bill was signed in June 2012 to provide for the reform of the commercial vehicle roadworthiness testing system. The new system will provide for more consistent and impartial testing standards and a greater focus on compliance, with enforcement efforts being targeted at operators who consistently use non-roadworthy unsafe vehicles.

8. Recent and on-going research

- Learning to Drive: From Hazard Detection to Hazard Handling

The RSA funded doctoral research reviewed driving simulator studies in which novice and experienced drivers' hazard reaction performance on a hazard detection test is compared with their behaviour in a more dynamic driving environment, requiring hazard handling.

2. In 2010, the European Commission adopted the target of halving road deaths by 2020, compared to 2010 levels.

The first two parts of studies focused on the development of driving simulator studies. In the third study participants were given intensive training on the molar elements of driving i.e. speed and distance judgement and production. The fourth study focused on training situation awareness skills, Results from the training studies indicated significant improvement in aspects of speed, distance and situation awareness across training days. However, neither training programme led to significant improvements in hazard handling performance, suggesting that although the training can improve performance in the specific training contexts, it does not necessarily lead to transfer of learning to situations not previously encountered. (*Learning to Drive: From Hazard Detection to Hazard Handling* by Mary Ruth Madigan (2013), Ph.D. Thesis, University College Cork, Ireland).

- The Impact of Threat Appeals on Risky Driving Behaviour

The RSA funded doctoral research to investigate the impact of threat based messages on young male drivers. The primary aim of the current research is to determine the conditions under which threat appeals are most likely to work, and for whom. The research focuses on young male drivers, aged 18-24, based on research suggesting this group are overrepresented in road crash statistics, and more likely to engage in risky driving behaviours. Findings illustrate that threat appeals have the potential to reduce a number of risky driving behaviours among young males, but that their effectiveness is likely to be impacted by cognitions, such as perceived efficacy, and by state variables, such as anger. Findings of the current research point to the need for a more complex theoretical perspective detailing the link between fear and behaviour. Finally, there is a need to challenge the use of "risky driving behaviour", as a catch-all term, and to develop effective, evidence-based, behaviour-specific strategies that can easily and readily be implemented in road safety advertising campaigns.

The Impact of Threat Appeals on Risky Driving Behaviour by Rachel N. Carey (2014), Ph.D. Thesis, NUI Galway.

Useful websites and references

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
Penalty points	www.penaltypoints.ie
Rules of the Road online	www.rulesoftheroad.ie
Cost Benefit Parameters and Application Rules for Transport Project Appraisal	http://www.transport.ie/upload/general/5830-1.pdf

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 2012	Fatalities /100 000 inhabitants in 2012
7.7 million	**344**	**263**	**3.3**

1. Road safety data collection

Definitions

- Road fatality: any person killed immediately or dying within 30 days as a result of a road crash.

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) and 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. Most recent safety data

Road crashes in 2012

There were 263 road fatalities in 2012 in Israel, a 23% decrease in comparison with 2011. Injury crashes decreased by 12%.

Data for 2013

Final data for 2013 show a 5% increase in fatalities compared to 2012. Injury crashes increased by 2%.

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. Trends in traffic and road safety (1990- 2013)

Traffic

Between 1990 and 2012:

- The number of motorised vehicles increased by 172% and the overall vehicle kilometres driven by 180%.
- The number of registered drivers increased by 123%.
- The length of roads increased by 41%.

Change in the number of fatalities and injury crashes (1990-2013)

Between 1990 and 2013, the number of fatalities decreased by 45%. More recently (2000-2013), the number of fatalities decreased by more than 40%.

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 2012, Israel had a mortality rate of 3.3 fatalities per 100 000 inhabitants and 5.2 fatalities per billion vehicle-kilometres. Between 1990 and 2012, the mortality rate (expressed in terms of deaths per 100 000 population) decreased by 62% and the fatality risk (expressed in terms of deaths per distance travelled) decreased by 77%.

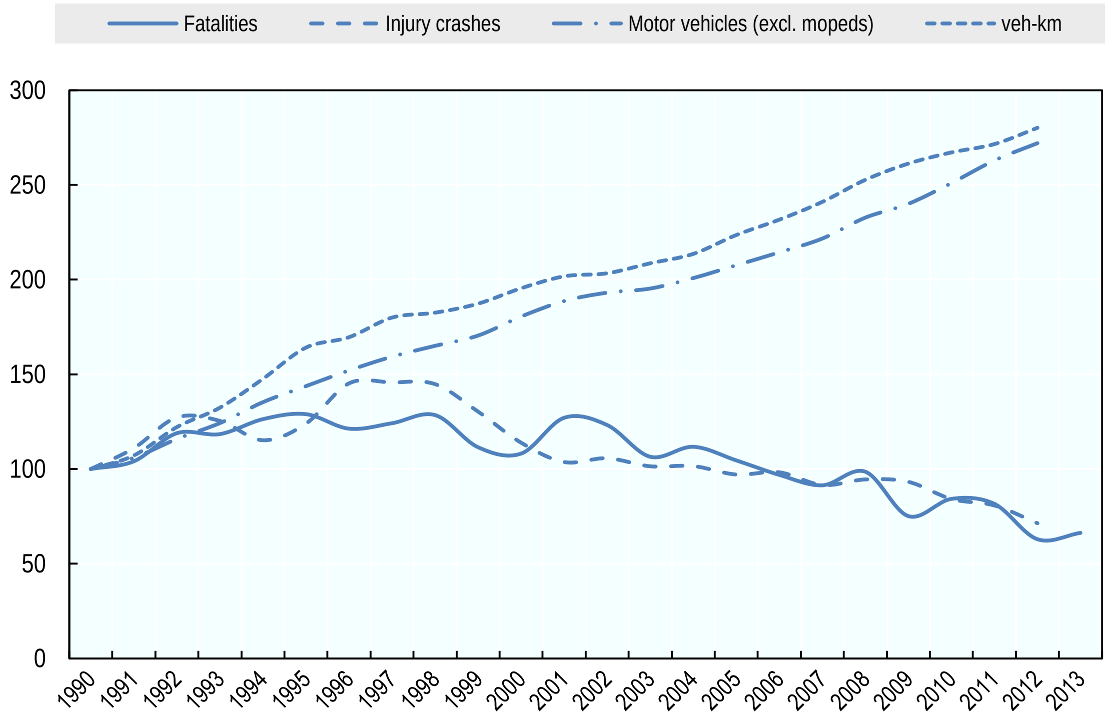
Table 1. **Road safety and traffic data**

						2012 % change from		
	1990	2000	2010	2011	2012	*2011*	*2000*	*1990*
Reported safety data								
Fatalities	418	452	352	341	263	-22.9%	-41.8%	-37.1%
Injury crashes	17 496	19 925	14 724	14 127	12 484	-11.6%	-37.3%	-28.6%
Injured persons hospitalised	3 965	2 896	1 683	1 340	1 611			
Deaths per 100 000 population	8.7	7.1	4.6	4.4	3.3	-24.8%	-53.5%	-61.9%
Deaths per 10 000 registered vehicles	4.1	2.5	1.4	1.3	1.0	-21.7%	-59.5%	-75.7%
Deaths per billion vehicle kilometres	22.4	12.4	7.1	6.7	5.2	-22.7%	-58.0%	-76.8%
Traffic data								
Registered vehicles[2] (thousands)	1 015	1 832	2 547	2 669	2 761	3.5%	50.7%	172.0%
Vehicle kilometres (millions)	18 668	36 482	49 870	50 693	52 300	3.2%	43.4%	180.2%
Registered vehicles per 1 000 population	210.5	287.6	334.1	343.6	355.5	3.5%	50.7%	172.0%

Source: IRTAD

2. Registered vehicles excluding mopeds.

Figure 1. **Road safety and traffic data**
Index 100 =1990



Source: IRTAD

Road users

Since 2000, the situation has improved for all road users.

In 2013 one-third of all road users fatalities in Israel were pedestrians (33%). The number of road fatalities has increased by 5.3%. The most significant increase in the number of road user's fatalities has been among passenger car occupants.

Table 2. **Road fatalities by road user group**

						% change over 2013	
Road users	2000	2010	2011	2012	2013	*2012*	*2000*
Bicyclists	20	18	16	11	13	18.2%	-35.0%
Mopeds	7	3	3	12	2	-83.3%	-71.4%
Motorcycles	38	43	45	36	36	0.0%	-5.3%
Passenger car occupants	219	172	161	124	134	8.1%	-38.8%
Pedestrians	169	119	115	90	91	1.1%	-46.2%
Total	*452*	*352*	*341*	*263*	*277*	*5.3%*	*-38.7%*

Source: IRTAD

Age

Since 2000, road safety improvements have benefited all age groups, with the largest decrease for the 15-17 year olds (82%).

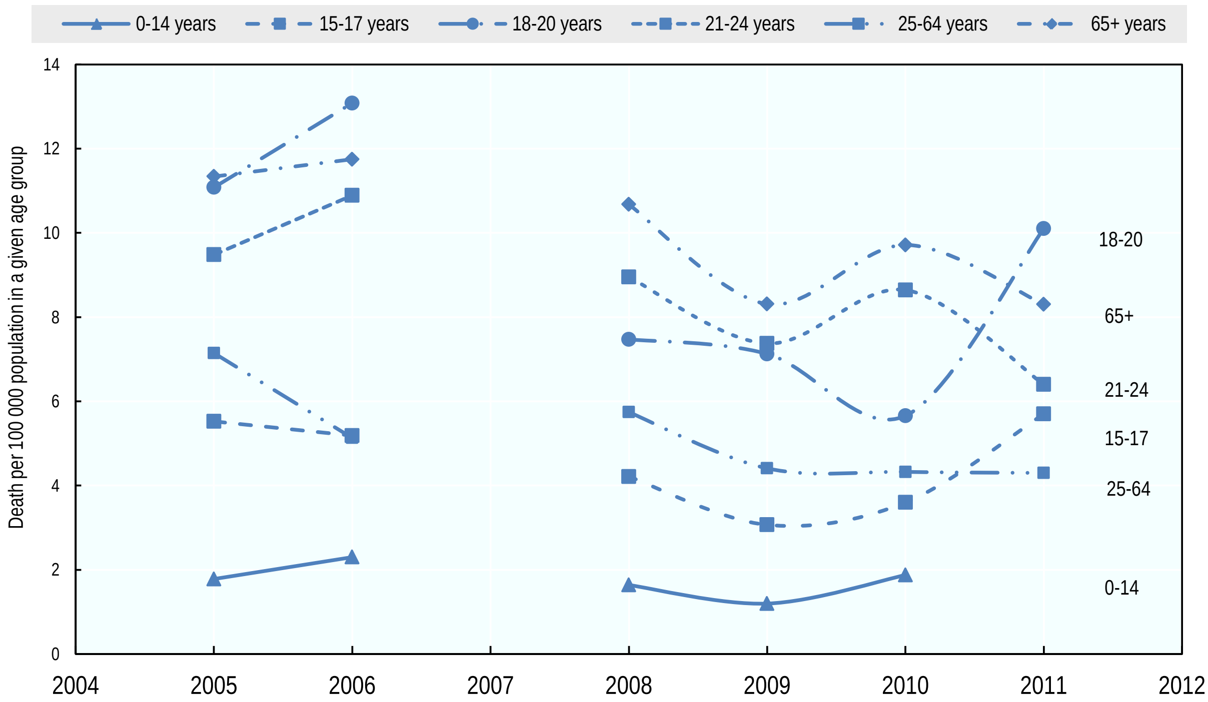
The percentage of elderly killed in road crashes in Israel in 2013 (18%) is almost twice that of their percentage in population (10%). In the last year, the number of elderly killed in road accidents increased by 3%.

Table 3. **Road fatalities by age group**

Age	2000	2010	2011	2012	2013	% change over 2013	
						2012	*2000*
0-5	20	21	12	12	11	-8.3%	-45.0%
6-9	16	9	6	6	3	-50.0%	-81.3%
10-14	10	10	4	5	9	80.0%	-10.0%
15-17	23	13	21	15	4	-73.3%	-82.6%
18-20	51	20	36	18	29	61.1%	-43.1%
21-24	43	40	30	21	38	81.0%	-11.6%
25-64	201	154	154	123	127	3.3%	-36.8%
>65	89	73	65	55	50	-9.1%	-43.8%
Total incl. Unknown	*452*	*352*	*341*	*263*	*277*	*5.3%*	*-38.7%*

Source: IRTAD

Figure 2. **Road death rates by age group**
Fatalities per 100 000 population in a given age group, 1990-2012

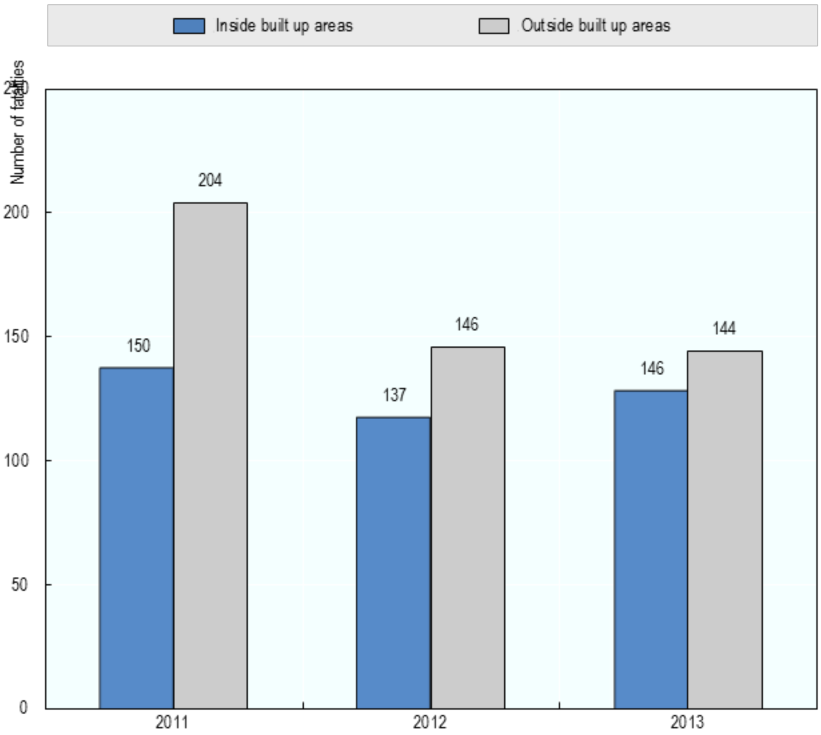


Source: IRTAD

Road Type

In 2013, 52% of fatalities occurred outside built up areas. In 2013, there was an increase in the number of road fatalities on urban roads (9.4%). In the interurban roads there was an insignificant decrease (-1.3%), as compared to 2012.

Figure 3. **Road fatalities by road type**



Source: IRTAD

4. Economic costs of traffic crashes

Traffic crashes represent a significant cost for society, estimated in 2012 at around ILS 15 billion (1 Euro=5 NIS in May 2014), or 1.1% of GDP.

The methodology for assessing road crash costs in Israel was developed in 2004 using a combination of all available data sources and applying willingness-to-pay approach for the estimation of human costs (Cohen, 2004[3]). The injury and crash cost values were recently updated[4]. The unit costs for fatalities and injuries, in 2012 prices, were estimated at:

3. Cohen J. (2004), Road accidents in Israel – their scope, characteristics and the estimate of associated loss for the national economy, MATAT Company, commissioned by the Ministry of Transport.

4. Guidelines (2012), Guidelines for assessing feasibility of transport projects (Nohal Prat), Ministry of Transport and Ministry of Finance.

Table 4. **Costs of road crashes, 2012**

Costs (billion)	Unit Cost	Total
Fatalities	ILS 6.1 million	
Seriously injured	ILS 880 000	
Slight injuries	ILS 120 000	
Property / damage costs		
Total		ILS 15 billion
Total as % of GDP		1.1%

Source: Ministry of Transport and Ministry of Finance

5. Recent trends in road user behaviour

Impaired driving

Drink driving

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

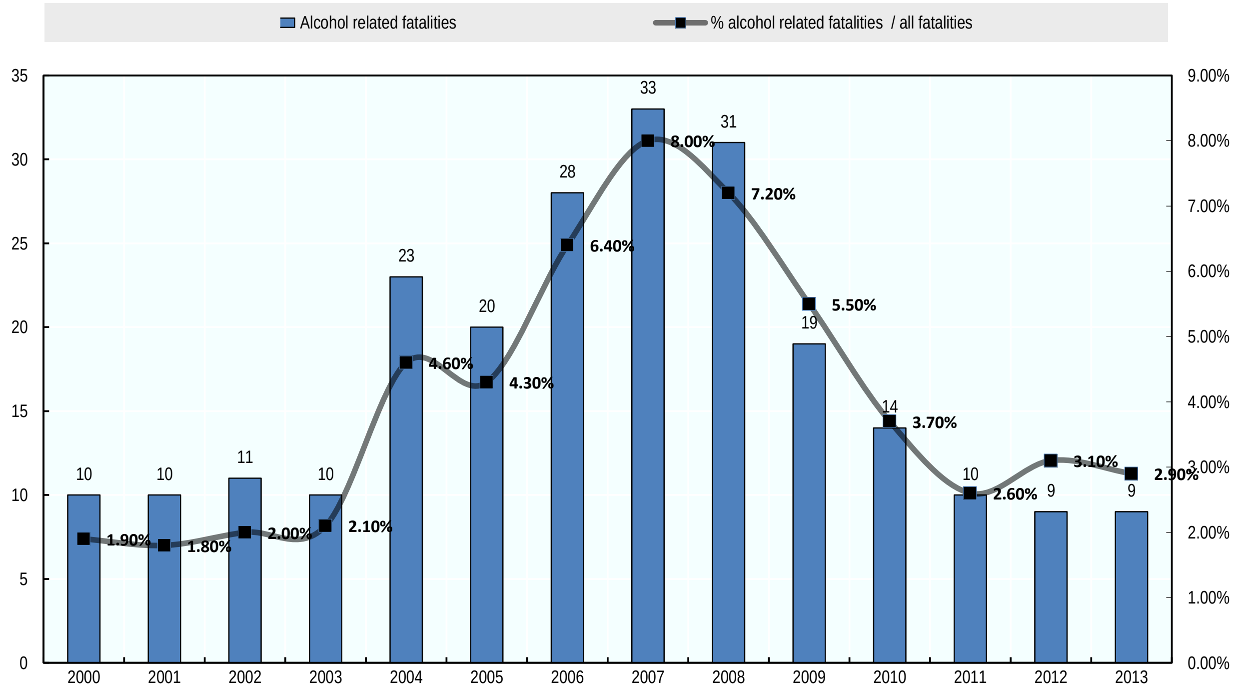
The extent of drink-driving had long been underestimated and not identified as a major problem. However, the problem is now recognised. The police have increased roadside alcohol testing and testing for drivers involved in crashes. Conservative estimates indicate that alcohol is a contributing factor 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 those data was conducted in 2011.

In 2011, the first national survey of alcohol-impaired driving was undertaken in Israel. The drivers were checked on weekend nights on traffic arterials situated in the vicinity of "hazardous spots" - pubs and night activities' areas. The survey was carried out in cooperation with the Traffic Department of the Police and 1 703 drivers were checked. 52% of the checks were in the central area of the country, 32% in the north and 12% in the south and the Jerusalem area.

To estimate the level of alcohol-impaired driving, two indicators were applied: (1) the share of "drunk" drivers according to the law, following evidential breath testing (by means of "yanshuf"), and (2) the share of drivers suspected of drink-driving, following screening breath testing (by means of "neshifon"). Based on the data of sites with proper survey performance, the national estimate of the share of "drunk" drivers, in 2011, was 2.9%. Similarly, the national estimate of share of drivers suspected of drink-driving, in 2011, was 6.7%.

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).

Figure 4. **Evolution in alcohol related crashes**



Source: National Road Safety Authority

Distraction

In Israel, it is authorised to drive while operating a hands-free mobile phone, but not with a hand-held phone.

Fatigue

Based on police reports, between 2000 and 2013 the share of fatal crashes due to fatigue was 1.2%.

Speed

The table below summarises the main speed limits in Israel.

Table 5. **Passenger car speed limits by road type, 2013**

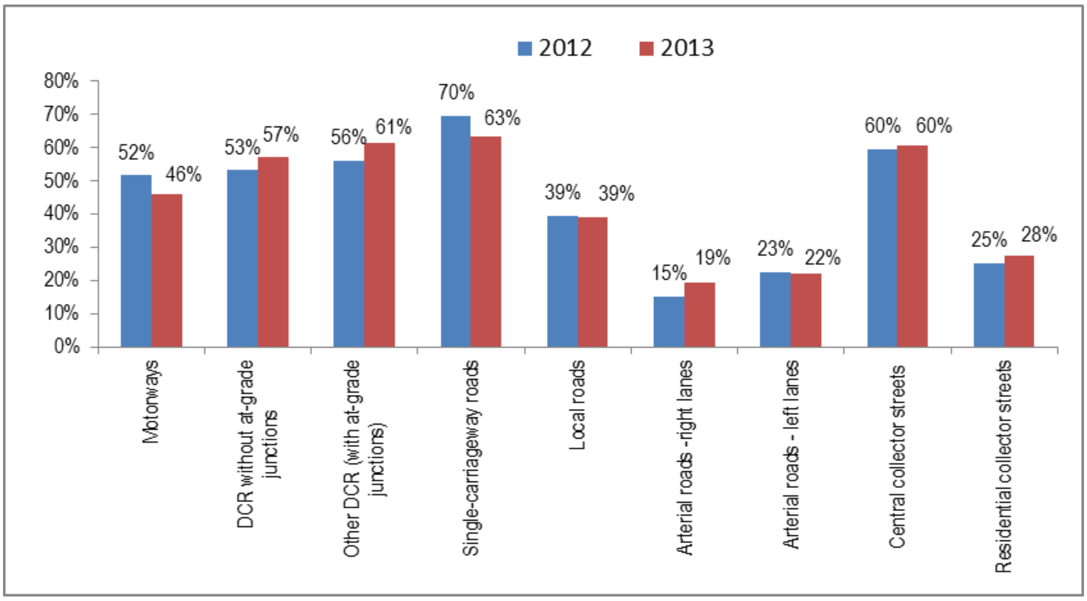
Road type:	Speed limit (km/h)
Motorways	100-110
Dual-carriageway roads without at-grade junctions	90-100
Other dual-carriageway roads	90
Single-carriageway roads	80
Urban arterial roads	70
Other urban roads	30-50

Source: National road safety authority

There is no estimation of the share of speed-related crashes. However, a systematic monitoring of driving speeds on the national road network is carried out, by means of a national speed survey which takes place annually, since 2009.

Figures 5 illustrates the percentage of drivers over the speed limits on various road types, in day hours, estimated in 2013 and 2012. In 2013, all rural road types were associated with a significant share of non-compliance with speed limits, where the highest level of non-compliance was observed on dual-carriageway roads without at-grade junctions, other dual-carriageway roads and single-carriageway roads. Among the urban road types, the highest speeds were observed on the left lanes of arterial roads, where the highest share of vehicles over the speed limits was found on central collector streets: with a dual-carriageway layout and 50 kph speed limits. The changes observed in the speed indicators in the year 2013 versus 2012 demonstrate an increasing trend on most road types, except for single-carriageway and local rural roads, and collector roads in urban areas.

Figure 5. **Percentage of vehicles travelling over the speed limits, in day hours, by road type, in 2013 vs 2012**



DCR: dual carriageway road
Source: National road safety authority

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. The use of seatbelts in the front seats is high in Israel. This is probably due to a long history of the primary law enforcement and information campaigns.

In 2013, the seatbelt wearing rate among all car users was similar to 2012. The wearing rate among drivers and front seat passengers was 97%, while only 74% of rear seat passengers buckled up.

Between 2005 and 2013, 13% of all car occupant fatalities were not wearing seatbelts when the crash occurred.

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

	2003	2005	2010	2011	2012	2013
Driver	89%	90%	96%	96%	97%	97%
Front seat passenger	85%	84%	92%	92%	95%	95%
Rear seat passengers	23%	25%	70%	68%	73%	74%

Source: National Road Safety Authority

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.

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.

6. National road safety strategies and targets

Organisation of road safety

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:

- 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.
- Funding the analysis national accident statistics and providing the primary resource for crash data and traffic safety knowledge and research.

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 the following objectives for a series of indicators.

- 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.

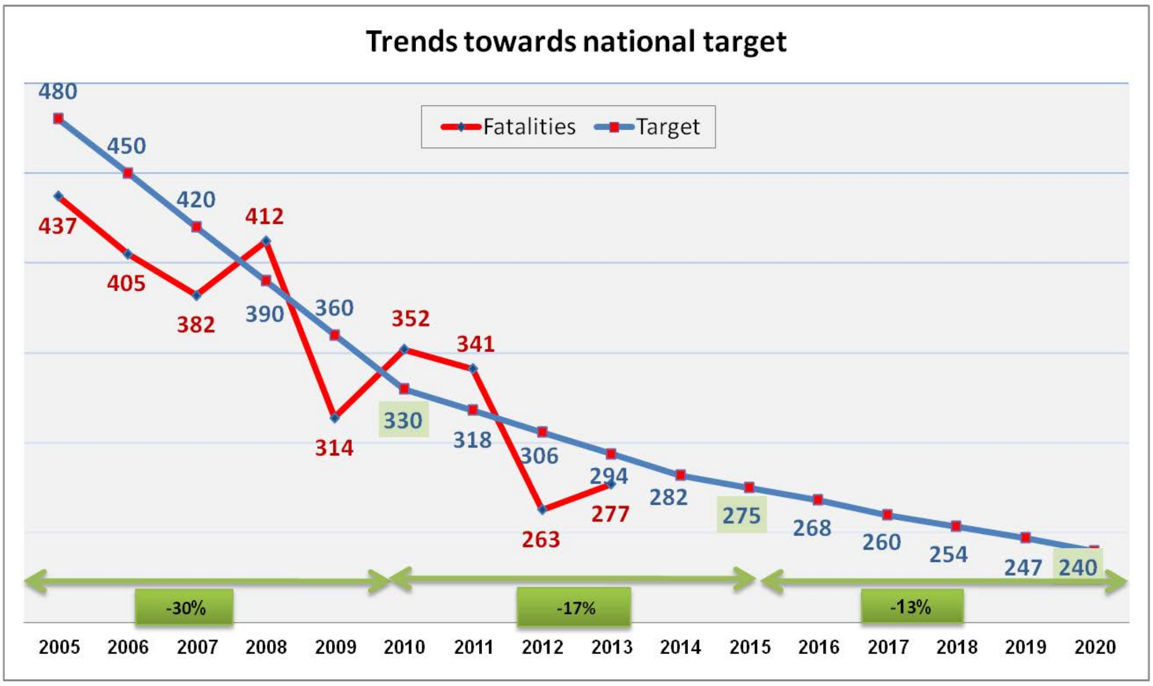
- Increasing the use of restraints for children (ages 0-15) in vehicles: 70% to be properly seatbelted, with only 5% not restrained at all.
- Adoption of a "zero tolerance" policy towards drivers in general, and at-risk populations in particular (new and/or young drivers, drivers of public and/or heavy 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 7. **Reducing 85th percentile speed and vehicles exceeding speed limit**

Road type:	Speed limit (km/h)	Goal: maximum 85th percentile speed	Goal: maximum percentage of vehicles exceeding the speed limit
Motorways	110	115 km/h	30%
Dual-carriageway roads without at-grade junctions	100	110 km/h	30%
Other dual-carriageway roads	90	100 km/h	40%
Single-carriageway roads	80	90 km/h	40%
Urban collector roads	50	60 km/h	30%

Monitoring

Figure 6. **Trends in road fatalities towards national targets**



Source: National Road Safety Authority

Evaluation of past road safety strategy

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).

7. Recent safety measures (2011-2013)

Driver behaviour

Speed management

- The National Road Safety Authority and the Ministry of Public Security is in the process of implementing 60 speed enforcement cameras and 120 red-light cameras. Automatic 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 and the final report will be available later in 2014.
- 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.

Seatbelt and helmet use

- A new law was passed in March 2012 that significantly increased the fines for non-compliance with safetybelt and restraint laws for children.

Graduated licensing

- 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. The change in law is being accompanied by an evaluation study that will be completed in 2015.

Road safety campaigns

- SMS and driving campaign: The strategy of the message: "Words can kill – don't SMS and drive" and the motif of a disappearing driver due to sending SMS.

Infrastructure

- The safety efficiency of various road infrastructure improvements implemented by the National Transport Infrastructure Company, on the non-urban road network, in 2007-2009, was evaluated. The project was associated with a total annual saving of 224 injury accidents and 531 total accidents, having the economic value of ILS 41 and 97 million, respectively[5].

- The safety and economic benefits stemming from the use of a new generation of road safety barriers, under Israeli conditions, were examined. The new barriers are those meeting the requirements of the new European standards. For dual-carriageway roads, clear safety benefits were demonstrated: the amount of injury accidents saved at the treatment sections was estimated at 82 per year, or 15% reduction[6].

8. Recent and on-going research

- The book *Trends in Israel Road Safety* describes different aspects of Israel's road safety status: Characterisation of injury at road accidents, compression to other countries, populations at risk and actions taken to measure changes in behavioural indicators related to risk. http://www.rsa.gov.il/meidamechkar/meidastatisti/Documents/Megamot2012.pdf

  The following publications may be found in the RSA online catalogue: http://www.rsa.gov.il/meidamechkar/sifria/Pages/katalogsifria.aspx

- Azjenshtadt, M. & S. Moyal, Punishment severity and judicial discretion in sentencing traffic offenders in Israel.
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- Bar-Gera, H., E. Schechtman, A. Grinstein and O. Musicant, The effectiveness of automatic electronic enforcement systems – Interim report year 2.
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- Gitelman, V., R. Carmel and F. Pesahov, An examination of the influence of removing marked crosswalks on multilane urban roads on pedestrian safety.
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5. See : *http://www.oisevi-irtad.com.ar/presentaciones/Paper_efficiency%20evaluation.pdf*

6 See : http://tri.technion.ac.il/transportation/templates/showpage.asp?dbid=1&lngid=2&tmid=100&fid=275

- Kizony, R., N. Josman, G. Zeilig and A. Nota, 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.
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- Navon, D. and I. Erev, Using incentives for reducing the frequency of deviant driving speeds: The interaction between drivers on the road.
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- Pillar, G., R. Epstein, A. Cohen, E. Doveh and O. Tzischinsky, Developing and validating a questionnaire to identify applicants for commercial driver's license suffering from Sleep Disordered Breathing.
- Shiftan, Y., W. Elias, C. Mattar, I. Mashiach and A. Churchman, Traffic Violations in the Arab Sector in Israel.
- Zaidel, D. and R. Zilberstein, Video based methods for monitoring motorcycles in traffic.

Useful websites and references

National Road Safety Authority - Israel	http://www.rsa.gov.il/
Transportation Research Institute - Technion	http://techunix.technion.ac.il/~ttri/library.html
Central Bureau of Statistics - Israel	http://www.cbs.gov.il/
Or Yarok Association for Safer Driving in Israel	http://www.oryarok.org.il/

Contact

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Italy

Source: *IRTAD, ISTAT, University La Sapienza, ACI*

Inhabitants	Vehicles/1 000 inhabitants	Road fatalities in 2012	Fatalities /100 000 inhabitants in 2012
60.6	**809**	**3 653**	**6.0**

1. Road safety data collection

Definitions:

- Road fatality : any person killed immediately or dying within 30 days as a result of a road crash
- Serious / slight injuries: In crash statistics, injured persons reported are not differentiated by degree of severity. In this field the current process will be adapted to EU decisions. In particular, Italy will adopt the MAIS3+ standard for coding the level of injury (procedures are still to be defined). A first estimate of the number of serious injuries is expected for 2014.

Data collection and analysis

In Italy, road crash data are collected by three police forces: the National Road Police, the *Carabinieri* and Local Police. Data collection is centrally organised for the National Road Police and *Carabinieri*, but not for the Local Police, which may have different crash investigation procedures.

The Italian National Statistical Institute (ISTAT) is responsible for collecting and validating road safety statistics on all injury crashes occurring in Italy. All police forces are obliged to send ISTAT a standard crash form for each injury crash 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 crash data on their regional territory. This helped to improve the collection and completeness of data. The system is now working in 12 out of 20 regions.

In 2013, a group of representatives from ISTAT, the Automobile Club of Italy (ACI), the Ministry of Infrastructure and Transport, the National Road Police, the *Carabinieri*, the Local Police, the Regions, the Provinces and the Municipalities, defined a new crash 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 progressively introduced as of 2015.

This process is expected to bring a number of improvements, including a unique data collection process and a good set of information gathered for each road crash.

The data collection process is currently under review, both in terms of data records 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 crashes released by the National Association of Insurance Companies.

2. Most recent safety data

Road crashes in 2012

In 2012, 186 726 injury crashes occurred and 3 653 persons were killed on the Italian roads. Compared with 2011, this represents a 9.2% decrease in crashes and a 5.4% decrease in fatalities.

Provisional data for 2013

Provisional data from the National Road Police[1] for 2013 show that, on the main network, road crashes decreased by about 4.5% while the number of fatalities decreased by about 11%. On the motorway network, there was no significant change in the number of road crashes while fatalities decreased by about 4%.

3. Trends in traffic and road safety (1990-2013)

Traffic

In Italy, passenger and freight transport demand is mainly served by road transport. Between 2001 and 2012, against a limited population increase (+5%) and limited economic growth (average annual increase of GDP by 2.2%, but a decrease in 2009 and 2012) the number of vehicles has risen by 17%. About the same rise (+14%) was observed in the total vehicle-kilometres travelled on motorways in the period 2001-2010; however, in the last two years, a decrease of 8.2% has been reported.

The economic crisis has had a major impact on transport: in 2012, the number of registrations for new cars decreased by 21%. Average daily trips by private vehicle decreased by 8.5% compared to 2011. Exposure (vehicle-kilometres) on motorways decreased by 7.2 % and the drop is slightly more pronounced for freight traffic. Gasoline sales decreased by 10.7% and diesel 10.3% (*Source*: ACI).

Change in the number of fatalities and injury crashes (1990-2012)

Between 1990 and 2012, the number of fatalities decreased by 48.9%.

In recent years (2000-2012), the number of fatalities declined by 48.5%, with the number of dead falling from 7 061 to 3 653, while the number of injury crashes started declining in 2003 when the penalty points system was introduced (-27.2% since 2000). The difference between the reductions in fatalities and injury crashes is mainly due to measures being oriented toward fatality risk

1. Data limited to the principal Italian road network (motorways and state roads). Provisional data have been retrieved from: http://www.poliziadistato.it/pds/stradale/archivio/

(e.g. reduction in average motorway speed and driving-under-influence enforcement) and to the development of protection from crash damage for vehicle occupants.

Since 2001, several road safety measures were implemented under the National Road Safety Plan 2001-2010: improvement of road traffic legislation, increased enforcement, improvement of road infrastructure, communication and awareness campaigns and road safety education interventions. Some important measures include:

- In 2003, the introduction of a penalty point system for drivers;
- In December 2005; the progressive implementation of the Tutor system *for controlling the average speed on motorways. As of April 2014, the system covers 2 500 km of motorways;*
- In 2007, a legislative amendment to significantly increase penalties for the most dangerous behaviours in relation to: speeding, driving under the influence of alcohol or drugs, driving without a licence, mobile phone use while driving. In addition, restrictions were introduced for novice drivers during their first three years of driving;
- In 2010, a wide-ranging reform of the Highway Code, focusing on the equipment and safety of vehicles, with penalties for the most dangerous kinds of behaviour;
- On 15 March 2011, the approval of Legislative Decree No. 35, to adopt EC Directive 2008/96/EC on Road Safety Infrastructure Management.
- In July 2012, field test of Vergilius (a system similar to Tutor), for measuring the instantaneous and average speeds on national roads, operated by ANAS.

Rates

In the last twelve years, the mortality rate in terms of deaths per 100 000 population has declined by 51.6% and, expressed in deaths per 10 000 vehicles, by 58%, while motorisation has risen by 15.3%.

However, in 2012, Italy's fatality rate of 6.0 deaths per 100 000 population, was above the average for the EU27 countries.

Table 1. **Road safety and traffic data**

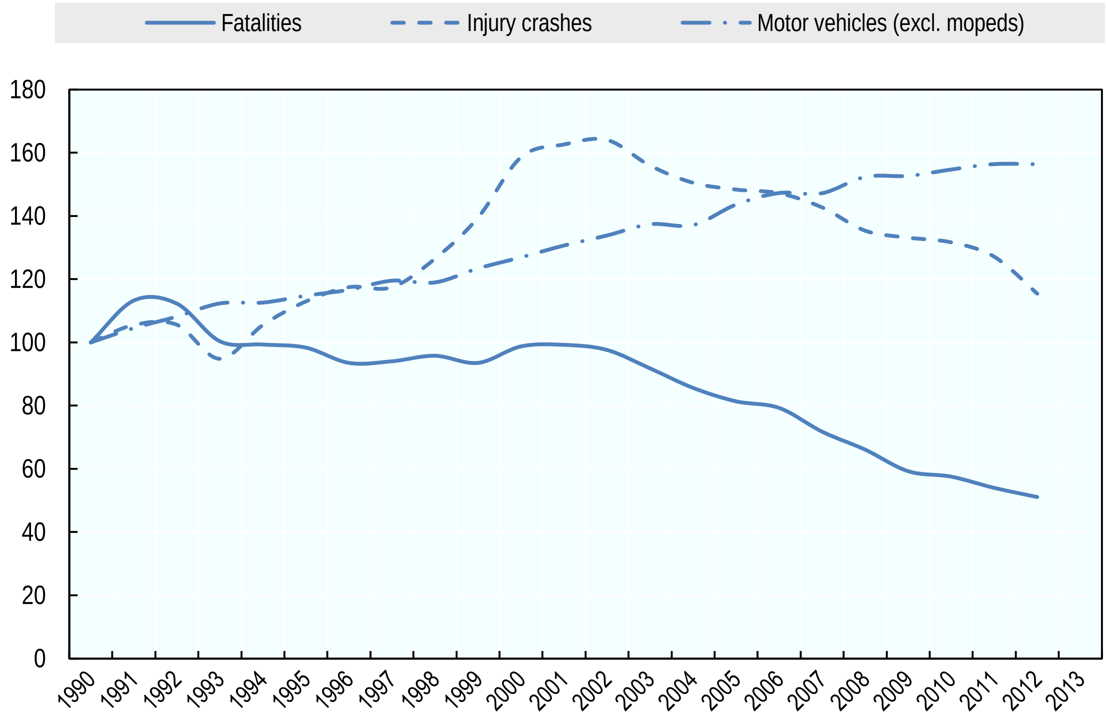
						2012 % change from		
	1990	2000	2010	2011	2012	*2011*	*2000*	*1990*
Reported safety data								
Fatalities	7 151	7 061	4 114	3 860	3 653	-5.4%	-48.3%	-48.9%
Injury crashes	161 782	256 546	212 997	205 638	186 726	-9.2%	-27.2%	15.4%
Deaths per 100,000 population	12.6	12.4	6.8	6.4	6.0	-5.7%	-51.6%	-52.4%
Deaths per 10,000 registered vehicles	2.3	1.8	0.8	0.8	0.7	-5.3%	-58.0%	-67.3%
Traffic data								
Registered vehicles[2] (thousands)	31 461	39 931	48 668	49 209	49 192	0.0%	23.2%	56.4%
Registered vehicles per 1,000 population)	554.9	701.5	806.6	811.7	808.8	-0.4%	15.3%	45.8%

Source: IRTAD.

2. Registered vehicles excluding mopeds.

Figure 1. **Road safety and traffic data**

1990= index 100



Source: IRTAD.

Road users

Since 2000, substantial reductions have been recorded in all road user categories, except motorcyclists (+6.8%). The most important decrease concerned moped riders (-81%). 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 a decreasing popularity of this means of transportation.

In 2012, all road user categories, except cyclists, benefited from the improvement in road safety. The number of moped riders killed continued to decrease fast (-26%), while important improvements were also observed for motorcyclists (-10.9%). The proportion of bicycle riders killed in road crashes is still increasing: +2.5% between 2012 and 2011, after an increase of 7.2% recorded the previous year.

Table 2. **Road fatalities by road user group**

						2012 % change from		
	1990	2000	2010	2011	2012	*2011*	*2000*	*1990*
Bicyclists	477	401	265	282	289	2.5%	-27.9%	-39.4%
Mopeds	620	637	206	165	122	-26.1%	-80.8%	-80.3%
Motorcycles	713	770	950	923	822	-10.9%	6.8%	15.3%
Passenger car occupants	3 797	3 850	1 822	1 661	1 633	-1.7%	-57.6%	-57.0%
Pedestrians	1 069	982	621	589	564	-4.2%	-42.6%	-47.2%
Others incl. unknown	474	421	250	240	223	-7.1%	-47.0%	-53.0%
Total	*7 151*	*7 061*	*4 114*	*3 860*	*3 653*	*-5.4%*	*-48.3%*	*-48.9%*

Source: IRTAD.

Age

Since 1990, the reduction in fatalities benefited all age groups, in particular the young. The reduction was less marked for seniors, in part due to the ageing of the population.

In 2012, the number of young people killed continued to decrease. However, a sharp increase was observed for the 6 to 9-year-olds, but the figures are too small to draw any solid conclusions. The mortality rate among seniors continued to increase.

The age groups 18-20 and 21-24 constitute nevertheless those most at risk in road traffic, with a mortality rate twice that of the general population. Older people are the most involved in road crashes as pedestrians.

Although the number of drivers killed decreased in 2012 compared to 2011, there was an increase among senior drivers (80-89 years old).

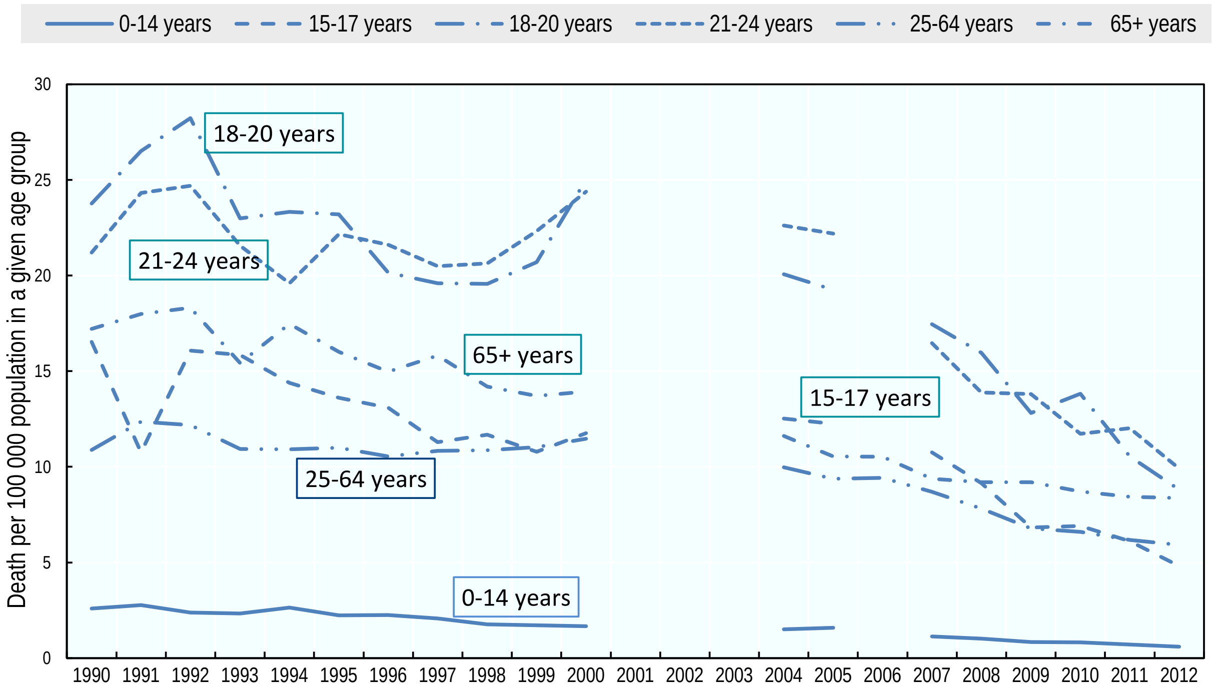
Table 3. **Road fatalities by age group**

						2012 % change from...		
Age	1990	2000	2010	2011	2012	*2011*	*2000*	*1990*
0-5	69	39	27	28	12	-57.1%	-69.2%	-82.6%
6-9	60	34	14	7	15	114.3%	-55.9%	-75.0%
10-14	118	63	29	26	24	-7.7%	-61.9%	-79.7%
15-17	429	211	121	105	82	-21.9%	-61.1%	-80.9%
18-20	640	485	253	194	160	-17.5%	-67.0%	-75.0%
21-24	786	740	294	302	251	-16.9%	-66.1%	-68.1%
25-64	3 245	3 637	2 218	2 084	1 994	-4.3%	-45.2%	-38.6%
>65	1 436	1 437	1 064	1 038	1 050	1.2%	-26.9%	-26.9%
Total incl. unknown	*7 151*	*7 061*	*4 114*	*3 860*	*3 653*	*-5.4%*	*-48.3%*	*-48.9%*

Source: IRTAD.

Figure 2. **Road death rates by age group**

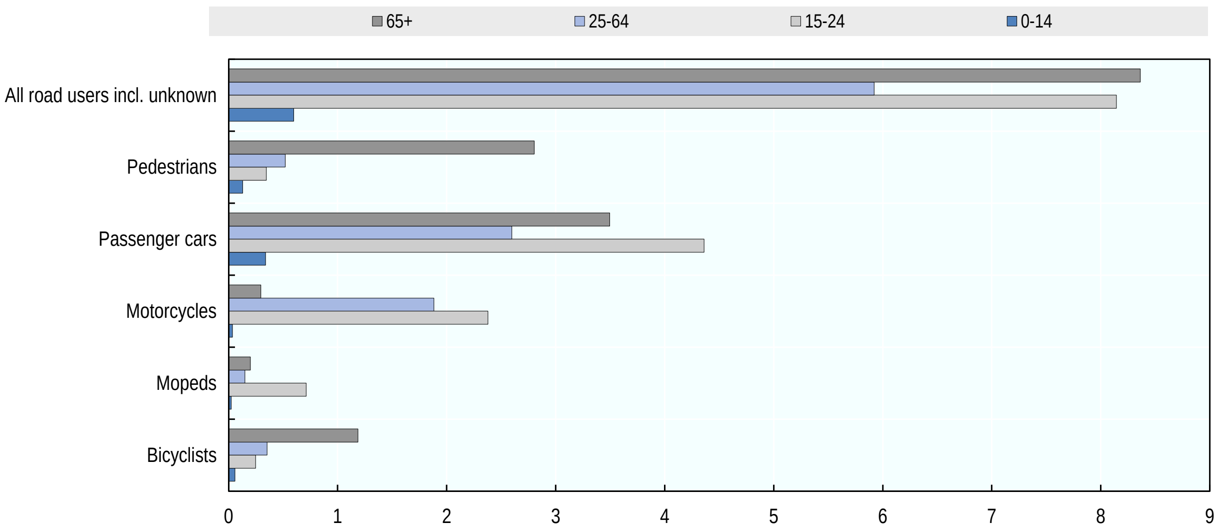
Fatalities per 100 000 population in a given age group, 1990-2012



Source: IRTAD.

Figure 3. **Road death rate by age and road user group**

Fatalities per 100 000 population



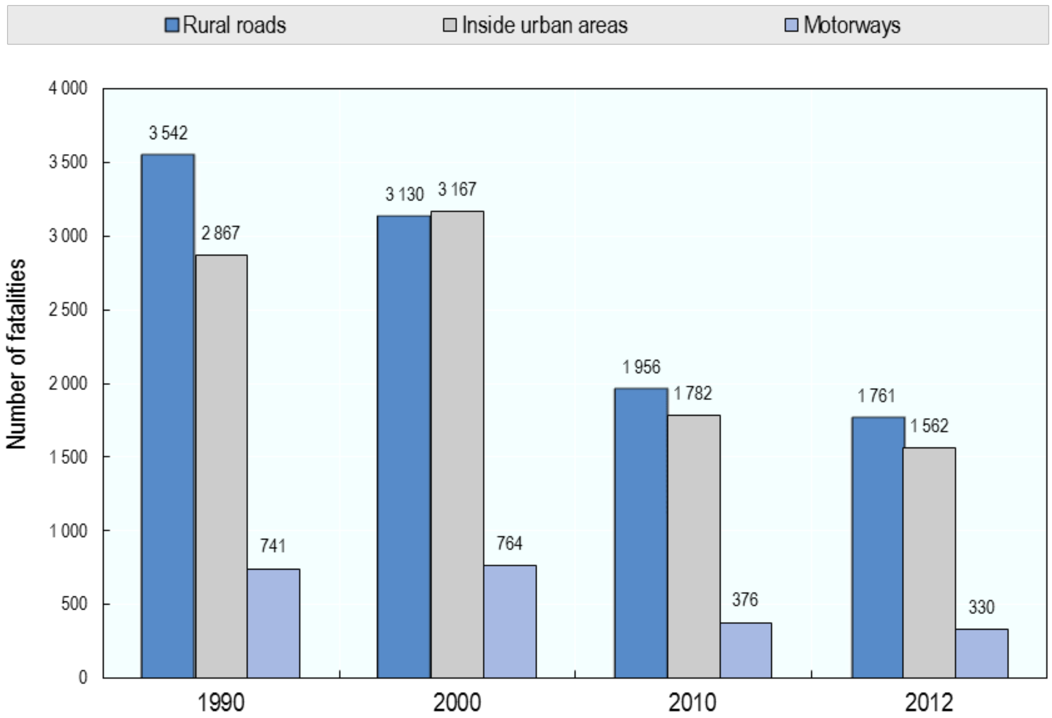
Source: IRTAD.

Road type

In 2012, 48% of fatalities occurred on rural roads, 43% inside urban areas and 9% on motorways.

According to 2012 data, the most severe crashes occur on the rural roads (motorways excluded), with nearly five deaths for every 100 road crashes. Crashes inside urban areas are less severe (1.10 deaths per 100 crashes). For the motorways, the index is equal to 3.51 (per 100). On rural roads and motorways, an increase in the mortality index, between 2012 and 2011, was recorded (values for 2011: 4.73 and 3.07).

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



Source: IRTAD.

4. Economic costs of traffic crashes

A study on the assessment of costs to society of road crashes in Italy was published by the Ministry of Infrastructure and Transport in September 2012[3]. This assessment is based on a Human Capital approach. The average cost per road crash has been estimated by degree of severity: for fatal, serious, slight and property damage-only crashes. Since in Italy, injured persons reported by crash statistics are not differentiated by degree of severity, in order to estimate the human costs regarding a severe or slightly injured person, the definitions of "slightly" and "seriously injured" used in the European road accident database CARE/CADAS have been adopted (i.e. Hospitalised at least 24 hours for seriously injured and Hospitalised less than 24 hours for slightly injured).

[3]. Italian Ministry of Infrastructure and Transport (2012)," Studio di valutazione dei Costi Sociali dell'incidentalità stradale".

The table below shows the main results in term of average casualty costs and the overall average crash cost per severity in Italy in 2011. Based on this value, it is estimated that in 2011, road crashes cost Italian society EUR 27.5 billion, i.e. 1.7% of GDP.

Table 4. **Costs of road crashes in 2011**

Costs (EUR)	Unit Cost	Total
Fatalities	1.503 million	
Severe injuries	0.197 million	
Slight injuries	0.017 million	
Property / damage costs		
Total (EUR)		27.5 billion
Total as % of GDP		1.7 %

Source: Ministry of Infrastructure and Transport (2012), " Studio di valutazione dei Costi Sociali dell'incidentalità stradale".

5. Recent trends in road user behaviour

Impaired driving

Alcohol and drugs are main risk factors in Italy. In 2012, almost 2% of drivers checked were found to be impaired by alcohol or drugs.

Drink driving

The current BAC limit in Italy, which came into force in 2002, 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 a crash 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 a crash.

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.

Drink driving crashes are defined in police reports as crashes in which one of the drivers has a BAC above the legal limit. ISTAT indicated that, in 2008, 2% of total traffic fatalities were due to drink driving. However, this figure is probably underestimated, due the difficulty involved in collecting this information on the spot.

Drugs and driving

Drivers 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 their driving licence withdrawn for between one and two years (two to four years if the vehicle does not belong to the driver).

According to national statistics, 0.4 % of fatalities can be attributed to drugs and driving. As for alcohol-related crashes, the figure is probably underestimated due to difficulties in collecting the relevant data on the scene of the crash.

Distraction

Distraction is a major crash contributing factor. In 2012, it was estimated that distraction was a contributing factor in 17% of injury crashes.

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.

According to national traffic law, it is forbidden to use hand-held mobile phones or headsets while driving. The use of hands-free devices or mobile phones with headset (i.e.in one ear) is permitted.

An estimate of crashes due to the use of mobile phones while driving is not available.

Fatigue

In 2012, on the basis of police data, fatigue was reported in about 0.5% of injury crashes.

Speed

In 2012, on the basis of police data, inappropriate speeds were reported in almost 13% of injury crashes and over 20% of fatal crashes.

The table below summarises the main speed limits in Italy.

Table 5. **Passenger car speed limits by road type, 2014**

	General speed limit	Comments
Urban roads	50 km/h	
Rural roads	90-110 km/h	90 km/h in case of rain or snow 90 km/h for novice drivers.
Motorways	130 km/h	110 km/h in case of rain or snow 100 km/h for novice drivers In theory, the motorway operator may decide to increase the limit up to 150 km/h, if stringent requirements are met.

Seatbelts and helmets

Seat-belt usage is compulsory in front seats since 1988 and rear seats since 1994. It has also been compulsory on micro cars since 2011.

Since 2000, an Italian observatory on the use of safety devices (e.g. use of helmets and safety belts), called “Ulisse System", has been set up. The system is based on direct observation of driving behaviour (i.e. it is not a questionnaire-based survey). The monitoring network is based on monthly observations on over 800 sites all over the country. The survey is carried out mainly on suburban and urban roads; at present data are not available for motorways.

Observation period 2009-2011:

- Seat-belt wearing in front seat in urban areas: 63.8%, with regional differences: North 77.5%; Centre 66.5%; South 44.9%.
- Seat-belt wearing in front seat outside urban areas: 75.5%.
- On rear seats the use of seat belts is very low, about 10%.

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

	2000	2010	2011
Front seat			
Urban roads	29.4% average 2000- 2002	64.3%	63.8%
Outside urban areas	43.1% average 2000- 2002	75.5% Average 2009 - 2011	75.5% Average 2009 – 2011
Rear seats			
Adults			10% Average 2009 - 2011

Source: IRTAD.

Since 1986, ***helmet*** use is compulsory for all motorcyclists and for moped riders under 19 years old. Helmet use for all powered two-wheelers and for all ages is compulsory since 2000. During 2009-2011, the average percentage of helmet use in urban areas was 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 outside urban areas: North 99.9%; Centre 98%; South n.a.

6. National road safety strategies and targets

Organisation of road safety

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 the improvement of road infrastructure.

Police forces (National Police, *Carabinieri* and Local Police) are responsible for the enforcement of traffic law. The Italian National Statistical Institute (ISTAT) is responsible for collecting road safety statistics on injury crashes at the national level.

A national structure has been created for consultation with stakeholders.

Road safety strategy for 2011-2020

A new National Road Safety Plan, Horizon 2020, is being developed, in accordance with the actions and targets (-50% fatalities) recommended by the European Commission.

The main vision of the Plan is "*No child should die on the road*".

A Public Consultation on the Road Safety Plan took place in March 2014. Results from the Consultation will be taken into account to update the draft version of the Plan.

The Plan will propose a hierarchical system of objectives with two levels, allowing the monitoring of both the general road safety trend and specific targets related to identified risk components (e.g. motorcyclists, cyclists, pedestrians).

Target setting

The draft version of the Road Safety Plan identifies priority areas and sets specific objectives for the categories of road users showing the highest risk levels: powered-two-wheelers; cyclists, pedestrians and users involved in work-related road crashes.

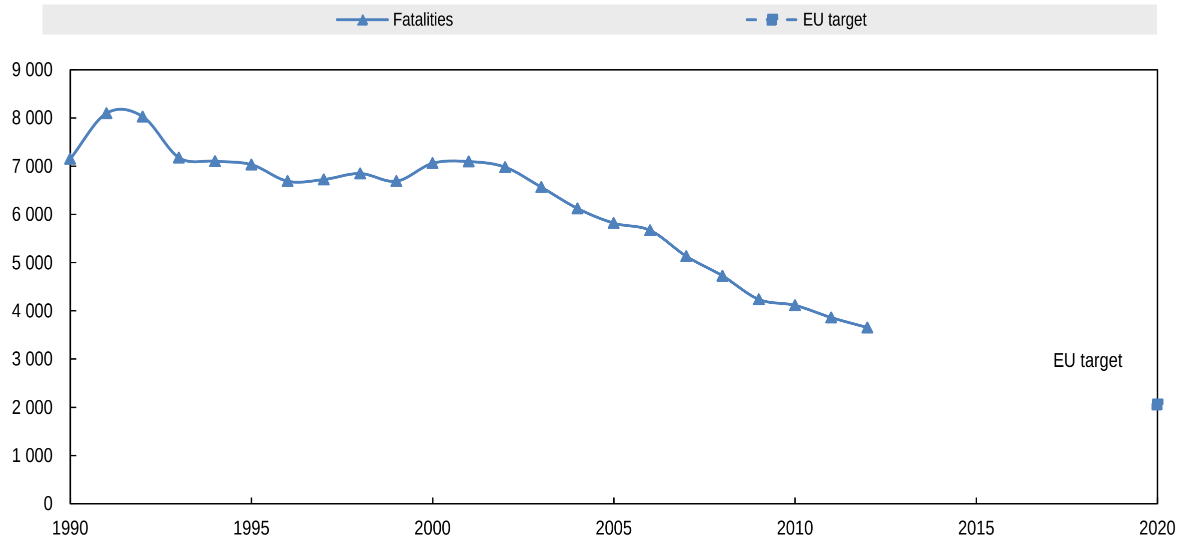
Intermediate targets have been proposed for 2017, when a mid-term review of the Plan is expected. They are based on an average annual reduction of fatalities by 7%, corresponding to a reduction by 38% in 2017 in comparison with 2010.

Monitoring

A process is being implemented to monitor progress towards the targets in order to review the adopted strategies, in case of deviations from the established targets.

To reach the EU target, an average annual reduction in fatalities of 6.9% is required.

Figure 5. **Trends in road fatalities towards EU[4] target**



Source: IRTAD.

Evaluation of past road safety strategy

In Italy, the previous 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 was not 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, the amount of about EUR 419 million allocated by the Plan activated a volume of investments of about EUR 920 million.

In general, all the categories of road safety measures financed by the Plan 2001-2010 can be considered, on average, effective or fairly effective. For example, for the three most popular safety measures, i.e. "Roundabouts", "Redesign of intersections" and "Restoration and rehabilitation of roads", the observed injury road crashes reduction is more than 50%.

7. Recent safety measures (2010-2013)

Road safety management

- Periodically (at least twice a year) the Ministry of Transport and Infrastructure convenes a technical committee, formed of representatives of regional governments responsible for road safety, to monitor the implementation of the Plan and discuss other road safety related matters.

4. In 2010, the European Commission adopted the target of halving road deaths by 2020, compared to 2010 levels.

Driver behaviour

Speed management

- In 2006, a section control system (TUTOR) 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. As of 2013, the system was operational on about 2 500 km of motorways (i.e. 40% of the motorway network). In the first 12 months of operation a preliminary evaluation showed a decrease of 15% in the average speed and of 25% for the most excessive speeds on these sections, for both the mortality rate and the crash rate (*Source:* Autostrade per l'Italia).

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 2007-2012, from 13 to 28 tests/1 000 inhabitants, while the percentage of those tested over the limit decreased from 5.9% to 1.8%.

Cyclist safety

- Since 2010, cyclists must wear a reflecting jacket at night outside built-up areas.

Education and awareness

- A regulation for accompanied driving for young people aged 17 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.
- National Road Safety Campaigns are undertaken regularly. A new road safety campaign is ongoing, dedicated to specific risk factors like speed and the use of child restraint systems.
- Several road safety education measures have been undertaken during 2013 and are currently ongoing. Target users range from elementary schools to universities.
- An education project, aimed at people over 65, named "Mobility and road safety for adult generations in motion", will be launched on an experimental basis in the “Centres for the elderly” in the City of Rome.

Vehicles

- Since 2010, position lights and seat-belt 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.

8. Recent and on-going research

- 2011: "Ulisse System", the Italian observatory on the use of safety devices (e.g. use of helmets and safety belts). The report is available in Italian only at the following address: http://www.mit.gov.it/mit/mop_all.php?p_id=11959.
- An evaluation of the effectiveness of advanced driver training is ongoing, involving all main Italian safe driving centres. These courses are generally aimed at educating drivers through practical experience on how to cope with adverse driving situations. A final report is expected at the beginning of 2015.

Useful websites and references

Ministry of Infrastructure and Transport	www.infrastrutturetrasporti.it/
National Institute of Statistics	www.istat.it
Automobile Club of Italy	www.aci.it
Centre for Transport Logistics of the University La Sapienza	www.ctl.uniroma1.it
Austostrade per l'Italia	http://www.autostrade.it
AISCAT	www.aiscat.it
ISS National Health Institute	ww.iss.it

Contact

For more information, please contact: davideshingo.usami@uniroma1.it or l.pennisi@aci.it

Japan

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

Inhabitants	Vehicles/1 000 inhabitants	Road fatalities in 2012	Fatalities /100 000 inhabitants in 2012
126 million	**651**	**5 237**	**4.1**

1. Road safety data collection

Definitions

- Road fatality: In Japan, road fatalities are recorded both within 24 hours and within 30 days after a crash. The record within 30 days started in 1993. Data included in the IRTAD database are those recorded within 30 days.
- Serious injury: injury which requires a medical treatment for one month or more.
- Slight injury: injury which requires a medical treatment for less than one month.

There is no plan to adopt a definition of serious injuries based on MAIS.

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. Most recent safety data

Road crashes in 2012

In 2012, there were 5 237 road fatalities on Japanese roads, a 4.9% decrease in comparison to 2011. 2012 was the 12th consecutive year with a decrease in road fatalities, and Japan reached its lowest fatality level since record-keeping began.

The elderly (people above 65) represent more than half (52.5%) of total fatalities.

Fatality data for 2013

In 2013, there were 5 152 road fatalities on Japanese roads, a 1.6% decrease in comparison to 2012. 2013 was the 13th consecutive year with a decrease in road fatalities, and Japan reached its lowest fatality level since record-keeping began.

3. Trends in traffic and road safety (1990- 2013)

Traffic

Between 1990 and 2012, the vehicle fleet increased by 34% and the distance travelled by 16%.

In 2012, as a consequence of the economic downturn, there was stagnation in the motorised vehicle fleet.

Change in the number of fatalities and injury crashes (1990-2012)

Between 1990 and 2012, the number of fatalities decreased by 64%; however the number of injury crashes increased slightly. 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.

Japan reached its maximum number of traffic deaths in the late 1960s. Since then, fatalities have seen a steady decrease, albeit with some fluctuations over the years. Since 2000, the number of road fatalities has decreased every year.

Success in decreasing the number of road fatalities in the past decade is related to a significant increase in the seatbelt wearing rate, reduction in speed and safer behaviour of pedestrians.

Rates

Since 1990, the death rate per 100 000 population has decreased by 65% and reached 4.1 in 2012.

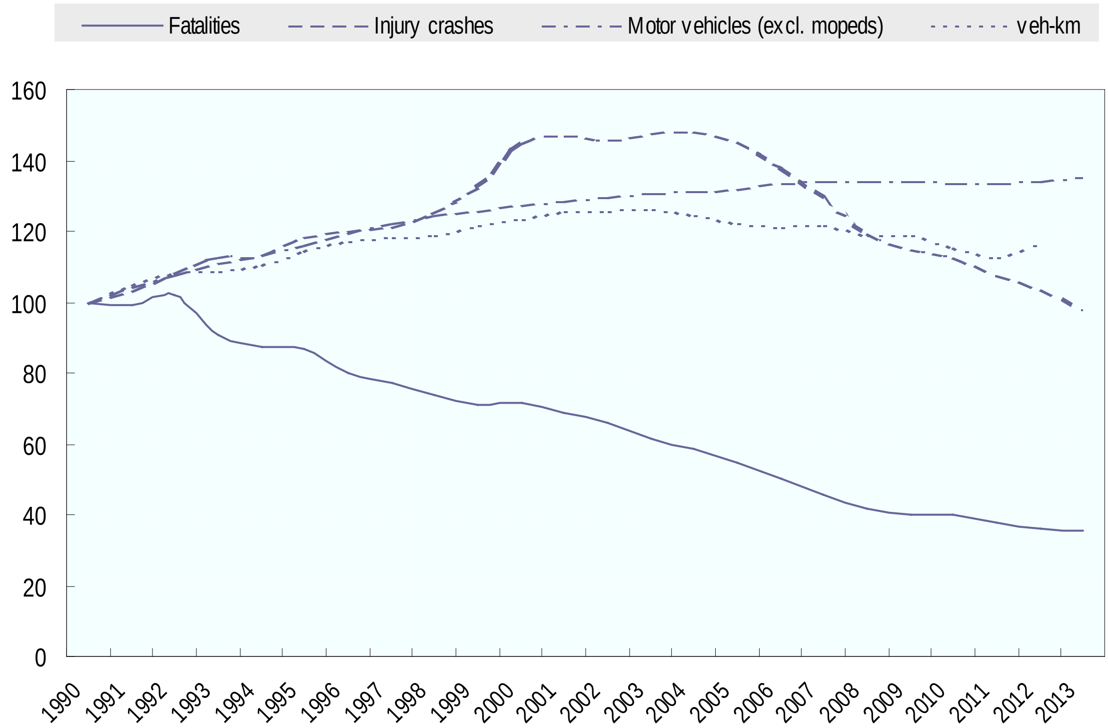
Table 1. **Road safety and traffic data**

						2012 % change from		
	1990	2000	2010	2011	2012	*2011*	*2000*	*1990*
Reported safety data								
Fatalities	14 595	10 410	5 806	5 507	5 237	-4.9%	-49.7%	-64.1%
Injury crashes	643 097	931 950	725 903	692 056	665 138	-3.9%	-28.6%	+3.4%
Deaths per 100 000 population	11.8	8.2	4.5	4.3	4.1	-4.7%	-49.9%	-65.2%
Deaths per 10 000 registered vehicles	2.4	1.3	0.7	0.7	0.6	-5.1%	-52.3%	-73.2%
Deaths per billion vehicle kilometres	23.2	13.4	8.0	7.8	7.2	-7.8%	-46.7%	-69.2%
Traffic data								
Registered vehicles[1] (thousands)	61 927	78 682	82 770	82 839	82 994	+0.2%	+5.5%	+34.0%
Vehicle kilometres (millions)	628 581	775 723	726 256	709 836	731 943	+3.1%	-5.6%	+16.4%
Registered vehicles (per 1 000 population)	501.0	619.9	646.4	648.2	650.9	+0.4%	+5.0%	+29.9%

Source: IRTAD

1. Registered vehicles, excluding mopeds.

Figure 1. **Road safety and traffic data**
1990 = index 100



Source: IRTAD

Road users

Since 2000, safety improvements have benefited all road users, and especially car occupants (-63%). The decrease was smaller for vulnerable road users, in particular cyclists and pedestrians.

Pedestrians represent a very high share of total fatalities (36% of all fatalities in 2012) 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.

In 2012, cyclists represented 15% of total fatalities. This share could rise, given the increasing popularity of riding. Improving the safety of cyclists has become a priority

Table 2. **Fatalities by road user group**

	1990	2000	2010	2011	2012	2012 % change from 2011	2000	1990
Bicyclists	1 509	1 278	936	864	787	-8.9%	-38.4%	-47.8%
Mopeds	1 320	944	458	417	417	0.0%	-55.8%	-68.4%
Motorcycles	1 920	903	568	580	528	-9.0%	-41.5%	-72.5%
Passenger car occupants	3 887	903	1 197	1 070	1 088	+1.7%	-62.5%	-72.0%
Pedestrians	3 955	2 955	2 009	1 987	1 904	-4.2%	-35.6%	-51.9%
Others incl. unknown	2 005	1 427	638	589	513	-12.9%	-64.1%	-74.4%
Total	*14 595*	*10 410*	*5 806*	*5 507*	*5 237*	*-4.9%*	*-49.7%*	*-64.1%*

Source: IRTAD

Age

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 2012, 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.

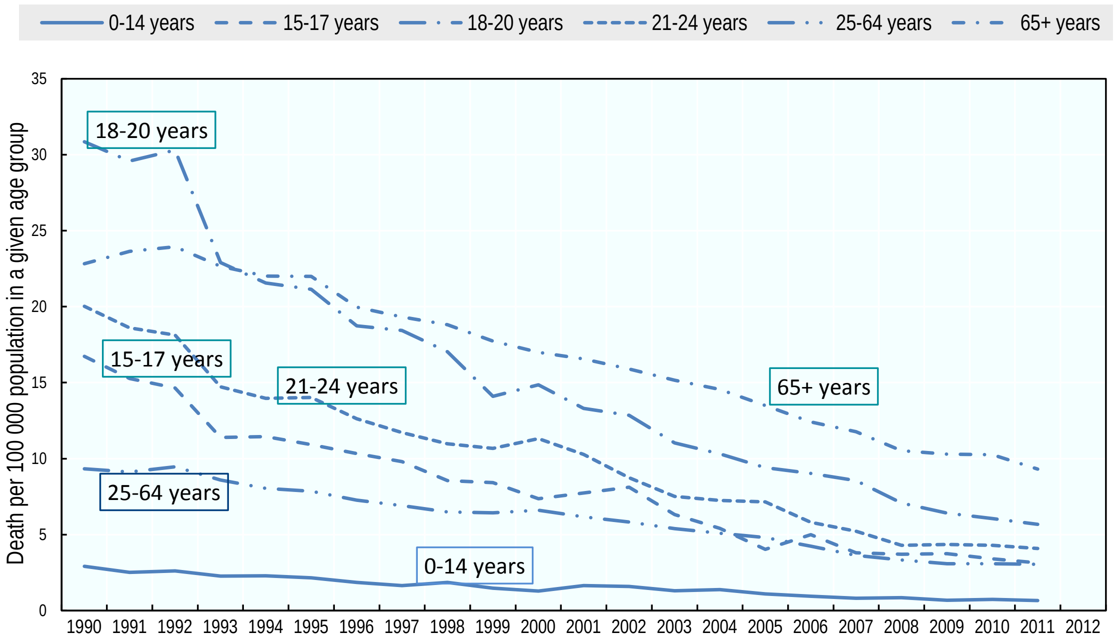
Table 3. **Road fatalities by age group**

Age	1990	2000	2010	2011	2012	2012 % change from... 2011	2000	1990
0-5	312	88	45	43	38	-11.6%	-56.8%	-87.8%
6-9	198	76	42	41	34	-17.1%	-55.3%	-82.8%
10-14	143	75	37	27	26	-3.7%	-65.3%	-81.8%
15-17	1 006	327	124	114	97	-14.9%	-70.3%	-90.4%
18-20	1 820	690	220	208	201	-3.4%	-70.9%	-89.0%
21-24	1 381	772	224	210	166	-21.0%	-78.5%	-88.0%
25-64	6 261	4 641	2 115	2 094	1 927	-8.0%	-58.5%	-69.2%
>65	3 475	3 741	2 999	2 770	2 748	-0.8%	-26.5%	-20.9%
Total incl. unknown	*14 595*	*10 410*	*5 806*	*5 507*	*5 237*	*-4.9%*	*-49.7%*	*-64.1%*

Source: IRTAD

Figure 2. **Road death rates by age group**

Fatalities per 100 000 population in a given age group, 1990-2012

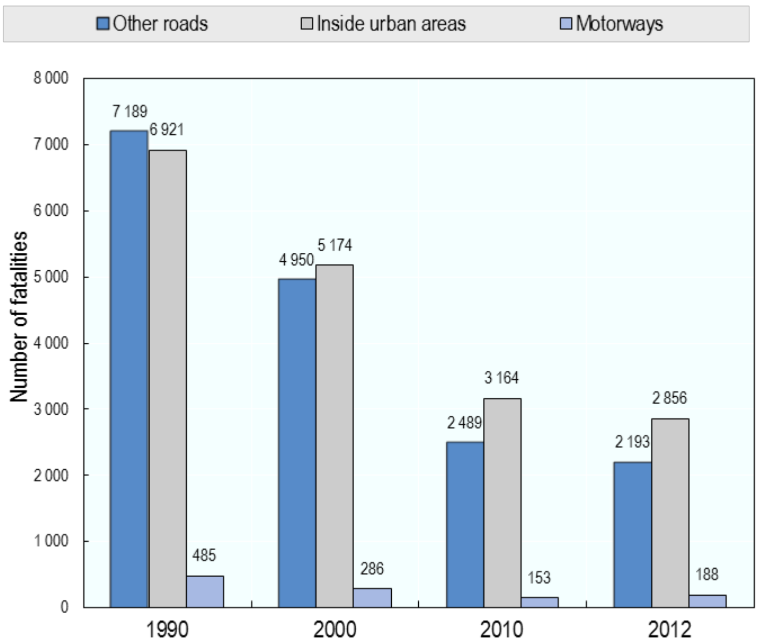


Source: IRTAD

Road Type

In 2012, 55% of fatal crashes occurred in urban areas.

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



Source: IRTAD

4. Economic costs of traffic crashes

There is no estimation of the economic costs of traffic crashes.

5. Recent trends in road user behaviour

Impaired driving

Drink 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 8.5% compared to the previous year.

Distraction

Since 1999, using hand-held phones or other electronic devices 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 2012, there were 1 019 injury crashes due to the use of mobile phones (including crashes involving cyclists), representing 0.15% of all injury crashes.

Speed

Over the past decade, 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. In 2012, in comparison to 2002, the number of crashes outside the motorway network involving speeds above 100 km/h decreased by 82%.

The table below summarises the main speed limits in Japan.

Table 4. **Passenger car speed limits by road type**
2014

	General speed limit
Urban roads	40,50,60 km/h
Rural roads	50,60 km/h
Motorways	100km/h

Source: IRTAD

Seatbelts and helmets

Seat-belt wearing has been compulsory in front seats since 1985 and in rear seats since 2008. In 2012; 98% of front seat passengers and 61% of rear seat passengers wore their seatbelts.

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

Table 5. **Seat-belt wearing rate by car occupants**

	2002	*2010*	*2012*
Front seatst			
General	88%	97%	98%
Motorways (driver)		99%	98%
Rear seats			
Adults			61%
Children (child restraint system)		57%	74%

Source: IRTAD

6. National road safety strategies and targets

Organisation of road safety

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 systematic manner. Under this act, the government has been working together with local governments and relevant private organisations 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:

- Safety for the elderly and children,
- Pedestrian and bicycle safety,
- Ensuring safety on roads serving the community and on main roads.

The eight pillars are:

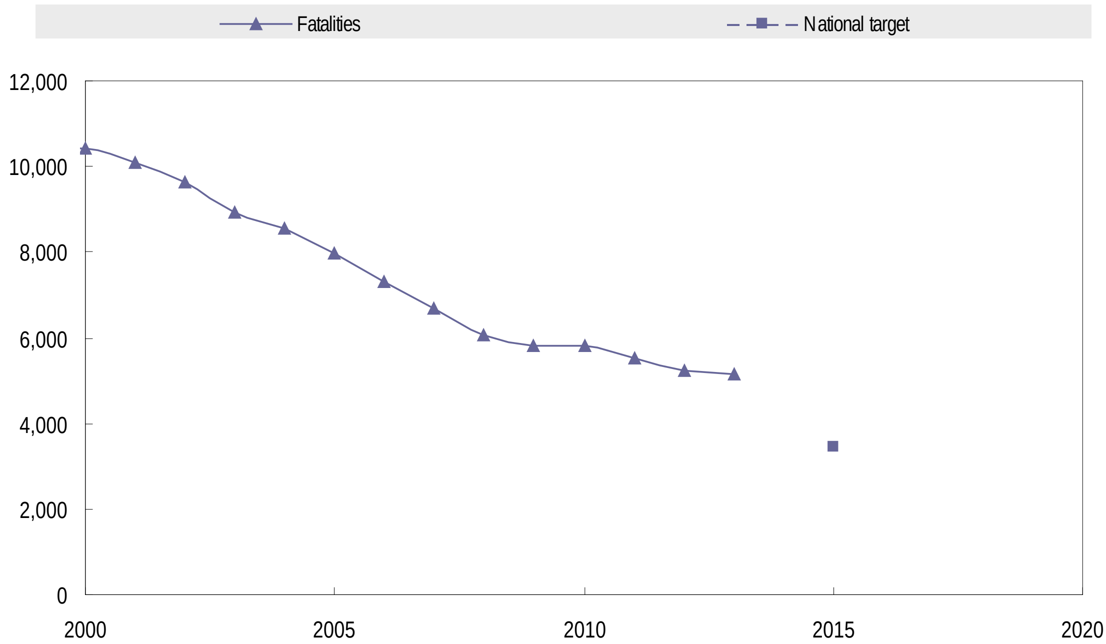
- Improvement of the road traffic environment,
- Dissemination and reinforcement of traffic safety messages,
- Safe driving,
- Vehicle safety,
- Enforcement,
- An improved rescue and emergency medical system,
- Better victim support, including an appropriate damage compensation system,
- More Research & Development.

Target setting

The Plan includes the target to have less than 3 000 deaths[2] (within 24 hours) and less than 700 000 casualties, by 2015. The vision is to make Japan the safest country for road traffic.

Monitoring

Figure 5. **Trends in road fatalities towards national target**



Source: IRTAD

7. Recent safety measures (2011-2013)

Cycling safety

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.

2. Equivalent to 3 450 deaths within 30 days: K(30d)=K(24h)*1.15.

Useful websites and references

National Police Agency	www.npa.jp
Institute for Traffic Accident Research and Analysis (ITARDA)	www.itarda.or.jp

Contact

For more information, please contact: k.fujimaki.x2.9j@npa.go.jp

Korea

Source: IRTAD, KoRoad

Inhabitants	Vehicles/1 000 inhabitants	Road fatalities in 2012	Fatalities /100 000 inhabitants in 2012
48.9 million	**438**	**5 392**	**10.8**

1. Road safety data collection

Definitions:

- Road fatality: any person killed immediately or dying within 30 days as a result of a road crash.
- Person seriously injured: Any injured person requiring medical treatment for more than 3 weeks.
- Person slightly injured: any injured person requiring medical treatment for less than 3 weeks.

Data collection

Any road crash resulting in at least one person killed or injured must be reported to the police. The police investigate the crash, fill out a form and enter the information in the police road crash database, TAMS (Traffic Accident Management System). The police refer to the medical diagnosis to classify the injuries by severity.

To solve the problem of underreporting of road crashes, KoROAD had created an integrated road accident database (TAAS, Traffic Accident Analysis System). This contains not only police data, but also inputs from car insurance companies and mutual aid associations. The TAAS data are collected regularly from these sources, and are refined to eliminate duplicated information.

2. Most recent safety data

Road crashes in 2012

After several consecutive years of decrease, in 2012 the number of road fatalities increased by 3.1% as compared to 2011. The number of injury crashes increased slightly by 0.9%. The increase in road fatalities affected mainly car occupants (+12.5%) and bicyclists (+5.1%). Moreover, with the ageing of society, there was a significant jump in the number of fatalities for the 65+ age group (+8.1%). Alcohol-related fatal crashes also increased (by 11.2%).

Provisional data for 2013

The final data for 2013 is 5 092 fatalities, a decrease of 5.6% compared to the final 2012 figures. This includes a decrease among people aged under 12 years (-1.2%), over 65 years (-1.7%) and pedestrians (-2.2%).

3. Trends in traffic and road safety (1990-2013)

Traffic

Since 1990, Korea has observed a very rapid increase in motorisation. Between 1990 and 2012, the number of motorised vehicles was multiplied by more than 4. Since 2000, this increase has been more moderate, and for the first time in 2012, traffic volume slightly decreased.

Change in the number of fatalities and injury crashes (1990-2012)

Between 1990 and 2012, the number of road fatalities decreased by 62%, while the number of injury crashes decreased by only 12.4%.

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 in part to the following measures:

- The compulsory wearing of front seatbelts (1990).
- Enforcement against drunk driving (1998).
- Nation-wide implementation of speed enforcement cameras (since 1997).
- Installation of median barriers on national roads.
- Speed enforcement by the police – including automatic speed enforcement – since 2008.

As a result of these enforcements, the fatalities related to drink driving decreased by 40%, and to speeding, by 50%. The rate of decrease in injuries has not been as rapid as for fatalities. This means that the severity of crashes has diminished more quickly than their occurrence.

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.

Rates

Since 1990, the death rate per 100 000 population has decreased by 67.4%, and the rate by registered vehicle by 91.5%. During the same period the number of vehicles per 1 000 inhabitants, which is representative of the national level of motorisation, increased by 283%.

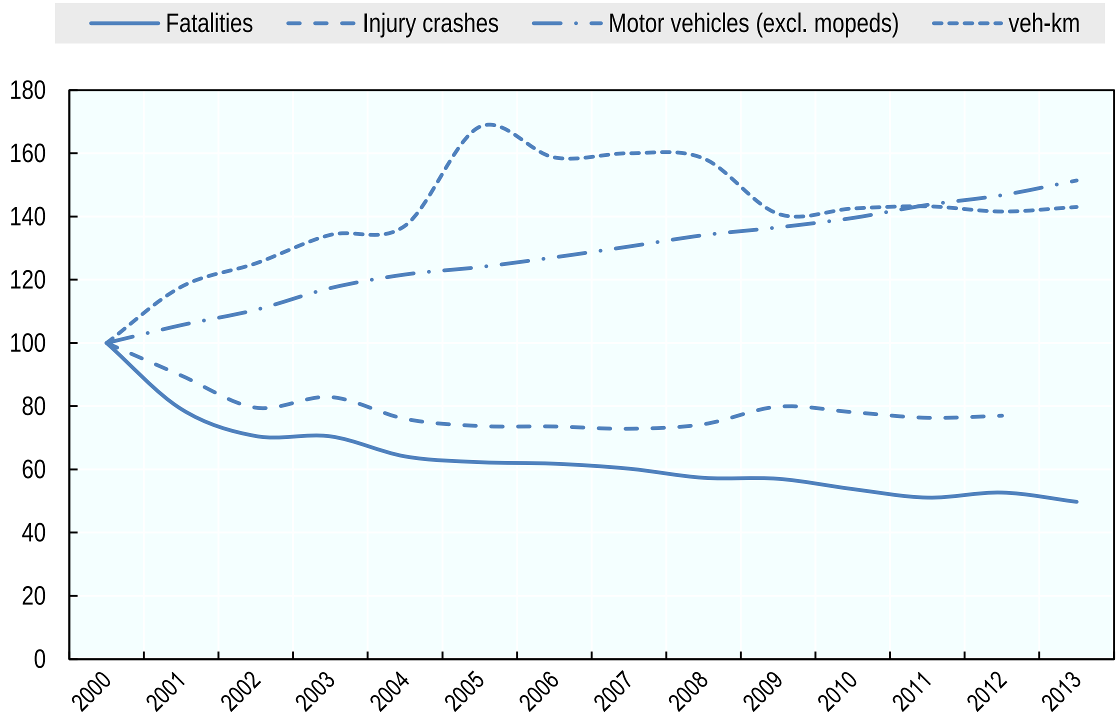
In 2012, the fatality rate per 100 000 population was 10.8.

Table 1. **Road safety and traffic data**

	1990	2000	2010	2011	2012	2012 % change from 2011	2000	1990
Reported safety data								
Fatalities	14 174	10 236	5 505	5 229	5 392	3.1%	-47.3%	-62.0%
Injury crashes	255 303	290 481	226 878	221 711	223 656	0.9%	-23.0%	-12.4%
Deaths per 100,000 population	33.1	21.8	11.3	10.5	10.8	2.7%	-50.5%	-67.4%
Deaths per 10,000 registered vehicles	28.9	6.9	2.6	2.4	2.5	1.0%	-64.1%	-91.5%
Deaths per billion vehicle kilometres		49.5	18.7	17.6	18.4	4.3%	-62.8%	#DIV/0!
Traffic data								
Registered vehicles[1] (thousands)	4 897	14 928	20 832	21 449	21 909	2.1%	46.8%	347.4%
Vehicle kilometres (millions)		206 985	295 055	296 478	293 065	-1.2%	41.6%	
Registered vehicles per 1,000 population)	114.2	317.6	426.2	430.9	438.1	1.7%	38.0%	283.6%

Source: IRTAD

Figure 1. **Road safety and traffic data**



Source: IRTAD

Road users

Since 1990, all user groups have benefited from improvements in road safety. The highest fatality decreases were observed for pedestrians (-71%) and motorcyclists (-64%).

1. Registered vehicles excluding mopeds.

Pedestrians, however, represent a very high share of all fatalities (38%).

In 2000-2012, most user groups, with the exception of moped riders, benefited from a sharp decrease in the number of fatalities. The greatest decrease was observed for car passengers (-54%) and motorcycle riders (-52%). The decrease in cyclist fatalities was more moderate (-9.8%).

In 2012, the number of cyclists killed increased by 5.1%. This was after several years of decrease, explained by the adoption of a series of measures to improve the safety of cyclists (e.g. mandatory helmet-wearing, bicycle safety facility expansion, and bicycle path maintenance).

Table 2. **Road fatalities by road user group**

						2012 % change from		
	1990	2000	2010	2011	2012	*2011*	*2000*	*1990*
Bicyclists	644	317	294	272	286	5.1%	-9.8%	-55.6%
Mopeds	n.a	343	450	442	360	-18.6%	5.0%	n.a.
Motorcycles	1 674	1 221	633	608	588	-3.3%	-51.8%	-64.9%
Passenger car occupants	2 100	2 792	1 228	1 176	1 283	9.1%	-54.0%	-38.9%
Pedestrians	7 063	3 764	2 082	2 044	2 027	-0.8%	-46.1%	-71.3%
Others incl. unknown	2 692	1 799	818	687	848	23.4%	-52.9%	-68.5%
Total	*14 174*	*10 236*	*5 505*	*5 229*	*5 392*	*3.1%*	*-47.3%*	*-62.0%*

Source: IRTAD

Age

Since 2000, the reduction in road fatalities has benefited all age groups, with the exception of the elderly (65+). The most impressive reduction concerned the youngest group (0-14), for which fatalities decreased by 73%; from 588 in 2000, to 101 in 2012.

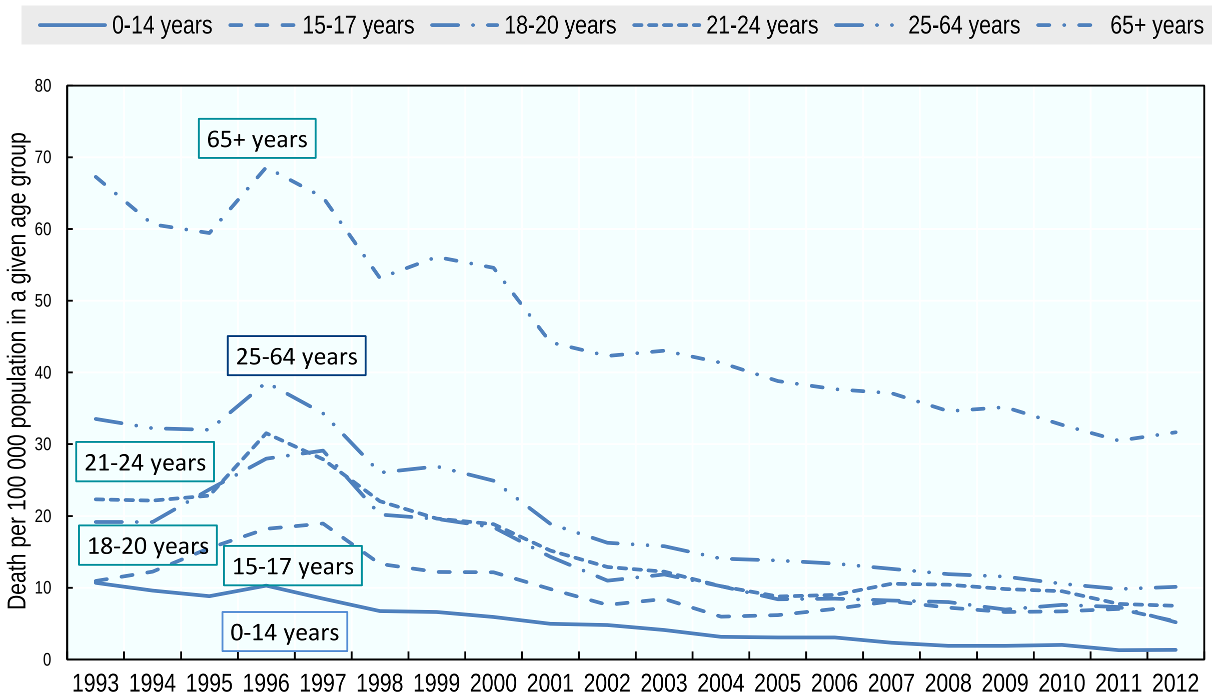
In the context of the ageing of the population, road crash fatalities involving the elderly (65+) did not improve during the period. In particular, their mortality significantly increased in 2012 (+8%). This age group also has a much higher risk than the general population, with more than 30 deaths for 100 000 population – over twice the overall risk in Korea. The elderly are particularly vulnerable as pedestrians, as they represent nearly half of all pedestrian fatalities.

Table 3. **Road fatalities by age group**

Age	2000	2010	2011	2012	2012 % change from... 2011	2000
0-5	275	49	35	36	2.9%	-86.9%
6-9	202	49	33	32	-3.0%	-84.2%
10-14	111	62	33	33	0.0%	-70.3%
15-17	263	139	145	107	-26.2%	-59.3%
18-20	459	149	153	109	-28.8%	-76.3%
21-24	573	236	200	198	-1.0%	-65.4%
25-64	6 474	3 068	2 906	3 013	3.7%	-53.5%
>65	1 853	1 752	1 724	1 864	8.1%	0.6%
Total incl. unknown	*10 236*	*5 505*	*5 229*	*5 392*	*3.1%*	*-47.3%*

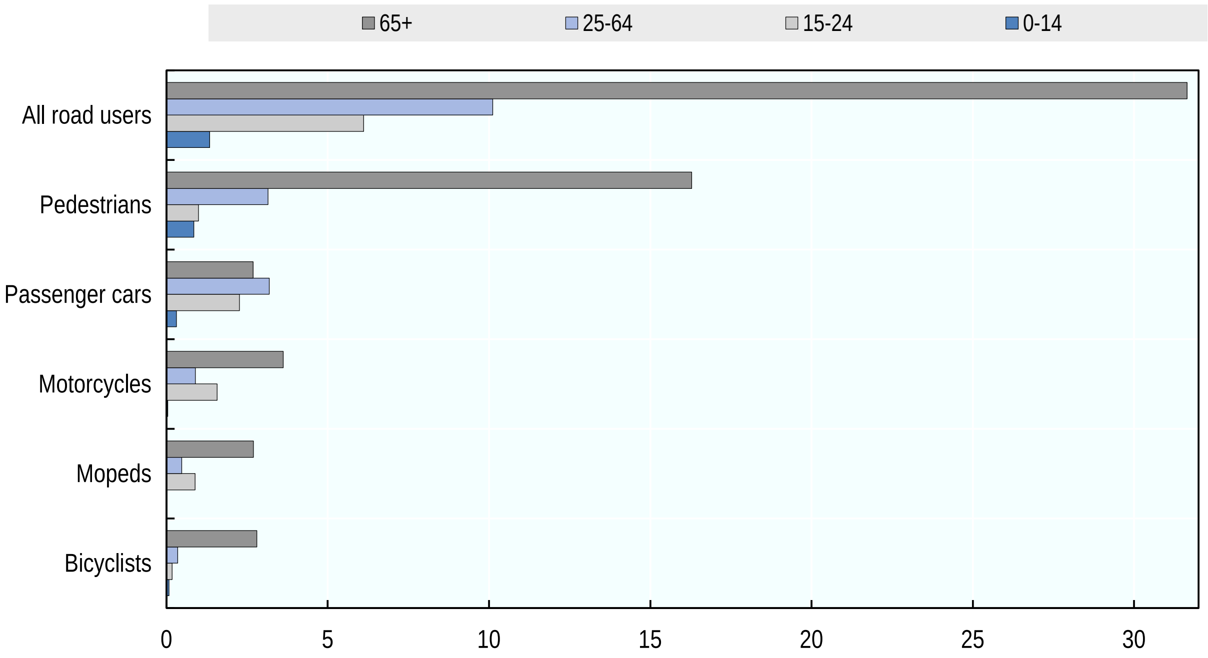
Source: IRTAD

Figure 2. **Road death rates by age group**
Fatalities per 100 000 population in a given age group, 1990-2012



Source: IRTAD

Figure 3. **Road death rate by age and road user group**
Fatalities per 100 000 population

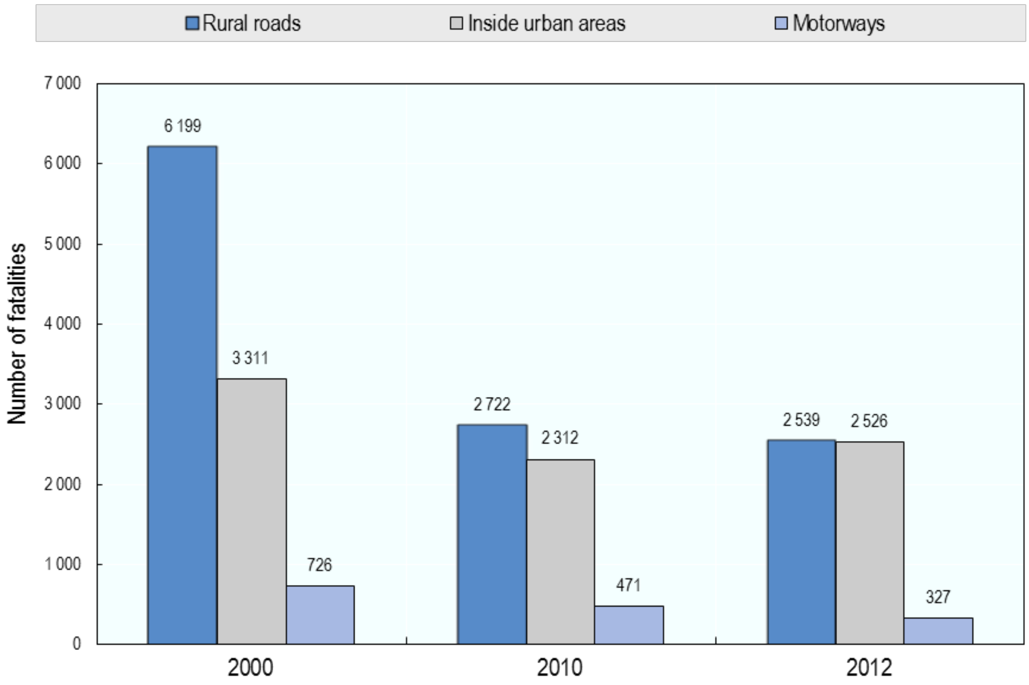


Source: IRTAD

Road Type

In 2012, the number of fatalities was equally shared between urban and non-urban areas. 47% of fatalities occurred on rural roads, 47% in urban areas, and about 6% on motorways. Since 2000, the greatest reduction (-59%) has been achieved on rural roads and motorways (-55%). The 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. **Road fatalities by road type**



Source: IRTAD

4. Economic costs of traffic crashes

Methodology

Since 1992, KoROAD has calculated the economic cost of road crashes using the Gross Loss of Output Approach on an annual basis. The most recently published estimation of road crash cost is based on 2012 accident data (KoROAD, 2012).

The basis of this approach is the idea that individuals could produce cumulative output through their life. The cost of accidents is calculated taking into account the related costs (i.e. vehicle damage, hospital and administration costs) as well as the costs of future lost output.

The calculation includes the following elements

- Direct costs
  - Property damaged, costs for repairs and replacement of infrastructure components and vehicle parts;
  - Medical or funeral costs for casualties;
  - Compensation for casualties from insurance companies.
- Indirect costs
  - Administration costs for police and insurance companies.
  - Ambulance costs.
- Lost output of casualties

Road accidents costs in 2012

Traffic crashes represent a very significant cost for society, estimated at around USD 11.67 billion for all police-reported road casualties in 2012, i.e. around 1.0% of the GDP of Korea (Table 4).

However, when taking into account the crashes *not* reported by the police, the costs could be as high as USD 20.95 billion (up to 1.85% of GDP).

Table 4. **Costs of reported road crashes in 2012**

Costs	2012	2011	% change
Property damage costs	KRW 8 686 billion *USD 7.7 billion*	KRW 8 424 billion *USD 7.6 billion*	3.1%
Casualties costs	KRW 3 468 billion *USD 3.1 billion*	KRW 3 333 billion *USD 3.0 billion*	4.1%
Administration costs	KRW 984 billion *USD 0.9 billion*	KRW 1 004 billion *USD 0.9 billion*	-1.9%
Total	KRW 13 138 billion *USD 11.67 billion*	KRW 12 760 billion *USD 11.52 billion*	3.0%
as % of GDP	1.03%	1.03%	

Source: KoROAD, *The Estimation and evaluation of Road Accidents costs 2012*, p.85

Table 5 shows the unit cost of road crashes and casualties in Korea by severity. The monetary value for one fatality is estimated about USD 383 632 based on 2012 price.

Table 5. **Unit cost of road crashes**

Costs	2012	2011	% change
Fatalities	KRW 432 066 000 *USD 383 632*	KRW 418 910 000 *USD 391 000*	3.1%
Serious injuries	KRW 50 319 000 *USD 44 678*	KRW 4 700 000 *USD 4 392*	
Slight injuries	KRW 2 270 000 *USD 2 415*		
Property damage	KRW 1 534 000 *USD 1 362*	KRW 1 420 000 *USD 1 327*	7.9%

Source: KoROAD, *The Estimation and evaluation of Road Accidents costs 2012*, p.90

5. Recent trends in road user behaviour

Impaired driving

Drink driving

The maximum authorised BAC is 0.5 g/l. In 2012, the number of alcohol-related crashes increased by 2.2% in comparison with 2011, and the number of fatalities due to alcohol-related crashes increased by 11.2%.

Distraction

The use of hand-held mobile phones is not permitted while driving.

Speed

The table below summarises the main speed limits in Korea. In 2012, the speed limit in urban areas was reduced from 80 km/h to 60 km/h for two-lane roads.

Table 6. **Passenger car speed limits by road type**
2014

	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

Source: IRTAD

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 showed that 88.3% of drivers, 76.3% of front passengers and only 9.4% of rear seat passengers wear seatbelts on the motorways.

Table 7. **Seat-belt wearing rate by car occupants**

	2010	*2011*	*2012*
Front seat (motorways)			
Driver	88.5%	84.1%	88.3%
Passenger	78.2%	72.1%	76.3%
Rear seat passengers (motorway)	6.3%	4.5%	9.4%

Source: IRTAD

All riders of motorised two-wheelers are required to wear helmets. There is no mandatory helmet use law for cyclists. In 2012, overall helmet use increased from 72.02% to 75.48%. The wearing rate varies markedly between cities.

6. National road safety strategies and targets

Organisation of road safety

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
- 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 maximising traffic efficiency and for preventing traffic crashes. KoROAD also provides traffic crash statistics to IRTAD.

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 (an almost 40% reduction in comparison to 2010) in order to be ranked in the middle among OECD member countries. The plan comprises five strategies, supported by targeted measures.

Table 8. **Strategies and main measures of national road safety plan**

Strategies	Main Measures
User behaviour improvement	• Reinforce safety education in schools • Traffic safety training for children • Reinforce aged drivers traffic safety measures • Reinforce punishment of important regulation violations, e.g. drink and drive. • Advancement of automobile insurance system • Introduce operation hour limit for business use vehicles • Diversify traffic safety public relations and training
Build safer infrastructure	• Secure intersections • Expand traffic safety facilities • Develop bicycle traffic safety measures • Revitalisation of traffic safety information sharing
Operate smarter modes	• Expand automobile high technology safety device dissemination • Expand business use automobile 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

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 9. **National road fatality reduction target for 2016 and 2020**

Category	2010	2016	2020
Annual traffic crash death	5 505	3 000	1 200
Number of death per 10 000 vehicles	2.6	1.3	0.5

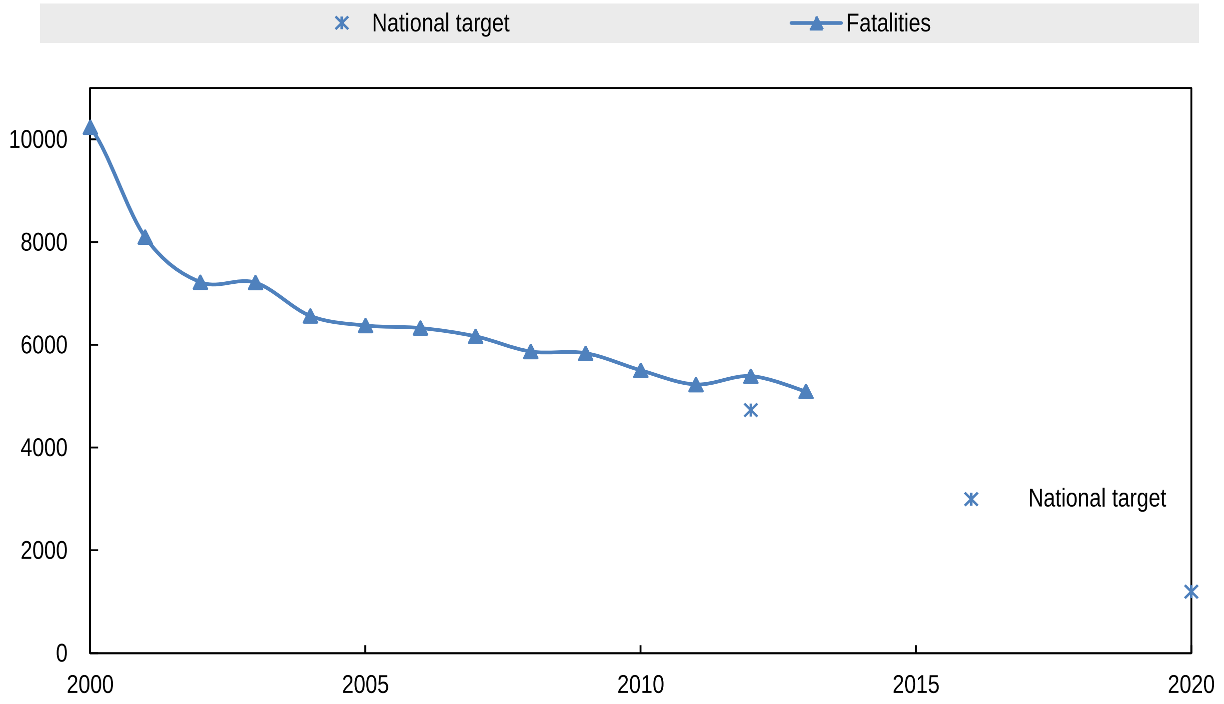
The plan also includes interim targets. For 2012:

- Reduction by 14% of the number of fatalities (in comparison to 2010).
- Less than 1 514 pedestrians killed (compared to 2012, in 2010).

Monitoring

The target for 2012 was not met.

Figure 5. **Trends in road fatalities towards national target**



Source: IRTAD

Evaluation of past road safety strategy

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.

7. Recent safety measures (2011-2013)

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.

Driver behaviour

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);

Impaired driving

- Penalties for drinking and 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 device was expanded in 2012. As a result, tachograph records of transport companies can be analysed by companies using the eTAS system[2] to identify drivers with poor records.
- Installation of new, large vehicle, side and rear cameras has been introduced.
- Attachment of safety evaluation label, to provide safety information on manufactured vehicles on a systemic basis, will be obligatory by 2014 (legislating “automobile safety law”).
- National Police Agency employs video recording devices (black-box) 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);

2. 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. With its tachograph, it records the driving conditions, which are often changing from moment to moment.

8. 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 rationalisation of regional auto insurance (2012).

Useful websites and references

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: chrissy27@koroad.or.kr

Lithuania

Source: Transport and Road Research Institute[1]

Inhabitants	Vehicles/1 000 inhabitants	Road fatalities in 2012	Fatalities /100 000 inhabitants in 2012
2.98 million	**751**	**301**	**10.1**

1. Road safety data collection

Definitions

- Road fatality: person who was killed in a traffic crash or died because of an injury within 30 days after the crash (before 1995, the delay after the crash was 7 days).
- Serious and slight injury: There is no official definition as yet of slight and serious injuries. The concept of MAIS3+ is under discussion among Lithuanian stakeholders.

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.

There is no estimation of under-reporting; road safety experts lack information to identify crash causes. Information on road user behaviour is also limited, and information on injury type is not systematically recorded.

According to the police, nearly 100% of injury crashes are collected and reported in the police data base. This data is available to road safety experts for research.

2. Most recent safety data

Road crashes in 2012

In 2012, 3 173 fatal and injury crashes occurred in Lithuania, whereby 301 people were killed resulting in a 1.7% increase in comparison to 2011.

Provisional data for 2013

In 2013 3 417 injury crashes were recorded, in which 258 road users were killed and 4 040 were injured. This correspond to a 14% decrease in fatalities, but a 7% and 9% increase in the number of road crashes and in the number of persons injured.

1. Data from the Transport and Road Research Institute have not yet been validated by IRTAD

3. Trends in traffic and road safety (1990 - 2013)

Traffic

Since 1990 till 2013, the number of motor vehicles was multiplied by 2.7, with some variations between vehicle types: the number of passenger cars was multiplied by 3.4, the number of trucks multiplied by 1.7 and the number of motorcycles was divided by 2.6.

Change in the number of fatalities and injury crashes (1990-2012)

The number of road fatalities peaked in 1991. Since then it has decreased by more 70%, while the number of motor vehicles has gradually increased.

Since 1991, road safety can be analysed for the following periods:

- 1991–1996: In 1991, a significant reduction in the number of fatalities was observed, immediately after the fall of the Soviet Union. This period was marked by dramatic changes in politics as well as economic austerity. Nevertheless there was a positive impact on road safety, mainly through the introduction of safer European vehicles into the market.
- 1997–2000 brought a relatively slight increase in the number of traffic fatalities, which reached a new peak in 1998. The number of casualties then dropped for two years as a result of an economic crisis in neighbouring Russia.
- In 2000–2007: the economic situation in Lithuania started to improve and brought a rapid increase in traffic volume, which was accompanied by a yearly increase in road traffic fatalities.
- 2006–2013: An important break-through was achieved in 2008, with a growing awareness among the citizens of road safety issues and the leading role of the European Union in setting a target to reduce by 50% the number of fatalities, between 2001 and 2010, that many EU countries achieved. In 2010 Lithuania reached the EU road safety target

Rates

Between 1990 and 2012, the death rate (in terms of deaths per 100 000 population) decreased by more than 60%. In 2012, the death rate was 10.1, much higher than the EU27 average of 5.5.

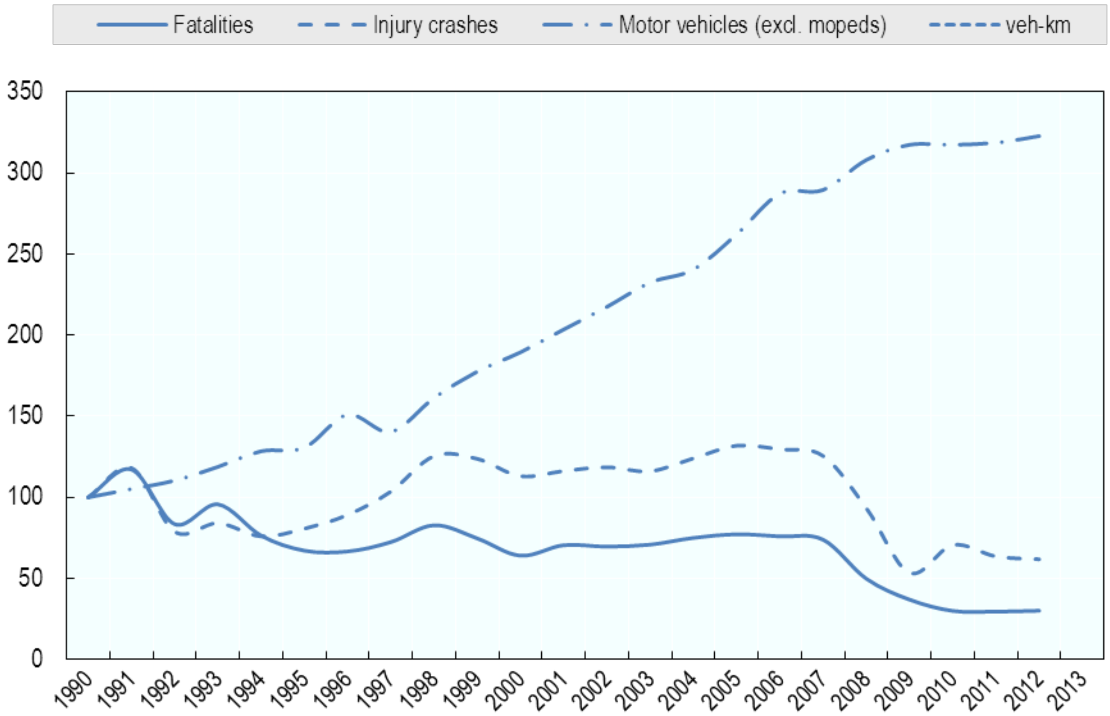
Table 1. **Road safety and traffic data**

						2012 % change from		
	1990	2000	2010	2011	2012	*2011*	*2000*	*1990*
Reported safety data								
Fatalities	1 001	641	300	296	301	1.7%	-53.0%	-69.9%
Injury crashes	5 135	5 807	3 625	3 266	3 173	-2.8%	-45.4%	-38.2%
Deaths per 100,000 population	26.9	17.3	9.0	9.7	10.1	3.2%	-42.2%	-62.8%
Deaths per 10,000 registered vehicles	15.0	5.1	1.4	1.4	1.3	0.4%	-72.4%	-90.7%
Traffic data								
Registered vehicles[2] (thousands)	667	1 265	2 119	2 127	2 238	1.3%	70.4%	222.9%
Registered vehicles per 1,000 population			636.4	696.8	751.0	2.8%		

Source: Transport and Road Research Institute

2. Registered vehicles excluding mopeds.

Figure 1. **Road safety and traffic data**



Source: Transport and Road Research Institute

Road users

Car occupants and pedestrians are the main victims of traffic crashes. Pedestrians in particular represent around one-third of casualties, a high share in comparison with other IRTAD countries.

Table 2. **Road fatalities by road user group**

				2012 % change from	
	2010	2011	2012	*2011*	*2010*
Bicyclists	24	26	32	23.1%	33.3%
Mopeds	3	3	6	n.a.	n.a.
Motorcycles	14	13	15	15.4%	7.1%
Passenger car occupants	136	134	125	-6.7%	-8.1%
Pedestrians	106	111	105	-5.4%	-0.9%
Others incl. unknown	0	9	18		
Total	*300*	*296*	*301*	*1.7%*	0.3%

Source: Transport and Road Research Institute

Age

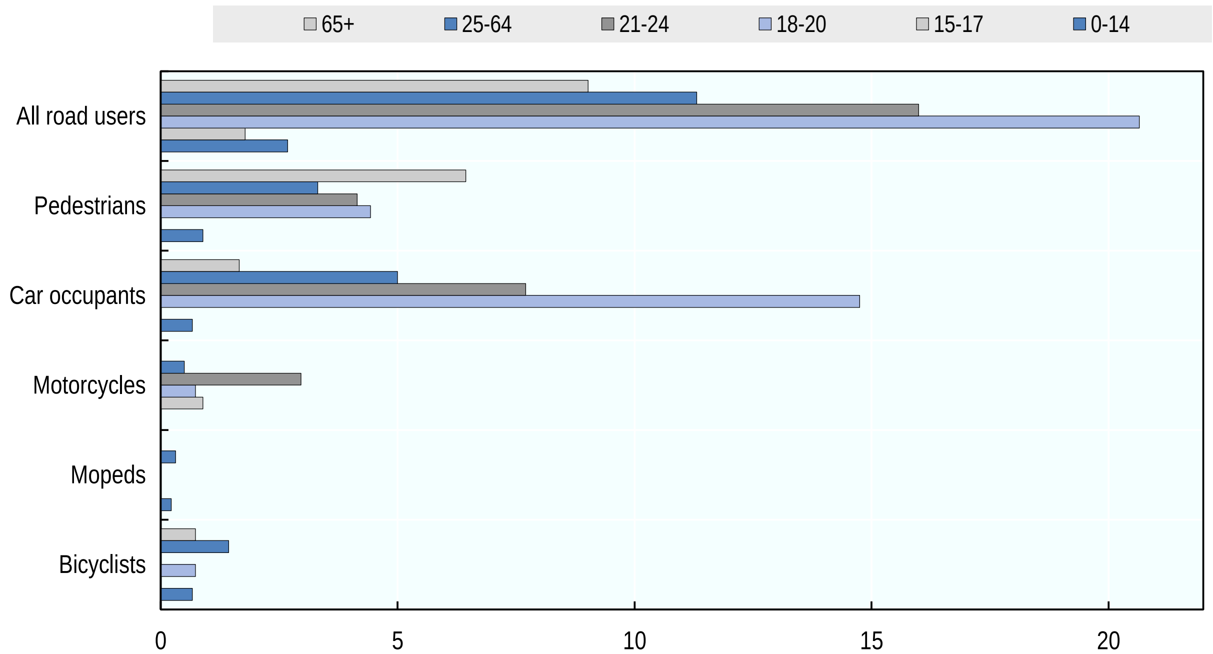
In 2012, the 15-24 age group represented 19% of all road deaths.

Table 3. **Road fatalities by age group**

				2012 % change from...	
Age group	2010	2011	2012	*2011*	*2010*
0-5	1	3	2	n.a.	n.a.
6-9	0	4	2	n.a.	n.a.
10-14	4	6	8	n.a.	n.a.
15-17	6	6	2	n.a.	n.a.
18-20	22	21	28	33.3%	27.3%
21-24	26	27	27	0.0%	3.8%
25-64	173	161	181	12.4%	4.6%
>65	63	65	49	-24.6%	-22.2%
Total incl. unknown	*300*	*296*	*301*	*1.7%*	0.3%

Source: Transport and Road Research Institute

Figure 2. **Road death rate by age and road user group**
Fatalities per 100 000 population



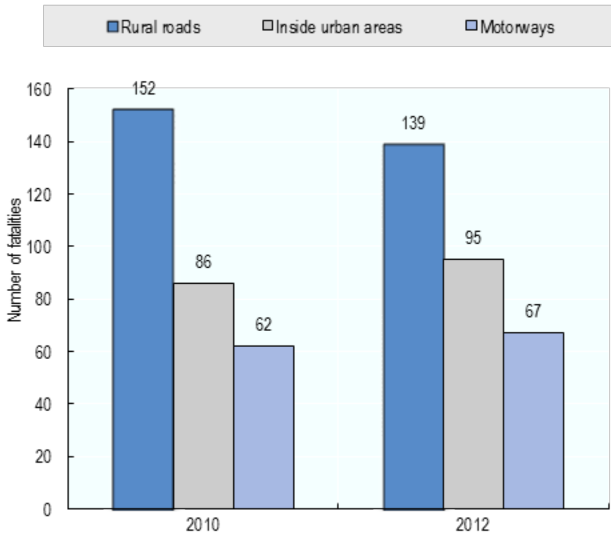
Source: Transport and Road Research Institute

Road Type

In 2012, most road crashes occurred in built up areas. However, crashes were more severe on rural roads, where speeds are higher, cyclists and pedestrians infrastructure less developed and lighting present on a small part of the network only.

In the past two years, the situation improved on rural roads, but not in urban roads or the motorway network.

Figure 3. **Road fatalities by road type**



Source: Transport and Road Research Institute

4. Economic costs of traffic crashes

Traffic crashes represent a very significant cost for society, estimated in 2011 at around EUR 350 million, i.e. 1.1 % of GDP.

Costs are estimated using a “capital approach” method.

Table 4. **Costs of road crashes, 2012**

Costs (EUR)	Unit Cost	Total
Fatalities		165 million
Injured people (serious and slight injuries)		185 million
Property damage and other costs		-
Total (EUR)		350 million
Total as % of GDP		1,1%

Source: Transport and Road Research Institute

5. Recent trends in road user behaviour

Impaired driving

Drink driving

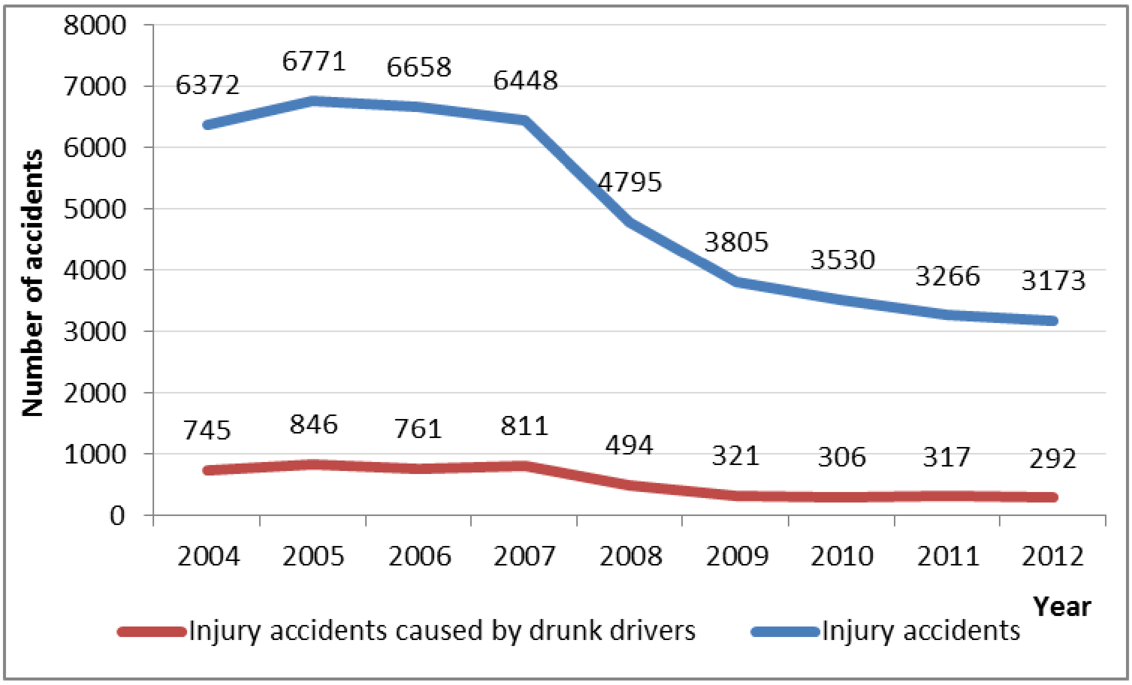
The general maximum blood alcohol content authorised in Lithuania is 0.4 g/l and 0.2 g/l for novice drivers (driving experience of less than 24 months) and professional drivers.

Drivers controlled under the influence of alcohol (BAC above 0.4 g/l) have their licence 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 2012, drink driving contributed to 9 % of road crashes.

Between 2004 and 2012, the number of alcohol related crashes was divided by 2.5. However, the share of crashes due to drink driving has remained stable about 10 %.

Figure 4. **Injury crashes due to drinking and driving**



Source: Transport and Road Research Institute

Drugs and driving

Drivers controlled driving under the influence of drugs are subject to a fine (300-900 EUR) and a licence withdrawal between for 12-36 months. They can also be subject to 10-30 days administrative arrest.

In 2012, it was estimated that 0.12 % of road crashes involved drivers under the influence of drugs.

Distraction

It is not permitted to drive using a hand-held mobile phone. Hands-free mobile phones may be operated.

Fatigue

In 2012, according to police reports, it was estimated that driver fatigue was the origin of 0.12 % of crashes.

Speed

According to police data, inappropriate speed is the main cause of traffic crashes in Lithuania. Speeding by 30 km/h above the limit is considered a serious violation, incurring severe sanctions, including immediate licence withdrawal for novice drivers.

In 2012, on average between 13 and 23.5% of all drivers exceed the speed limit by more than 10 km/h on different types of state roads. The table below summarises the main speed limits in Lithuania.

Table 5. **Passenger car speed limits by road type, 2012**

	General speed limit	Comments
Urban roads	50 km/h	-
Rural roads	90 km/h (70 km/h on gravel roads)	70 km/h for novice drivers (driving experience of less than 24 months)
Motorways	130 km/h (110 km/h in winter time)	90 km/h for novice drivers (driving experience of less than 24 months)

Source: Transport and Road Research Institute

Seatbelts and helmets

Seat-belt wearing is compulsory in all seats. In the statistics, there is no distinction between rear and front seats.

According to police data, in 2012 47% of killed car occupants and 31% of killed drivers were not wearing a seatbelt when the crash occurred.

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

	2013
Front seat	-
General	70 %
Rear seats	-
Adults	71 %
Children	*60%*

Source: Transport and Road Research Institute

All riders of two-wheeled motor vehicles are required to wear a helmet. Cyclists under 18 years old must wear a helmet.

6. National road safety strategies and targets

Organisation of road safety

The main stakeholder is the Ministry of Transport and Communications of the Republic of Lithuania, supported by the Lithuanian Road Administration. Police and municipalities are the main agencies responsible for road safety. They also work in close co-operation with the Ministry of Transport and Communications, the Ministry of the Interior, the Ministry of Education and Science, and the Ministry of Health.

Nominated by the Government, the State Traffic Safety Commission comprises representatives of governmental/state and municipal administration bodies, as well as representatives of NGOs, and makes recommendations on road safety policy.

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.

Target setting

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.

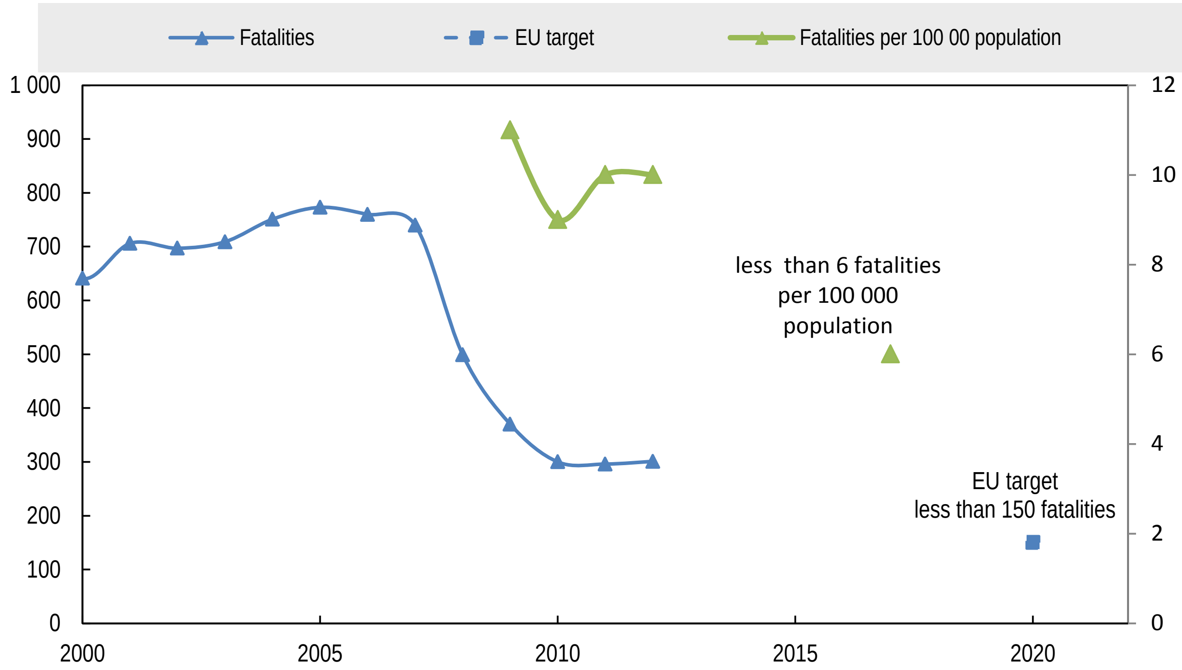
To achieve this objective, it is planned to:

- 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.

Monitoring

The figure below illustrates the trends towards the national target to reach a fatality rate of less than 6 fatalities per 100 000 population by the year 2017, and the EU target to halve the number of road fatalities between 2010 and 2020.

Figure 5. **Trends in road fatalities towards national and EU[3] targets**



Source: Transport and Road Research Institute

Evaluation of past road safety strategy

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.

7. Recent safety measures (2011-2013)

Road safety management

All of the main road safety procedures of the DIRECTIVE 2008/96/EC "on road infrastructure safety management" are applied in Lithuania. This includes the implementation of: road safety impact assessment; road safety audits; safety ranking and management of the road network in operation (high risk section and black spot management); and safety inspections.

Driver behaviour

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. Also Lithuania has 11 mobile speed cameras. The first speed cameras were installed in 2005.

3. In 2010, the European Commission adopted the target of halving road deaths by 2020, compared to 2010 levels.

- Penalties for speed violations were considerably increased in 2008.
- A pilot project for average speed cameras has been started.

Impaired driving

- Penalties for impaired driving were considerably increased in 2008.
- Alcohol rehabilitation programme is under discussion.

Seatbelt and helmet use

- Penalties for seatbelt use violations were considerably increased in 2008.

Education and awareness

- Education of children through school programmes, competitions, TV shows;
- Public education and information through social advertisements; TV shows; media;
- Professional education by trainings, seminars, workshops, conferences.

Vehicles

Vehicle safety is of great concern in Lithuania, especially in regard to the average age of vehicles (17 years). The technical condition of the vehicle fleet is also a major concern, with a high share of post-crash repaired vehicles in the fleet. As an example, there is a high proportion of airbag failure in fatal crashes.

Despite this growing concern, no specific measures have been undertaken in recent times to modernise the fleet and increase the safety of vehicles.

Infrastructure

- Greater attention to pedestrian safety: a new design rules for pedestrian crossings was created and approved. Also a new design rules for pedestrian and bicycle infrastructure have been approved.
- High attention to head-on collisions – a pilot project for a new type of cross section, “1+1”, has been implemented on the most dangerous state roads with transit function.
- “2+1” cross section projects are coming up.
- A huge amount of dangerous intersections were reconstructed into roundabouts or other safer intersection types, or at least have a project to be reconstructed.
- High attention to roadside safety – the main problem is related with trees and high slopes.
- High attention to road network functionality – various actions connecting road function, design and usage. An inconsiderate period of land privatisation and a lack of proper road network strategy in the past, made most of roads having no clear function and no available free land for improvement today.

Useful websites and references

Ministry of Transport and Communications of the Republic of Lithuania	http://www.transp.lt
Road and Transport Research Institute	http://www.ktti.lt
Lithuanian Road Administration	http://www.lra.lt

Contact

For more information, please contact: m.katkus@ktti.lt

Luxembourg

Source: IRTAD, STATEC

Inhabitants	Vehicles/1 000 inhabitants in 2012	Road fatalities in 2012	Fatalities /100 000 inhabitants in 2012
0.5 million	**768**	**34**	**6.5**

1. Road safety data collection

Definitions

- Road fatality: person killed in a traffic crash or died because of an injury within 30 days after the crash
- Serious injuries: a person hospitalised for at least 24 hours. Luxembourg is not using MAIS 3+ for the time being but the administrations concerned and the hospitals are working on it. The system should be operational by 2015.
- Slight injuries: an injured person hospitalised for less than 24 hours or not requiring hospitalisation.

Data collection

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 via police reports and media.

2. Most recent safety data

Road crashes in 2012

In 2012, 34 persons were killed in a road crash. This represents an increase of one fatality compared with 2011.

Compared to 2010, the number of persons seriously injured increased by 27.5% in 2012. 12 out of 34 (35%) fatal road crashes and 39 out of 294 (13%) seriously injured casualties were the result of collisions with trees.

In 2012, pedestrians accounted for 18% of all road deaths.

Speeding is the presumed contributing factor for 47% of all fatalities. It is estimated, that 26% of road fatalities and 21% of seriously injured casualties are due to non-observance of the maximum authorised blood alcohol content.

In 2012, 43% of all persons killed in a road crash did not wear seatbelts.

Data for 2013

The final annual figure for 2013 is 45 road deaths, an increase of 11 fatalities compared with 2012.

In the period July to September 2013, 8 motorcyclists were victims of a fatal road crash.

About 40% of the fatalities are due to excessive speed and 20% are due to alcohol-impaired driving.

3. Trends in traffic and road safety (1990-2013)

Traffic

As Luxembourg is a bordering country, there is much traffic 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 kilometres 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 500 000 inhabitants, but 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 idea that vehicle fleet is an adequate exposure indicator in the case of Luxembourg.

Change in the number of fatalities and injury crashes (1990-2012)

Between 1990 and 2012, the number of fatalities decreased by more than 50%, and the number of injury crashes by about 20%. In recent years (2000-2012), the decrease in the number of fatalities was sustained (-55%).

Rates

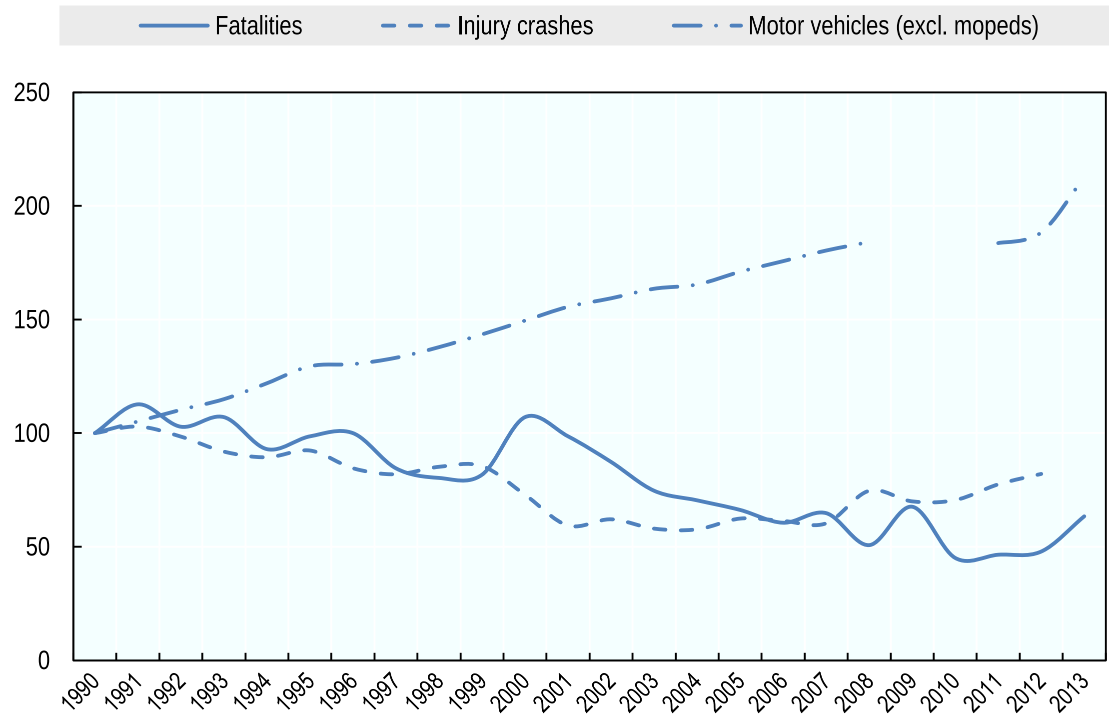
Since 1990, the death rate per 100 000 population has decreased by more than 60%, while the number of vehicles per 1 000 population has increased by more than 30%.

Table 1. **Road safety and traffic data**

	1990	2000	2010	2011	2012	2012 % change from 2011	2000	1990
Reported safety data								
Fatalities	71	76	32	33	34	3.0%	-55.3%	-52.1%
Injury crashes	1 242	905	876	962	1 019	5.9%	12.6%	-18.0%
Injured persons hospitalised	548		266	317	339	6.9%		-38.1%
Deaths per 100 000 population	18.7	17.5	6.4	6.4	6.5	0.5%	-63.0%	-65.4%
Deaths per 10 000 registered vehicles	3.3	2.4		0.8	0.8	0.5%	-64.5%	-74.6%
Traffic data								
Registered vehicles[1] (thousands)	214	320		393	403	2.5%	25.9%	88.3%
Registered vehicles per 1 000 population)	564.2	738.0		767.8	767.8	0.0%	4.0%	36.1%

Source: IRTAD

Figure 1. **Road safety and traffic data**



Source: IRTAD

Road users

Pedestrians and motorcyclists are the most vulnerable. Passenger car occupants are the user group which has most benefited from road safety improvements. The number of passenger car occupants was reduced by more than half since 2000.

In 2012, the share of pedestrians killed amounted to 18% of all road deaths.

1. Registered vehicles excluding mopeds.

Table 2. **Road fatalities by road user group**

	1990	2000	2010	2011	2012	2012 % change from 2011	2012 % change from 2000	2012 % change from 1990
Bicyclists	1	1	1	2	0	Figures too small for meaningful comparisons.		
Mopeds	0	0	0	0	0			
Motorcycles	8	8	1	3	5			
Passenger car occupants	51	53	27	21	22			
Pedestrians	10	11	1	6	6			
Others incl. unknown	1	3	2	1	1			
Total	*71*	*76*	*32*	*33*	*34*	*3.0%*	*-55.3%*	*-52.1%*

Source: IRTAD

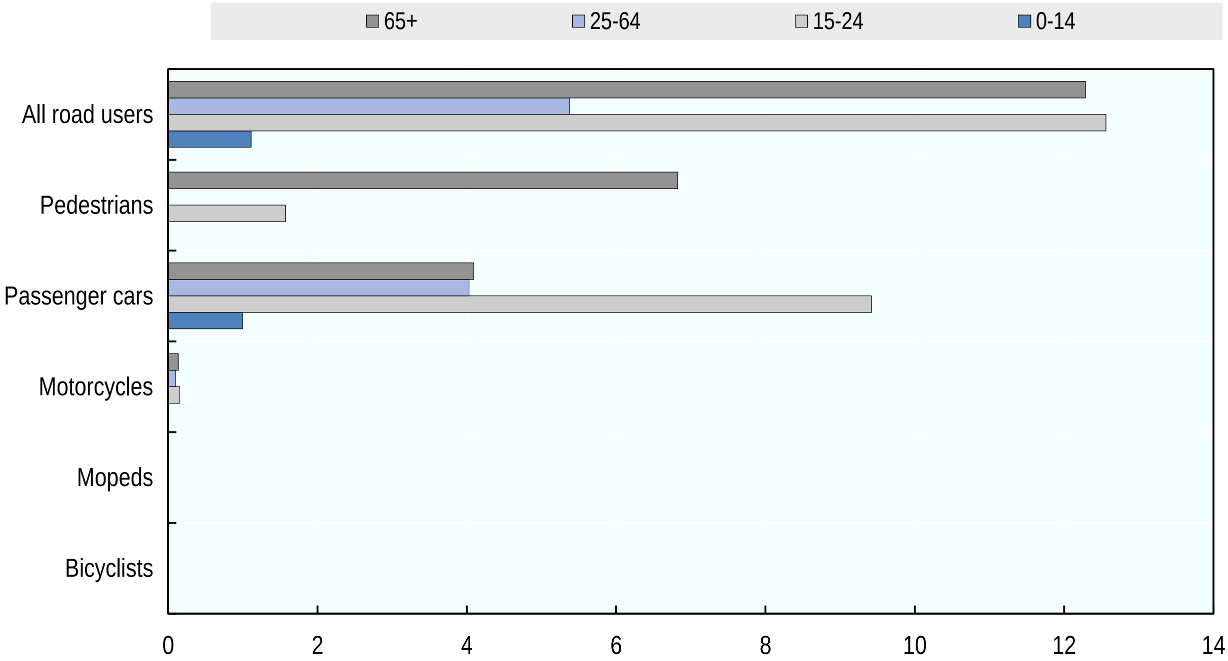
Age

Table 3. **Road fatalities by age group**

Age	1990	2000	2010	2011	2012	2012 % change from... 2011	2012 % change from... 2000	2012 % change from... 1990
0-5	1	1	0	1	1	Figures too small for meaningful comparisons.		
6-9	2	1	0	0	0			
10-14	1	1	0	0	0			
15-17	2	1	0	2	2			
18-20	11	5	6	2	3			
21-24	8	11	4	6	3			
25-64	34	45	19	19	16			
>65	11	10	3	3	9			
Total incl. unknown	*71*	*76*	*32*	*33*	*34*	*3.0%*	*-55.3%*	*-52.1%*

Source: IRTAD

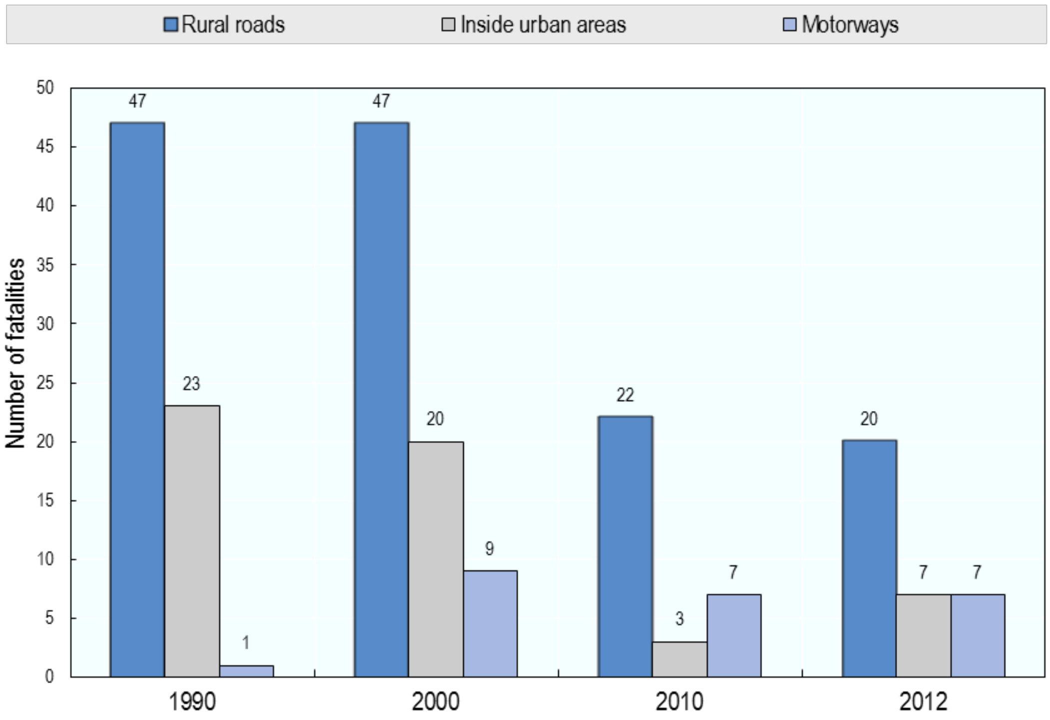
Figure 2. **Road death rate by age and road user group**
Fatalities per 100 000 population



Road Type

Most fatal crashes in Luxembourg occur on rural roads. These crashes can be attributed, to a large extent, to high speed and/or drink-driving.

Figure 3. **Road fatalities by road type**



Source: IRTAD

4. Economic costs of traffic crashes

There is no information available.

5. Recent trends in road user behaviour

Impaired driving

Drink driving

In Luxembourg, the maximum authorised blood alcohol content is 0.5 g/l, and 0.2 g/l for novice and professional drivers.

An alcohol-related crash is defined as an injury crash where at least one of the involved drivers or pedestrians has a blood alcohol content of more than 0.5 g/l.

In 2012, 26% of the fatal crashes were classified as alcohol-related.

Drugs and driving

The maximum authorised blood drug content is set for the following substances. THC: 2 ng/mL, Amphetamine: 50 ng/mL, Methamphetamine: 50 ng/mL, MDMA: 50 ng/mL, MDA 50 ng/mL, Morphine: 20 ng/mL, Cocaine: 50 ng/mL, Benzoylecgonine: 50 ng/mL.

Data on the use of drugs in road crashes will be available from 2013 onwards.

Distraction

The use of hand-held phones while driving is forbidden. A new law with tougher sanctions is in preparation. The use of hands-free devices while driving is authorised since 2009.

In 2012, according to police records, there was no fatal crash due to distraction by electronic devices.

Fatigue

In 2012, according to police records, one fatal crash was due to fatigue.

Speed

The table below summarises the main speed limits in Luxembourg. There have been no changes in the legislation concerning speed limits for the last 10 years.

Table 4. **Passenger car speed limits by road type**
2014

	General speed limit Passenger cars	Comments
Urban roads	50km/h	
Rural roads	90km/h	
Motorways	130km/h	110km/h (when it rains)

Source: IRTAD

Seatbelts and helmets

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. In 2003, the rate of seatbelt use was around 80% in front seats of passenger cars.

The wearing of helmets is compulsory for all motorcycle and moped riders since 1976. The compliance rate is unknown.

6. National road safety strategies and targets

Organisation of road safety

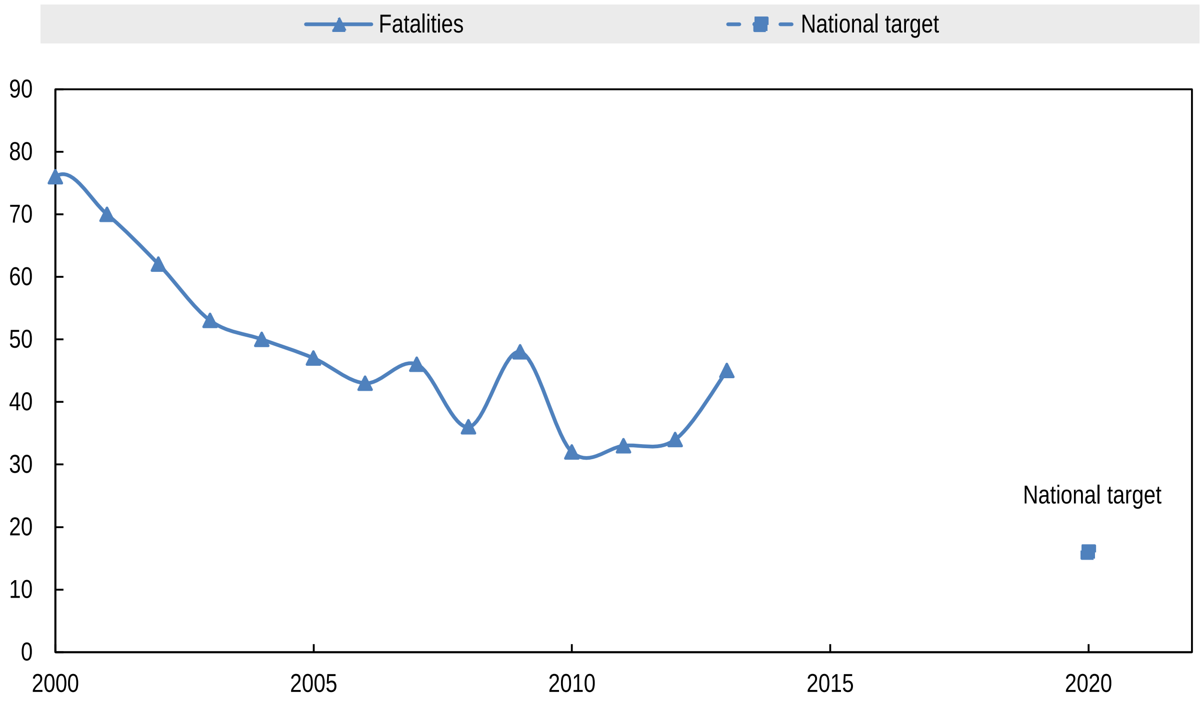
The Ministry of Sustainable Development and Infrastructure (Department of Transport) is in charge of road safety

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 seriously injured people, have occurred during the last years.

The priority issues are: speeding, safety of vulnerable road users, introduction of a demerit point system, safety campaigns, the implementation of automatic speed controls, improvement of the road infrastructure.

Figure 4. **Trends in road fatalities towards national and EU[2] targets**



Source: IRTAD

7. Recent safety measures (2011-2013)

Driver behaviour

Speed management

- Creation of 20 or 30km/h zones in order to calm the traffic and protect vulnerable road users,
- Progressive implementation of speed cameras and section control systems.

Impaired driving

- A new law punishing more severely impaired driving (demerit point system) is on its way. Due to Government change the law is still in Parliament.

Seatbelt and helmet use

- More severe sanctions for the non-use of seatbelt will be introduced.

2. In 2010, the European Commission adopted the target of halving road deaths by 2020, compared to 2010 levels.

Education and awareness

- 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.
- “Fit for your bike” is a training programme organised every year by the “Centre de Formation pour Conducteurs” to assist motorcyclists in improving their driving skills before the biking season by training diverse manoeuvres. This initiative is under the tutelage of the Ministry for Sustainable Development and Infrastructure and supported by the Police, victim associations, user associations and the tyre manufacturers Goodyear and Dunlop.
- In a collaborative project of the Ministry for Education, the Ministry for Sustainable Development and Infrastructure, the Centre de Formation pour Conducteurs and the Police, road safety events are held in schools showing e.g. real crashed cars and including roll-over simulators.

Vehicles

- Since 1 October 2012, the use of winter tyres is mandatory in winter conditions. (Winter conditions are considered to be: mud, snow or ice, and low temperatures.)

Infrastructure

- New guidelines for protection barriers, improve intersections, “audits de sécurité”, and improvement of level crossings (railroad crossing) were introduced in 2012. The whole road network is monitored for black spots. When necessary, speed limits are reviewed, the signalisation modified, and improvements to infrastructure made.

Post crash care

- In case of severe road crashes, a psychological support team organised by the national rescue administration (Administration de la Protection civile) is available. The victim association also helps road victims and is supported by the Luxembourg Government.

Useful websites and references

Road safety, Luxembourg	www.securite-routiere.lu
Ministry of Sustainable Development and Infrastructure	www.mt.public.lu
STATEC	www.statistiques.publiques.lu

Contact

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Malaysia

Source: MIROS[1]

Inhabitants	Vehicles/1 000 inhabitants (including mopeds)	Road fatalities in 2012	Fatalities /100 000 inhabitants in 2012
28.8 million	**775**	**6 917**	**23.6**

1. Road safety data collection

Definitions

- Road fatality: deaths resulting from a road crash within 30 days after the crash.
- Serious injuries: any person injured as a result of a road crash as referred to section 320 of the Penal Code
- Slight injuries: any injury that does not fit under death or serious injury

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 crashes: fatal, serious, slight, or damage only. Malaysia is just starting working towards estimation of underreporting.

2. Most recent safety data

Road crashes in 2012

In 2012, there was a stagnation in the number of road fatalities, with 6 917 road deaths compared to 6 877 in 2011 (+0.58%). The number of severe and slight crashes decreased by 3.7% and 0.4% respectively.

Many road safety interventions were implemented in 2012. One of the most important measures is the implementation of the Automated Enforcement System (AES), targeting both speeding and red light running related offences.

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

Provisional data for 2013

Provisional data for 2013 show again a relative stagnation in the number of fatalities. The official data is yet to be announced by the Royal Malaysian Police. Sadly, in 2013 there was a major crash involving a stage bus that fell into a ravine, which resulted in 38 deaths.

3. Trends in traffic and road safety (1990-2013)

Traffic

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.

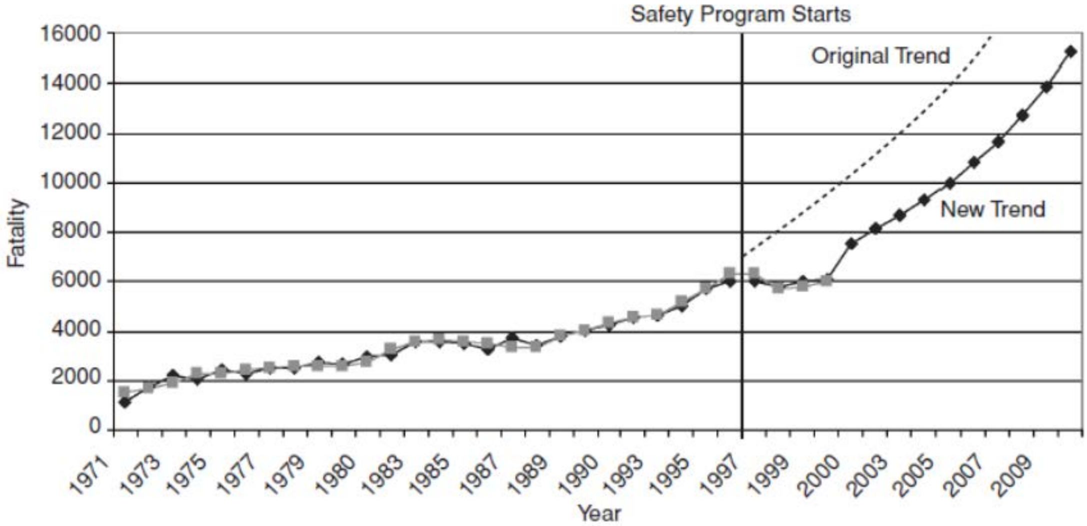
Change in the number of fatalities and injury crashes (1990-2012)

In general, fatalities are still increasing from year to year. Between 2006 and 2012, only the year 2007 saw lower fatalities compared to the previous year. Since 2007, their number has been increasing whereas the number of injured road users (serious and slight) has shown a declining trend. This information is based on police recorded data.

Since 2000, fatalities increased by 14%. The increase in the number of fatalities and crashes can be partly associated with the rapid rise of motorisation in the country.

An impact analysis on the safety intervention shows that the road safety programme that started in 1998 was able to significantly reduce ($p < 0.05$) traffic deaths and offset the fatality trend in Malaysia.

Figure 1. **Impact of the road safety programme on the number of fatalities**



Source: MIROS

Rates

The mortality rate is rather high (23.6 deaths/100 000 population in 2012). However, the risk (in terms of deaths per distance travelled) has decreased significantly since 2000, due to the large rise in motorisation in Malaysia.

Between 2000 and 2012, the death rate (in terms of deaths per 100 000 population) declined by 9%, and risks, expressed in deaths per billion veh-km and in deaths per 10 000 registered vehicles, both decreased by more than 40%, mainly because of the very high increase in motorisation (+90.5%).

Table 1. **Road safety and traffic data**

						2012% change from		
	1990	2000	2010	2011	2012	*2011*	*2000*	*1990*
Reported safety data								
Fatalities	4 048	6 035	6 872	6 877	6 917	0.6%	14.6%	70.9%
Injury crashes	25 766	44 165	21 397	18 693	17 522	-6.3%	-60.3%	-32.0%
Deaths per 100,000 population	22.7	25.9	23.8	23.7	23.6	-0.4%	-9.0%	3.8%
Deaths per 10,000 registered vehicles	9.0	5.7	3.4	3.2	3.1	-3.1%	-45.5%	-65.4%
Deaths per billion vehicle kilometres		26.3	16.2	14.7	13.4	-8.7%	-49.0%	
Traffic data								
Registered vehicles[2] (thousands)		10 99	20 189	21 311	22 702	6.5%	114.2%	
Vehicle kilometres (millions)			424 021	467 611	517 193	10.6 %		
Registered vehicles per 1,000 population)		455.6	698.3	738.0	774.8	5%	70.1%	

Source: MIROS

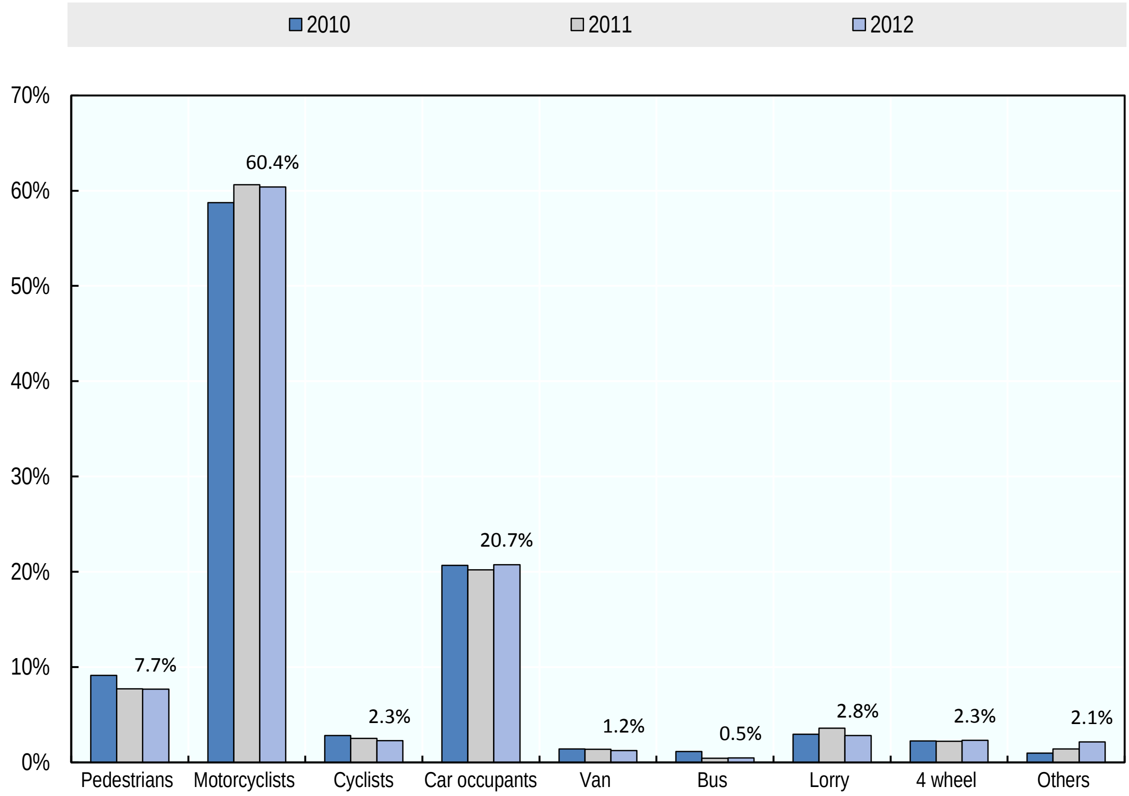
Road users

Generally, powered two-wheelers contribute to the highest number of road deaths in Malaysia. In 2012, they accounted for 61% of the road deaths - followed by car occupants with 21%. Pedestrians accounted for 8% of all fatalities.

Over the past nine years (2003-2012) the fatalities among motorcyclists and car occupants respectively increased by 18% and 21%.

2. Registered vehicles excluding mopeds.

Figure 2. **Road fatalities by road user group (share of total fatalities)**



Source: MIROS

Table 2. **Road fatalities by road user group**

	2000	2010	2011	2012	2012 % change from 2011	2012 % change from 2000
Bicyclists	247	192	172	156	-9.3%	-36.8%
Motorised two wheelers	3 519	4 036	4 169	4 178	0.2%	18.7%
Passenger car occupants	1 253	1 421	1 389	1 435	3.3%	14.5%
Pedestrians	721	626	530	530	0.0%	-26.5%
Others incl. unknown	295	597	617	618	0.2%	109.5%
Total	*6 035*	*6 872*	*6 877*	*6 917*	*0.6%*	*14.6%*

Source: MIROS

Age

Over the past ten years the fatalities distribution, by age, show the same trend, with the highest fatalities among the 16 to 25 year olds.

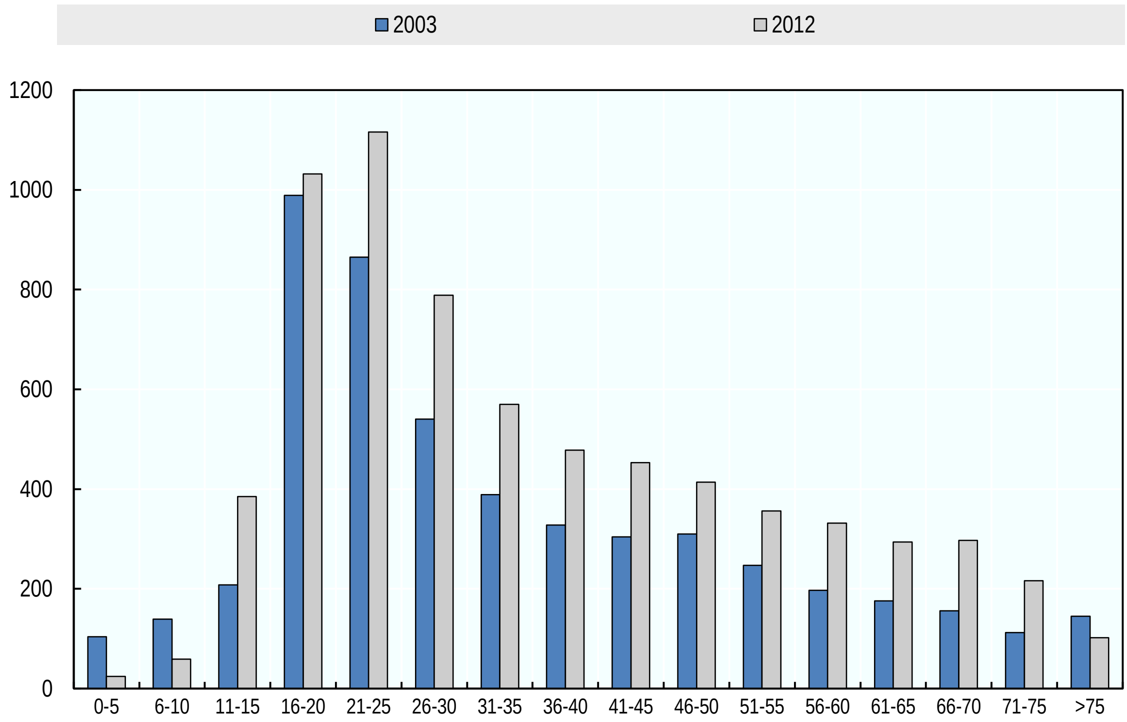
However in 2012, the fatalities for the age group 16 to 20 showed a reduction compared to previous years. The same reduction can be seen for the age group 75 years and older.

Table 3. **Road fatalities by age group**

				2012 % change from...	
Age	2010	2011	2012	*2011*	*2010*
0 - 5	177	178	192	-38%	-27%
6 - 10	118	101	51	-34%	-40%
11 - 15	235	171	177	10%	11%
16 - 20	451	420	480	-18%	-18%
21 - 65	669	602	591	10%	10%
>65	752	580	629	-20%	-20%
Total incl. unknown	*6 872*	*6 877*	*6 917*	1%	1%

Source: MIROS

Figure 3. **Road fatalities by age group**
2003 and 2012

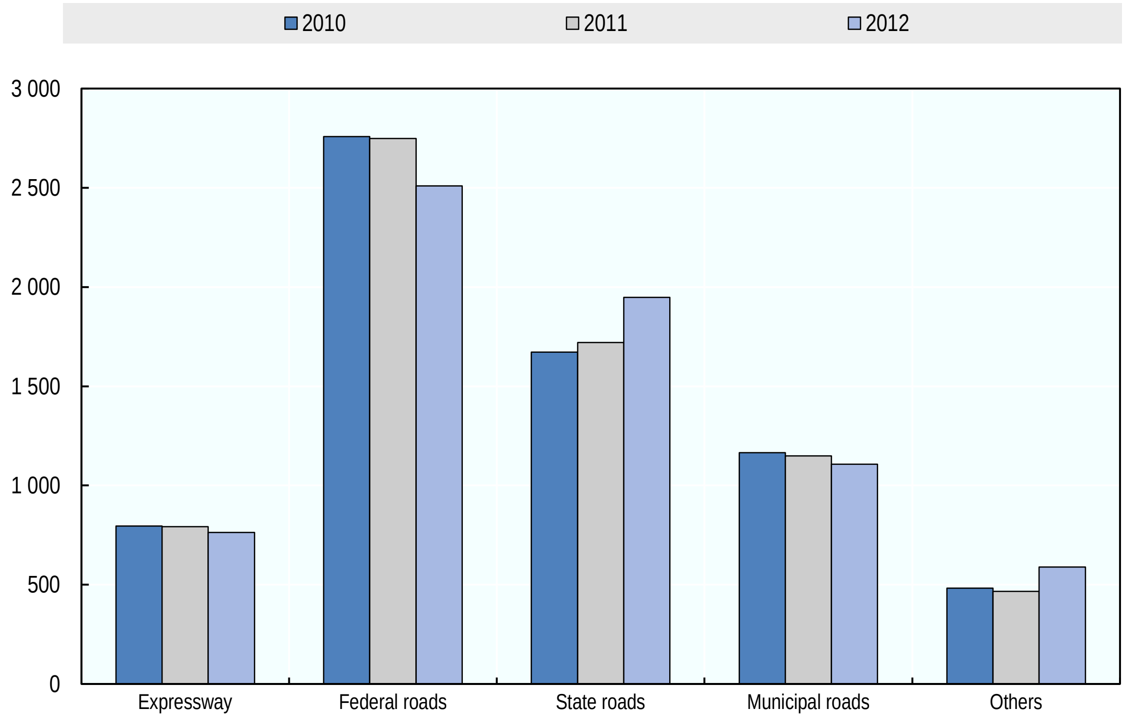


Source: MIROS

Road Type

The number of fatalities on federal roads is the highest, followed by state roads. In 2012, fatalities on federal roads decreased compared to the two previous years.

Figure 4. **Reported fatalities by road type**
2010-2012



Source: MIROS

4. 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[3].

5. Recent trends in road user behaviour

Impaired driving

Drink driving and drugs

In Malaysia, as mentioned in Road Traffic Act, it is an offence to drive a vehicle with a BAC over the legal limit of 0.08 g/dl (Road Transport Act, 1987).

3. 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.

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.

Based on police-reported data, drink-driving is not an issue in Malaysia, with less than 0.5% of drivers in fatal crashes tested positive for blood-alcohol content.

However, a retrospective sectional study based on post-mortem files from the Department of Forensic Science of the Kuala Lumpur Hospital revealed that 23.3% of fatal drivers in this sample were positive for alcohol, 11% positive for drugs and 2.3% were positive for both drugs and alcohol. Among illicit drugs, the opiate group (5.4%) is top of the list of drugs detected among fatally injured drivers. The distribution was 2.8% positive for amphetamines, 1.02% for cannabis and 0.8% for ketamine. This study is representative of the situation in Kuala Lumpur only, and not that of the whole country[4].

Distraction

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". However, there is no official record on the number of crashes due to mobile phone use.

Fatigue

Information on fatigue is not available from the national crash database collected by the police.

However, MIROS carries out in-depth crash investigations on some crash cases. From 2007 through 2010, a total number of 439 cases were investigated by MIROS' crash investigation team.

Based on these in-depth investigations, the team found out that risky driving, speeding and fatigue are the main causes of traffic crashes in Malaysia[5].The table below lists the crash contributing factors based on MIROS' in-depth crash investigation.

4. Source : Norlen M, Wahida AB, Nurul Kharmila A, Muhammad Fadhli MY, Sharifah Allyana SMR & Mohd Shah M (2012), *Alcohol and Drug use Among Fatally Injured Drivers in Urban Area of Kuala Lumpur*, MRR 02/2012, Kuala Lumpur: Malaysian Institute of Road Safety Research.

5. Source : Ahmad Noor Syukri ZA, Siti Atiqah MF, Fauziana L & Abdul Rahmat AM (2012), MIROS Crash Investigation and Reconstruction Annual Statistical Report 2007–2011, MRR 05/2012, Kuala Lumpur: Malaysian Institute of Road Safety Research.

Table 4. **Crash contributing factors**

Main crash contributing factors out of the 439 cases	Number	%
Risky Driving	121	28%
Speeding	93	21%
Fatigue	70	16%
Safety, Health and Environment	38	9%
Road Defects	36	8%
Driving Under the Influence	24	5%
Brake Defects	20	5%
Conspicuousness	18	4%
Overloading	11	3%
Tyre Defects	14	3%

Source: MIROS

Another research was conducted by MIROS on fatigue among commercial bus drivers in Malaysia based on questionnaire and salivary cortisol to investigate the effects of driving hours on driver fatigue. The fatigue status of the bus driver was assessed using the Checklist Individual Strength – CISQ which measures the subjective sensation of mental and physical fatigue. The study revealed that the prevalence of fatigue among commercial bus drivers was 37.7%, based on the CISQ questionnaire, and that 27.8% of drivers had a consistently low reading, indicating fatigue based cortisol level[6].

Speed

The table below summarises the main speed limits in Malaysia.

Table 5. **Summary of speed limits in 2014 for passenger cars**

Urban roads	50 km/h
Rural roads	90 km/h
Motorways	110 km/h

Source: MIROS

A recent study shows that the compliance to 90km/h posted speed limit is about 74% among Malaysian drivers[7]. The percentage of compliance to speed limit on 90 km/h zones varies between 54% during the normal period and up to 75% during enforcement period.

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.

6. Source : MIROS, 2008. Research Report "Prevalence of Fatigue among commercial bus drivers in Malaysia", KL. MIROS.

7. Source: Jamilah MM et al, MRR03/2012: Evaluation of the Effectiveness of Ops Bersepadu Hari Raya, 2011.

Following the intense enforcement activities in February 2012 the seat-belt wearing rate for drivers increased to 91%. The seat-belt wearing rate for front seat passengers was 83%, but only 11% for rear seat passengers.

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 ones. A study conducted in early 2012 in two urban locations showed the helmet wearing rate, on average, up by 97% and 86%. The overall national helmet-wearing compliance rate is about 70%.

6. 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.

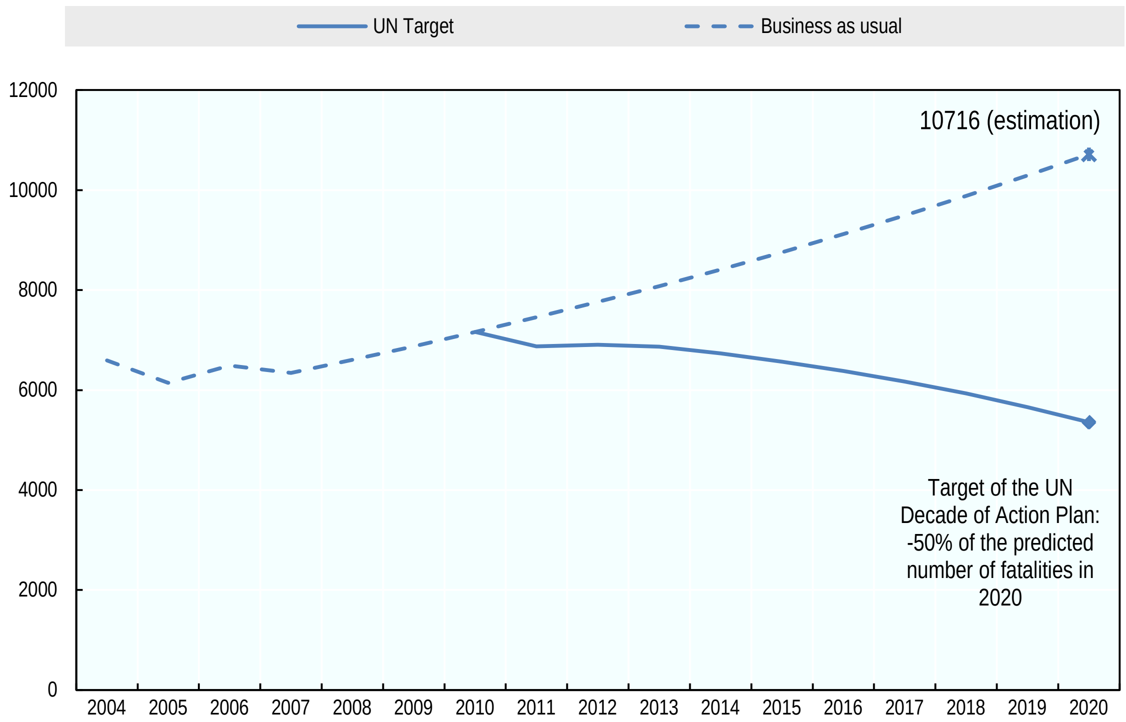
Road safety strategy for 2011-2020

A new road safety strategy is under preparation. The plan is to be launched in 2014 and is aligned with the Global Decade of Action for Road Safety 2011-2020.

Target setting and monitoring

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%.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.

Figure 6. **Trends towards national target**



Source: MIROS

7. Recent safety measures (2011-2013)

Driver behaviour

- Community-Based Programmes (CBP)

A six-month CBP programme was carried out at two precincts in Putrajaya after statistics showed that death among motorcyclists in Putrajaya are high as a result of head injuries due to failure to wear, or improper use of, safety helmets. The programme involved social marketing campaigns, education, and enforcement activities that were carried out among the precinct's residents in order to increase higher compliance with proper helmet wearing. The CBP led to positive results, with high compliance of helmet wearing in the district involved in this programme as compared to the precinct not following the programme (the control group). Results from the survey show that helmet wearing in the district following the programme increased from 70% to 86% among riders, and from 64% to 82% among pillion passengers. (Yusof Ghani, Community-based programme: a potential policy for road safety and injury prevention in Malaysia, The Newsletter of the Road Traffic Injuries Research Network (RTIRN) October –December 2013)

- Automated Enforcement System (AES)

After a lengthy delay, the programme was finally implemented in September 2012. Currently, the AES cameras are able to detect speeding violations and red light running. The programme began with 14 locations during the pilot stage.

The studies reveal that, before the AES cameras were installed, compliance with speed limits on average was 63% on weekdays; this increased to 91% following installation of the cameras. A statistical analysis was conducted which proved that the increase in speed limit compliance is statistically significant at four locations on weekdays, and five locations on weekends. The red light running violation was at 4.3% during the 'before' period, and decreased to 2.2% following installation of the cameras.

Hence, with these general findings from the four studies related to the AES programme, it can be concluded that the AES programme promises positive impact with regard to road user behaviour. In the long term, the programme would be able to reduce fatalities and road crashes related to speeding and red light running[8].

- Concentrated enforcement activity during festival period

There are two major festive periods in Malaysia: Hari Raya and the Chinese New Year (CNY). During these periods city dwellers will travel to their respective hometowns and the volume of traffic on the roads will increase. In order to reduce fatalities at these times, a concentrated effort on enforcement, called Ops Sikap, has been carried out over several years. For 2012, the integrated enforcement approach, called Ops Selamat 1, was conducted over 15 days. The police announced thereafter that this approach had successfully achieved its objectives and targets.

Vehicles

- Day-Running-Light (DRL): This particular initiative was introduced back in the early 1990s in an effort to increase motorcycle conspicuity and subsequently reduce motorcycle crash risks when travelling on roads with other transport modes. Radin Umar (2005) concluded that the running headlights campaign and regulation have been successful in improving motorcycle safety in Malaysia. The study revealed that the odds ratio before the intervention is much higher ($p<0.06$) than the odds ratio after the intervention. The daytime conspicuity-related accidents dropped significantly by about 29% following the intervention, while no significant ($p>0.05$) change was noticed for the non-conspicuity related cases[9].

- New Car Assessment Programme (NCAP): MIROS is the lead agency in ASEAN 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, started in May 2012. This New Car Assessment Programme (NCAP) will award a safety star rating to new cars based on their safety performance in crash tests. This consumer-based programme will assist *consumers to choose a better car based on safety grading. The programme is also supported by Automobile Associations from Malaysia (AAM), the Philippines (AAP) and Singapore (AA Singapore).*

- Safety Star Grading for Bus Operators: The programme complements the implementation of ICOP SHE 2010. It is a consumer-based programme aimed at providing an indicator of the safety performance of bus operators. This initiative would have a positive impact on the modal shift of choice from private to public transport for travelling. The first grading result was announced by the Deputy Minister of Transport. One bus operator received 4 safety stars.

8. Source: Sharifah Allyana Syed Mohamed Rahim (2013) Impact Studies on Automated Enforcement System Implementation, MRR 129, Kuala Lumpur: Malaysian Institute of Road Safety Research.

9. Source : Radin Umar Radin Sohadi, The Value of Daytime Running Headlight Initiatives On Motorcycle Crashes in Malaysia, Transport and Communications Bulletin for Asia and the Pacific No. 74, 2005.

- Performance indicators for periodic technical inspections: PUSPAKOM is the vehicle inspection body introduced by the Ministry of Transport. To ensure the service provided by this body is of good quality and standard, in late 2011 a new set of performance indicators was set. These indicators provide information to benchmark the performance of PUSPAKOM quantitatively, and can be used as a mechanism for continual improvement in achieving the ultimate goals of the organization.

Infrastructure

- Authorised Left Turn: This measure allows vehicles to turn left at the signalised intersection – while the traffic light is red – if the conditions are safe. There are certain criteria for choosing the right signalised intersection for this purpose. This policy was launched in October 2012 by the Kuala Lumpur Municipality. To date, there are 7 intersections with this ATL.

- Policy to Enhance Guardrail Standard: The Malaysian Cabinet decided to enhance guardrail standards, from TL2 to TL3-TL6, for stretches of road running alongside a slope and with a history of accidents.

Other

- ISO 39001: 2012 Road Traffic Safety Management Systems: Malaysia has taken the initiative to begin implementing ISO 39001: 2012 with four organisations, from various industries, as follows:

  a) *Royal Malaysia Police* is the enforcement authority;
  b) *PUSPAKOM Sdn Bhd* is the vehicle inspection body;
  c) *Century Total Logistics Sdn Bhd* handles logistics management;
  d) Shell Malaysia Trading Sdn Bhd is the energy and petrochemical provider.

  This strategy is important in demonstrating the applicability of ISO 39001: 2012 to all organisations who interact with road traffic safety. Training for pilot organisations was completed in April 2013. First and second stages audit was completed in August 2013.

8. Recent and on-going research

- The effectiveness of Road Safety Education (RSE) implementation in secondary schools: Input evaluation using Context, Input, Process and Product (CIPP) model.

- Development of second instrumented car: Enhancement of Instrumented Vehicle, EIVe

- Development of motorcycle lane geometric design using naturalistic data collection approach.

- The cost of property damage due to road accidents in Malaysia.

- Evaluation of the new education curriculum (DEC) in Selangor and Negeri Sembilan: a baseline study.

- Development of pedestrian guidelines outside school areas through the assessment of pedestrian facilities of schools in Malaysia.

- Evaluation of non-exclusive motorcycle lanes in Malaysia: Misuse and non-compliance of facility.

- Safety performance evaluation of egress and ingress of exclusive motorcycle lanes at federal road 2 using traffic conflicts technique.
- Land use activities' characteristics associated with time of road crashes.
- Development of VKT index for commercial vehicles.
- Spatial distribution and adequacy of speed limits signs in Negeri Sembilan.
- Linking hospital and police crash data.
- The effectiveness of crash avoidance technology in Malaysia.
- Effects of tyre age, approval marking & climate exposure on safety performance of after-sales passenger car tyres.
- Prevalent study on rear-end markers in real world crash.
- Compliance of seat-belt wearing among vehicle occupants in selected areas of peninsular Malaysia during Ops Raya 2013.
- Research on fatal and non-fatal motorcycle crashes during Ops Selamat 2/2013, Hari Raya Aidilfitri
- Feasibility of amber position lamp (apl) as supplementary daytime running light (crl) for small engine capacity motorcycle.

Useful websites and references

MIROS – Malaysian Institute of Road Safety Research	www.miros.gov.my
ASEAN New Car Assessment Program	www.aseancap.org
Road Safety Department	www.jkjr.gov.my

Contact

For more information, please contact: allyana@miros.gov.my

Netherlands

Source: IRTAD, SWOV, Ministry of Infrastructure and the Environment

Inhabitants	Vehicles/1 000 inhabitants	Road fatalities in 2012	Fatalities /100 000 inhabitants in 2012
16.7 million	**572**	**650**	**3.9**

Important note:

Statistics in the Netherlands distinguish between reported and real numbers of casualties. The former category covers casualties reported by the police, while real numbers are higher, as they take into account data from sources such as hospitals and death certificates. Any number given in this report concerns the real number, unless “reported” is specified.

1. Road safety data collection

Definitions

- Road fatality: death resulting from a road crash within 30 days after the crash.
- Seriously injured: person admitted to hospital for an injury with a Maximum Abbreviated Injury Score of 2 or more.
- Slightly injured: other injury, not admitted or admitted with a Maximum Abbreviated Injury Score of 1.

Data collection

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 2012, it was observed that the registration rate was 86%[1].

The reporting of road crashes by the police does not meet the requirements set out by SWOV and the Ministry of Infrastructure and the 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 and 2014. Results in terms of more and better reports are not to be expected before 2015, after a full year of operation.

1. For further information, see the SWOV report available at http://www.swov.nl/rapport/R-2014-02A.pdf

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 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. The Netherlands have adopted the new indicator of serious injuries in 2008 using medical information (MAIS2+, complete estimate) and is also able to report on MAIS3+.

Ambulance data are being made available for Traffic Safety research (years 2009-2012). There are different reporting systems and external causes are not always recorded.

At the National Road Safety Congress (NVVC) on 24 April 2014, the Dutch Association of Insurers, the National police and Via.nl launched the STAR Safety Deal. Eleven national stakeholders including all road authorities, insurers and NGO's such as ANWB, VVN and SWOV signed an agreement committing themselves to facilitate accident reporting by road users with the use of a special app and website.

2. Most recent safety data

Road crashes in 2012

In 2012, the number of fatalities was 650, 2% lower than in 2011. The reported number of fatalities was 562 (an increase of 3%), leading to a reporting rate of 86%.

The main highlights of 2012 traffic safety in the Netherlands were the following:

- In 2012, there were 650 road fatalities and approximately 19 200 serious road injuries.
- The number of road fatalities shows a downward trend and has been relatively stable during the past three years.
- The most fatalities by far are counted among drivers of passenger cars and cyclists. In 2012, 36% of the road fatalities were car occupants and 31% were cyclists.
- Compared with the previous three years, in 2012 the number of road fatalities among cyclists increased from an average of 182 to 200 in 2012.
- Over a longer period of time (2009-2012 in comparison with 2005-2008, the past eight years), the number of road fatalities declined for each mode of transport. The decline for cyclists, however, is small.
- The number of serious road injuries has been growing since 2006. Up to and including 2011, an increase that began several years ago can be observed for most modes of transport. Only the number of serious road injuries among occupants of cars and vans registered in the medical registration declined somewhat in 2011 compared with previous years.
- In 2012, the increase in the number of serious road injuries from 2006 to 2011 seems to have come to an end. As yet, the data for 2012 do not provide sufficient insight into whether this positive sign will continue in the years to come.

Provisional data for 2013

Due to a change in the system of Death Causes Statistics during 2013, no preliminary data were available. For unnatural deaths, the system had not yet changed, but delays occurred.

At the time this document was submitted, the number of fatalities for 2013 was announced as 570 (decrease of 12%). The reported number for which full details are available is 476 (decrease 15%) corresponding to a reporting rate of 84% in 2013. The rate of deaths for100 000 inhabitants was 3.4.

3. Trends in traffic and road safety (1990–2012)

Traffic

Between 1990 and 2012, the number of motorised vehicles increased by more than 40% and the overall vehicle kilometres driven by 30%.

Mobility has decreased during recent years, or at least the rate of growth has slowed down.

Since 2000, the share of mobility across the main transport modes has remained almost unchanged (KiM, 2013). In 2012, half of all trips in the Netherlands were made by car, a quarter by bicycle, one in five by foot and one in twenty via public transport. Of the total number of kilometres travelled the car accounts for nearly 75%, public transport for 13% and bicycles for 8%. Approximately half of kilometres travelled is for visits to family or friends and for entertainment or recreational purposes.

From 2000 to 2012, bicyclists travelled 14 per cent more kilometres, with the largest share of this growth by electric bicycles, which have rapidly increased in popularity in recent years (KiM, 2013). The number of kilometres travelled by "regular" bicycles remained almost unchanged compared to population size. This increase in bicycle use applies to all motives for travelling except for shopping. Senior citizens travelled more kilometres by bicycle, which is due to the fact that there are more senior citizens, and that these seniors bicycle more kilometres. The distances per bicycle trip have increased, due to better services offered to cyclists, the expansion of urban areas and the rising popularity of electric bikes. The current estimate is that 5% of Dutch people own electric bikes, and among people aged 60+ that figure is 10%. The e-bike-user group travel twice as many kilometres as those in the same age group who ride regular bicycles.

Change in the number of fatalities and injury crashes (1990-2012)

Between 1990[2] and 2012, the number of fatalities decreased by 56%% (in reported numbers the decrease is 59%). In recent years (2000-2012), the number of fatalities continued to fall, by 44%.

Recent evolution in the number of persons seriously injured (MAIS 3+) show a 7% increase from 2010 to 2011.

Between 1998 and 2007, several road safety measures in the Netherlands contributed to a reduction in the number of fatalities and injury crashes (SWOV, 2009). Some of the major developments include:

- Conversion of 50 km/h roads into 30 km/h in residential areas, and a decrease in the speed limit on 60% of the rural network (excluding state roads) to 60 km/h.
- During the period 1998-2007, more than 2 300 roundabouts were constructed. It is estimated that roundabouts constructed during the years 1999-2005, contributed to save 11 lives in 2007.

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.

- Increased levels of penetration of Electronic Stability Control (ESC) and airbags, which contributed to saving 10 and 32 lives respectively in 2007 in comparison with 1998.
- Increased use of seatbelts, child safety devices and bicycle lighting.
- Decrease in the number of drink driving offenders.

Rates

In 2012, there were 3.9 road fatalities per 100 000 population. Between 1990 and 2012, the mortality rate, expressed in terms of deaths per 100 000 population, fell by 64%.

Table 1a. **Road safety and traffic data**

						2012 % change from		
	1990	2000	2010	2011	2012	*2011*	*2000*	*1990*
Reported safety data								
Fatalities	1 376	1 082	537	546	562	2.9%	-48.1%	-59.2%
Deaths per 100,000 population	9.2	6.8	3.2	3.3	3.4	2.5%	-50.7%	-63.6%
Deaths per 10,000 registered vehicles	2.3	1.4	0.57	0.58	0.59	1.6%	-58.5%	-74.8%
Deaths per billion vehicle kilometres	14.2	9.2	4.1	4.1	4.3	3.6%	-53.8%	-69.8%
Traffic data								
Registered vehicles1 (thousands)	5.911	7.641	9.340	9.452	9.573	1.3%	25.3%	62.0%
Vehicle kilometres (millions)	97 180	117 140	130 760	132 420	131 560	-0.6%	12.3%	35.4%
Registered vehicles per 1 000 population	397	482	563	567	572	0.8%	18.8%	44.2%

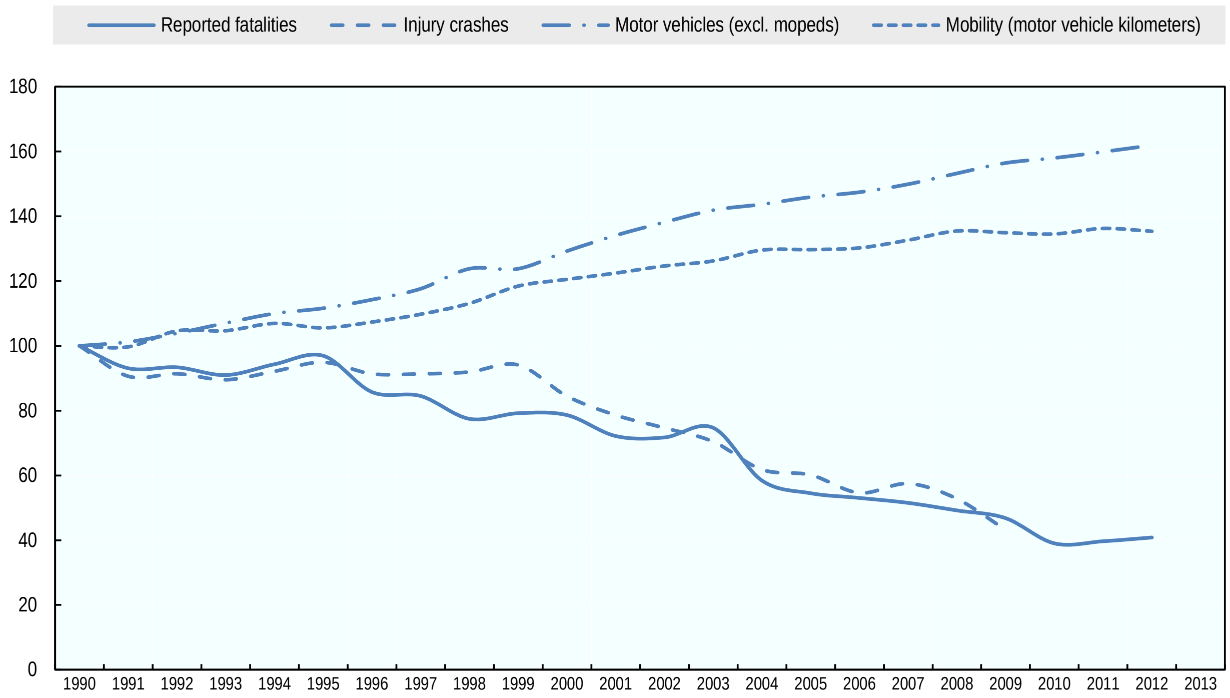
Source: IRTAD

Table 1b. ***Real* number of road fatalities and related rates**
2000-2012

					2012 % change from	
	2000	2010	2011	2012	*2011*	*2000*
Real safety data						
Fatalities	1 166	640	661	650	-1.7%	-44.3%
Injured persons MAIS2+	16 500	19 100	20 100	19 200	-4.5%	16.4%
Injured persons with score MAIS3+	5 220	5 700	6 100			
Deaths per 100 000 population	7.3	3.9	4.0	3.9	-2.5%	-46.6%
Deaths per 10 000 registered vehicles	1.5	0.69	0.70	0.68	-2.9%	-54.7%
Deaths per billion vehicle kilometres	10.0	4.9	5.0	4.9	-1.0%	-50.4%

Source: IRTAD

Figure 1. **Reported road safety and traffic data**



Source: *IRTAD*

Road users

Over the long term all user groups, but especially car occupants, have benefited from safety improvements. Between 1990 and 2012 an annual average reduction of 3.3% was realised. The number of pedestrians and moped riders killed decreased by 53-54%. The number of cyclists killed fell by 34%. The only user group which has seen a moderate reduction is motorcyclists (25%). The number of fatalities among motorcyclists fluctuates with the use of the motorbike.

In the shorter period 2000-2012, an annual reduction of 4.8% 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 43%, while there had been an increase of 23% during the years 1990-2000.

Regarding injuries, many persons are injured in crashes without the involvement of a motor vehicle. While in some countries these victims are not considered as being road traffic victims, their number exceeds the number of seriously injured in crashes with the involvement of motor vehicles.

From the 19 200 persons seriously injured (MAIS2+) in the Netherlands, about half resulted from bicycle crashes (bicycle alone, bicycle-bicycle, bicycle-pedestrian and pedestrian–bicycle). Special attention is now being given to this growing group of injured persons.

Table 2. **Road fatalities by road user group**

	1990* (reported)	2000	2010	2011	2012	2012 % change from 2011	2012 % change from 2000	2012 % change from 1990
Bicyclists	304	233	162	200	200	0.0%	-14.2%	-34.2%
Mopeds	95	104	43	43	44	2.3%	-57.7%	-53.7%
Motorcycles	72	95	63	52	54	3.8%	-43.2%	-25.0%
Passenger car occupants	702	543	246	231	232	0.4%	-57.3%	-67.0%
Pedestrians	144	114	72	74	68	-8.1%	-40.4%	-52.8%
Others incl. unknown	59	77	54	61	52	-14.8%	-32.5%	-11.9%
Total	1 376	1 166	640	661	650	-1.7%	-44.3%	-52.8%

Source: SWOV, CBS

Age

The number of fatalities varies with age. Inexperienced riders and drivers are killed more often in traffic, as are vulnerable road users. 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 almost two-thirds, from 68 in 1996 to 25 in 2012.

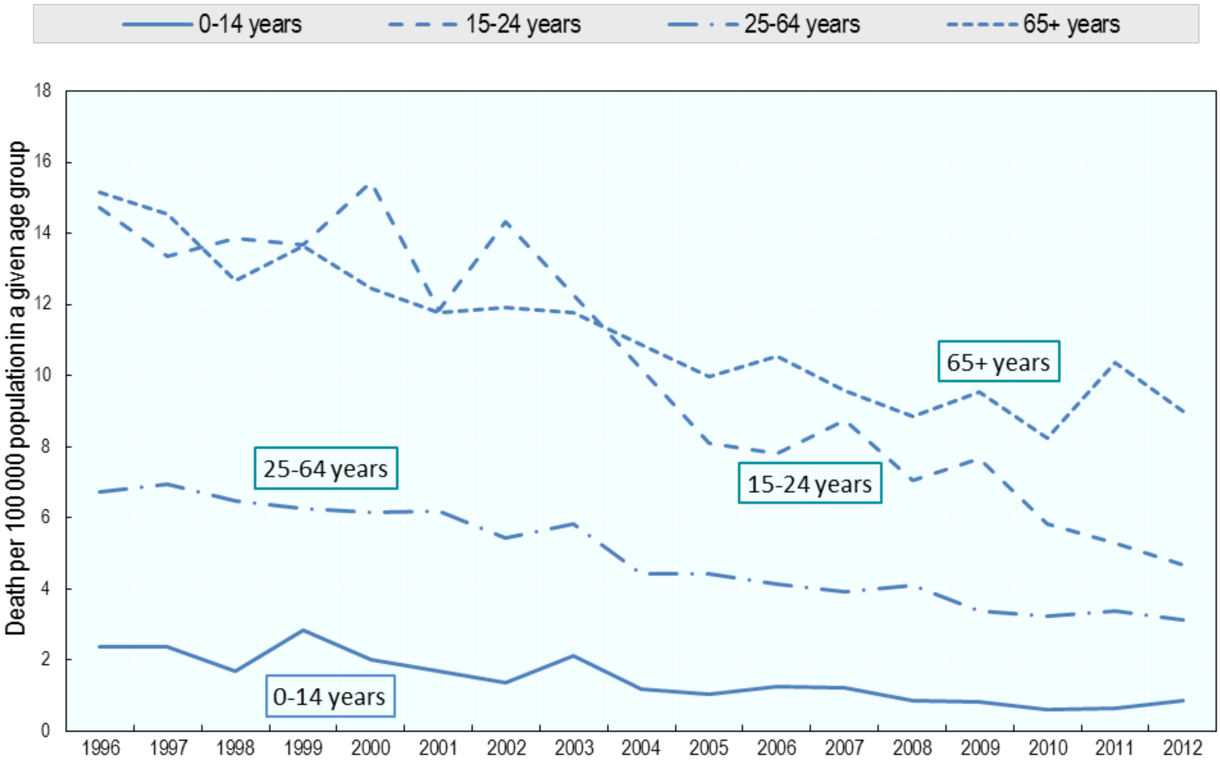
The distribution of casualties across different age groups does not match the composition of the population in the Netherlands. Children aged 0-14 constitute 17% of the total population, but account for only 3% of the total number of fatalities. This is probably due to the limited mobility of this group as well as to some specific safety measures (safer protection devices, safer school environments). For the elderly, the opposite applies: the percentage of fatalities among those aged 65 and above 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 3. **Road fatalities by age group**

Age	1990* (reported)	2000	2010	2011	2012	2012 % change from... 2011	2000	1990
0-5	22	17	4	7	8	14.3%	-52.9%	-63.6%
6-9	28	15	5	1	5	n.a.	-66.7%	-82.1%
10-14	50	27	9	11	12	9.1%	-55.6%	-76.0%
15-17	81	57	20	19	15	-21.1%	-73.7%	-81.5%
18-20	129	119	46	45	32	-28.9%	-73.1%	-75.2%
21-24	152	115	52	44	49	11.4%	-57.4%	-67.8%
25-64	607	548	295	265	285	7.5%	-48.0%	-53.0%
>65	307	268	209	269	244	-9.3%	-9.0%	-20.5%
Total incl. Unknown	*1 376*	*1 166*	*640*	*661*	*650*	-1.7%	-44.3%	-52.8%

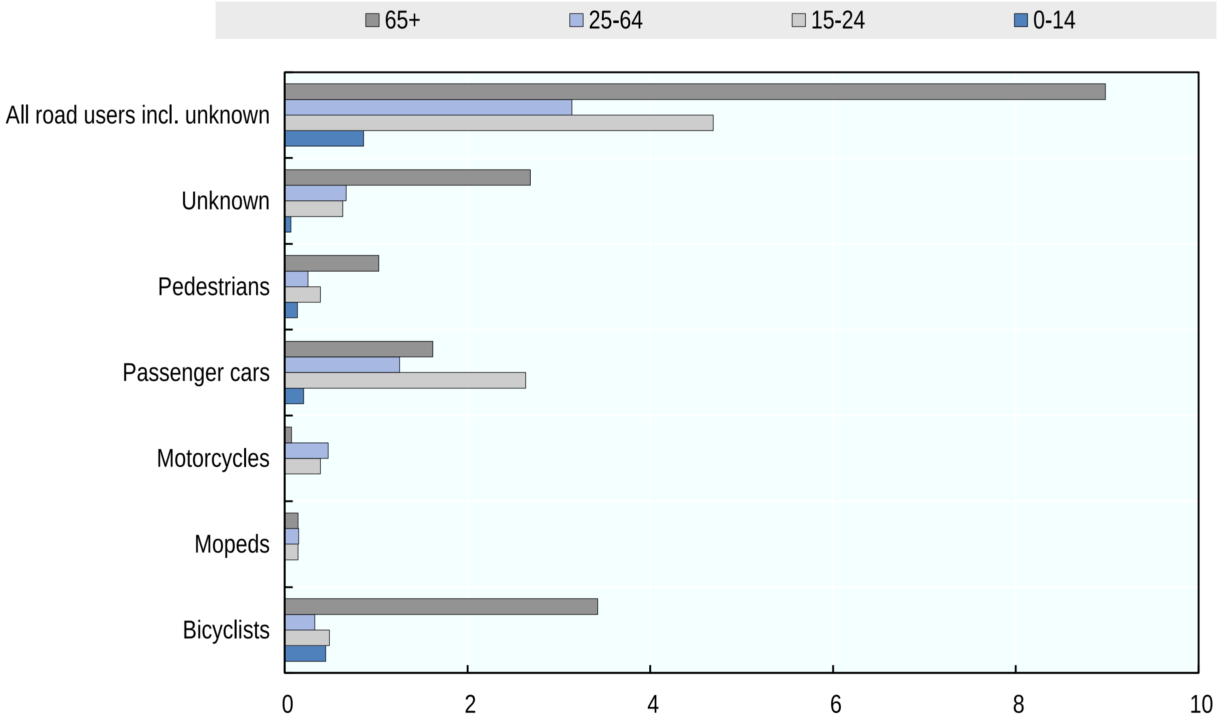
Source: SWOV, CBS.

Figure 2. **Road death rates by age group**
Fatalities per 100 000 population in a given age group, 1996-2012



Source: IRTAD

Figure 3. **Road death rate by age and road user group 2012**
Fatalities per 100 000 population

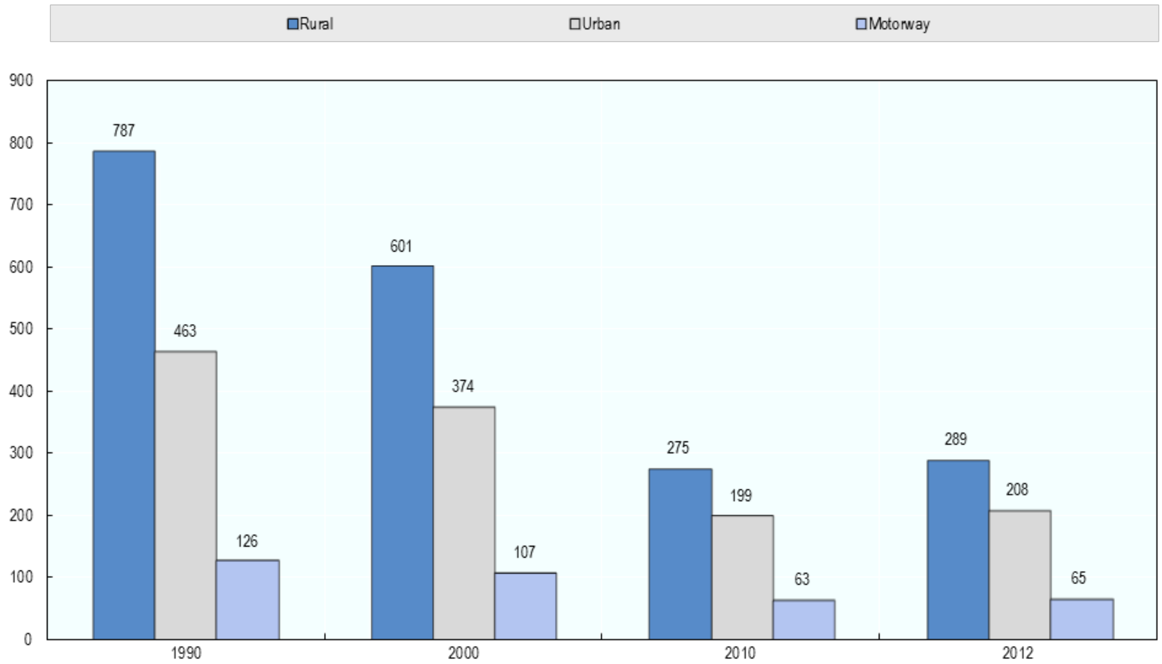


Source: SWOV, CBS.

Road Type

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



Source: IRTAD

4. Economic costs of traffic crashes

Traffic crashes represent a very significant cost for society, estimated in 2009 at around EUR 12.5 billion, i.e. 2.2% of GDP (SWOV, 2014). This includes immaterial costs[3].

The following six categories have been included to estimate this amount: medical costs, production loss, loss of quality of life (based on a willingness-to-pay method), property damage, settlement costs and congestion costs.

Table 4. **Costs of road crashes**
2009

Costs (EUR billion)	Unit Cost	Total
Fatalities		1.9
Injury and disability		6.9
Property / damage costs		4.3
Total (EUR)		13.1
Total as % of GDP		2.2%

Source: SWOV

3. See more information at : http://www.swov.nl/rapport/Factsheets/UK/FS_Costs.pdf

5. Recent trends in road user behaviour

Impaired driving

Drink 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).

Alcohol related fatalities are defined according to the SafetyNet definition: Any death occurring within 30 days as a result of a fatal road crash in which any active participant was found with a blood alcohol level above the legal limit.

In the Netherlands, testing of a deceased person for recent use of psychoactive substances is prohibited. Police registration regarding psychoactive substance use by seriously injured road users is not reliable. Regional hospital studies found that in the period 2000-2004, 28.2% of seriously injured drivers had a BAC of 0.5 g/l, and in the period 2007-2009 this percentage was the same at 28.0%.

The national roadside survey on alcohol use in traffic found that the proportion of drink drivers on weekend nights, between 22.00 and 04.00, dropped between 2008 and 2011. It is not known, though, to what extent the decrease in the proportion of alcohol offenders in the past years is due to less drinking and driving, or to other factors, such as better avoidance of alcohol enforcement activities because of increased use of social media, or a shift of drink driving to later hours of the night.

Drugs and driving

Drug driving legislation is in preparation in the Netherlands. The proposed legislation contains impairment limits for single use of different types of illicit drugs. Furthermore, zero tolerance limits are proposed for combined use of drug-drug and drug-alcohol. It is not yet known when this legislation will become effective.

Results of hospital studies show that approximately 10% of the seriously injured drivers were positive for illicit drugs. As for alcohol, drug testing on a deceased person is prohibited in Dutch legislation.

Distraction

Holding a phone while driving has been illegal in the Netherlands since April 2002. 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. In a large-scale Dutch national traffic survey in 2011 among more than 11 000 Dutch road users, 70% of car drivers reported never using a handheld phone while driving, 28% reported doing so sometimes and 1% reported doing so frequently. In 2011, slightly more than 100 000 Dutch drivers were fined for handheld phone use while driving, and in 2012 slightly more than 64 000 drivers. In 2012, the fine for handheld phone use while driving was increased to EUR 220, from EUR 180 in 2011.

Phone use in the Netherlands is estimated to have contributed to 3-4% of bicycle crashes involving injuries. This excludes listening to music.

Fatigue

A SWOV survey on driver fatigue in 2010[4] found that about 4% of Dutch car drivers had fallen asleep behind the wheel in the past year. If one also include those drivers who reported having “almost fallen asleep” during the past year, this share raises to 10% of the drivers. In most cases this (almost) falling asleep did not lead to a crash. After waking up, almost 2% of the respondents could prevent a crash by braking or swerving. During the past year, 0.5% of Dutch car drivers were involved in at least one crash after having fallen asleep while driving.

Speed

The introduction of new road types as part of the Start-Up Programme for Sustainable Road Safety (1997) has reduced the speed limits on many roads. In 1998, 15% of urban roads had speed limits of 30 km/h or less. As a result of the conversion of 50 km/h roads into 30 km/h in residential areas, 70% of urban roads had limits of 30 km/h or less in 2008. A similar development took place on rural roads (excluding state roads): in 1998, 3% of rural roads had a limit of 60 km/h. By 2008, the percentage had risen to 60%. These infrastructure developments have reduced driving speeds on these roads substantially.

On motorways, environmental measures to reduce emissions and noise 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 about half of motorways (except on motorways with lower limits due to environmental concerns). There is as yet no data on the effects of this measure.

The table below summarises the main speed limits in the Netherlands.

Table 5. **Passenger car speed limits by road type**
2014

	General speed limit Passenger cars	Comments
Urban roads	50 km/h	
Rural roads	80 km/h	
Motorways	130 km/h	Since September 2012, the general speed limit on motorways was increased from 120 to 130 km/h

Source: SWOV

Seatbelts and helmets

Seatbelt use has been compulsory in front seats since 1975 and in rear seats since 1992. At the last national seat belt measurement in the Netherlands in 2010, the rate of seatbelt use was above 95% in front and rear seats in passenger cars. For vans (87%) and trucks, the rate of use was lower. No new seatbelt measurements have been performed since 2010.

4. See https://www.swov.nl/rapport/R-2011-04.pdf

In 2004, SWOV estimated that about 30 fatalities were saved annually between 1994-2001 as a result of increased seat-belt wearing rates due to intensified enforcement and national campaigns. For a later period (2003-2007), DVS estimated that in total 55 fatalities were saved as a result of increased wearing rates.

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

	1990	*2000*	*2010*
Front seats			
General		79%	97%
Urban roads (driver)	59%	74%	96%
Rural roads (driver)	78%[5]	86%	97%
Rear seats			
General	19%	32%	82%

Source: IRTAD

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 light mopeds (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 light moped riders, wore helmets. The use of moped helmets by passengers increased; in 2008, 86% wore them. There has been no national monitoring of helmet wearing after 2008.

6. National road safety strategies and targets

Organisation of road safety

In the Netherlands, the Ministry of Infrastructure and the Environment (Directorate General Mobility – Roads and Traffic Safety section) is the central 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,); 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.

5. 1991.

- Compilation and dissemination of national statistics (in a joint role with Rijkswaterstaat WVL as a department of the central 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 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[6] (in Dutch).

The Policy Stimulus Road Safety Initiative contains extra measures aimed at road safety improvement for cyclists, elderly road users, infrastructure, and road users in general. Regarding cycling safety, the initiative includes a “Local approach towards safe cycling”, requiring Dutch municipalities to make a survey of the road safety bottlenecks for cyclists and to make plans for improvement containing behavioural measures as well as infrastructural measures. The Policy Stimulus Road Safety initiatives that focus on the *over-60s* are part of the “Blijf Veilig Mobiel”’ (Stay Mobile Safely) programme. Within this programme 10 national organisations cooperate to assist the elderly in remaining fit and mobile longer. Concerning road infrastructure, the application of the new guidelines “Basic features road design” and the EuroRAP rating by the Royal Dutch Touring Club ANWB are expected to contribute to safer infrastructure. The above evaluation has now led to a Model Approach for Safe Cycling (in Dutch). The policy impulse is being monitored in a baseline measurement.

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. Without additional safety measures it will be very difficult to achieve the target for the serious road injuries.

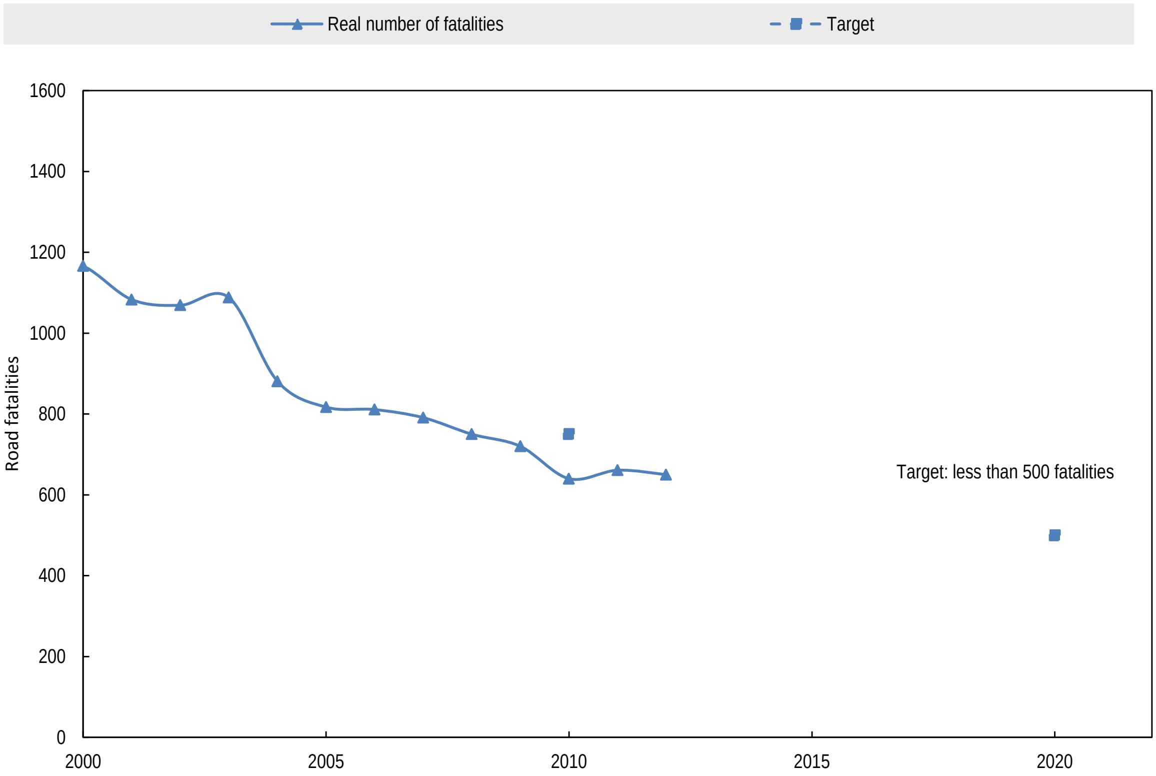
Monitoring

The plan is assessed every four years for topicality and adapted if necessary. As an aid in this four-yearly assessment, SWOV has made prognoses about the numbers of fatalities and serious road

6. http://www.rijksoverheid.nl/documenten-en-publicaties/kamerstukken/2012/09/21/beleidsimpuls-verkeersveiligheid.html

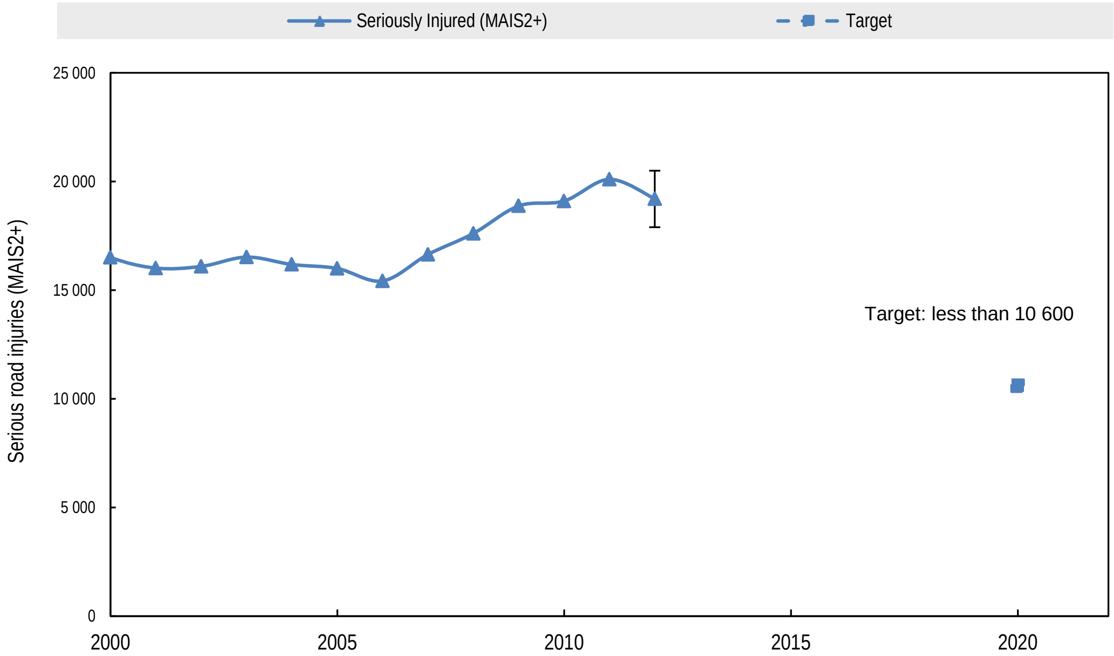
injuries that are to be expected in 2020. While making the prognoses, SWOV checked whether the starting points for the SPV were still applicable and how the implementation of intended SPV measures is being carried out. Updating the strategy is a collective process, see http://www.strategiedagverkeersveiligheid.nl/.

Figure 5a. **Trends in road fatalities towards national target**



Source: SWOV

Figure 5b. **Trends in seriously injured road users towards national target**



Source: SWOV

Evaluation of past road safety strategy

In 2009, SWOV published a report that reviewed the total road safety strategy in the period 1998-2007 (SWOV, 2009). At present this is the most comprehensive review of the effectiveness of the national road safety strategy and its underlying measures in the Netherlands.

7. Recent safety measures (2011-2013)

Road safety management

- Following the EU Directive 2008/96 on Road Infrastructure Safety Management (EU 2011), the programmes for thee Road Safety Audit (RSA), Road Safety Inspection (RSI), and Network Safety Ranking (accident ‘hotspot’ management) (NSM) are now fully implemented;
- Mandatory inquiries into fatal accidents on the Trans European Transport Network (TEN) are now effective as per Jan 1, 2014.

Driver behaviour

Speed management

- The new limit of 130km/h on motorways was introduced in September 2012 on 60% of the motorway network. On 1/3 of this length the limit is dynamic, i.e. 130 km/h limit only during evening/night. On roads where Environment and/or Safety do not allow an increase of the limit, the 120 km/h limit was maintained. First analyses show hardly any change in safety compared to the previous speed limit. See www.rws.nl/actueel/verhoging_maximumsnelheid
- There is now a discussion about progressive sanctions for frequent (speed) offenders.

Impaired driving

- Drug testing: Since 2012, police can proceed with a saliva test to identify the presence of amphetamines, methamphetamines, XTC, THC, cocaine, morphine and GHB. After a positive saliva test, a blood test is undertaken 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%-1.8% BAC or more. The system prevents the car from starting in cases where the driver exhales more than 0.2% of alcohol.

Education and licensing

- A six-year trial of accompanied driving “2toDrive” started in 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. SWOV is conducting an extensive evaluation study into the effects of 2toDrive. Preliminary results are available at: *http://www.swov.nl/rapport/R-2013-09.pdf*
- On 1 March 2010, the moped riding test (BPE) was introduced to increase the safety of (light) moped riders and microcar drivers. The BPE consists of two types of tests: 1. the ‘AM2 test’ for (light) moped riders, testing traffic behaviour, and 2. the ‘AM4 test’ for microcar drivers, testing vehicle skills on a closed circuit. After the BPE was introduced, there was a positive development of the number of serious road injuries among (light) moped riders. The number of 15-17 year old (light) moped casualties showed a relatively rapid, although not statistically significant, decline. The number of 18-24 year old casualties, on the other hand, increased. Evaluation indicated that the decline in the number of young moped riders following the introduction of the measure, played a role in these findings. Over the period 2009-2011, moped ownership among 15-17 year-olds declined considerably, whereas moped ownership among 18-24 year-olds increased.
- The licensing for driving tractors will be adapted. The category T will be introduced after 2015, replacing the T-certificate. This concerns agricultural and forestry tractors and motor vehicles with a limited speed. Anticipating the license, the theoretical and practical examinations to obtain the T certificate already pay more attention to driving on the public road and to road safety.

Road safety campaigns

- The following campaigns were undertaken in 2013:
  - Keeping attention to the driving task: social media and traffic do not mix.
  - Risk of speeding in urban areas.
  - Visibility of vulnerable road users.

Cycling safety

- The Policy Stimulus Road Safety Initiative contains extra measures aimed at road safety improvement for cyclists, elderly road users, infrastructure, and road users in general. The most extensive of all the Policy Stimulus initiatives aimed at cyclists is probably the so-called "Local approach towards safe cycling". This requires Dutch municipalities to make a survey of the road safety bottlenecks for cyclists and to make plans for improvement containing behavioural measures as well as infrastructural measures.
- Research: A lot of attention goes to cycling, including In-Depth research (results early 2014), Naturalistic Cycling and e-bikes. National Research Agenda Cycling

Infrastructure

- Since June 2013, public lighting on some motorways is switched off between 23:00 and 05:00. This saves costs, energy consumption and pollution to the environment. At the busiest times of the day the light will remain on. The same applies in places where it is necessary for road safety, such as in tunnels or sharp bends.

8. Recent and on-going research

Relevant publications:

- *Sustainable Safety, also for serious road injuries* (SWOV, 2013);
- *Safety requirements for the cross sectional profile of distributor roads with an 80 km/h speed limit. Recommendations for the update of the Handbook Road Design* (SWOV, 2013);
- *The relation between the end date of daylight saving time and the number of road traffic casualties;Is there an increase in the number of traffic casualties when the clock is set back one hour?* (SWOV, 2013);
- *Accompanied driving: who participated in 2toDrive and why? A questionnaire study among 16 and 17-year-olds in the Netherlands* (SWOV, 2013);
- *From bicycle crashes to measures Brief overview of what we know and do not know (yet)* (SWOV, 2013);
- *Why do the development of the number of serious road injuries and the development of the number of road fatalities differ?* (SWOV, 2012) R-2012-9;

PhD research

- Henk Stipdonk *"Road safety in bits and pieces"*. Analyzing the number of road fatalities: do not look at the total number, but at the composite parts.

  The present manner of analyzing road safety developments – i.e. based on the total number of road fatalities and the total fatality rate – is insufficient to achieve a thorough understanding of these developments. It is better to divide the total number of road fatalities into subgroups and to investigate for each individual subgroup which factors influenced road safety.
- Paul Schepers (2013) *"A safer road environment for cyclists".*

- Sjoerd Houwing (2013) *“Estimating the risk of driving under the influence of psychoactive substances”.*
- Bertus Fortuijn (2013) *“Turborotonde en turboplein: ontwerp, capaciteit en veiligheid”.*
- Ayça Berfu (2013) *“Please Don’t Stop the Music…”The Influence of Music and Radio on Cognitive Processes, Arousal and Driving Performance. Thesis University Groningen.*

SWOV 100+ Fact sheets (new or major update or updated fact sheets are listed below):

- Road safety aspects of agricultural traffic
- Senior cyclists
- Use of media devices by cyclists and pedestrians
- What are the risks of cycling during darkness?
- Road fatalities in the Netherlands
- Serious road injuries in the Netherlands
- Distraction in traffic
- Daytime running lights (DRL)
- Penalties in traffic
- Speed cameras: how they work and what effect they have
- Mass-media information campaigns about road safety
- International perspective
- Road safety policy of the European Union
- Network Management and Sustainable Safety
- Risk in traffic
- SWOV Fact sheet Edge strips on rural access roads

Useful websites and references

Road Safety Strategic Plan 2008-2020	Road Safety Strategy 2008-2020: http://english.verkeerenwaterstaat.nl/english/Images/strategischplan-E_tcm249-249506.pdf Action program 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
PhD research	http://www.swov.nl/UK/Research/Dissertaties.htm
SWOV fact sheets	http://www.swov.nl/UK/Research/factsheets.htm
SWOV Knowledge base data	http://www.swov.nl/UK/Research/Cijfers/Cijfers-UK.htm
SWOV Library portal	http://library.swov.nl/

References:

- KiM (2013). Mobiliteitsbalans 2013. KiM Netherlands Institute for Transport Policy Analysis, The Hague.
- SWOV (2009). Ten years of Sustainable Safety; Road safety assessment 1998-2007.
- SWOV (2013) Evaluation of the moped riding test; Effectiveness concerning road safety of the moped riding test and preparatory theory lessons. R-2013-06.
- SWOV (2014). The costs of road crashes in international perspective. R-2014-06.

Contact

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New Zealand

Source: IRTAD, Ministry of Transport

Inhabitants	Vehicles/1 000 inhabitants	Road fatalities in 2012	Fatalities /100 000 inhabitants in 2012
4.5 million	**728**	**308**	**6.9**

1. Road safety data collection

Definitions

- Road fatality: any person killed immediately or dying 30 days as a result of a road crash
- Serious injuries:
    - In police record: Fractures, concussion, internal injuries, crushings, severe cuts and lacerations, severe general shock necessitating medical treatment, and any other injury involving removal to and detention in hospital
    - In the Injury prevention strategy: injury that results in death or admission to hospital associated with at least a 6% chance of death[1].
- Minor injuries: Injuries of minor nature such as sprains and bruises.

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 6.9% chance of death. This estimation is based on an analysis of survival rates for specific diagnoses in the ICD-10 coding scheme.

More detail on crash data collection and analysis is described in the report by Statistics New Zealand *Serious injury Outcome Indicators – Technical Report*

[1] http://www.stats.govt.nz/browse_for_stats/health/injuries/serious-injury-outcome-tech-report.aspx

2. Most recent safety data

Road crashes in 2012

In 2012, the number of road fatalities increased by 8.5% and the number of injury crashes decreased by 2.0% from 2011. This increase in road fatalities needs to be analysed in the light of the very good results of 2011 results (-24% in road fatalities).

Easter 2012 was the first recorded holiday period in New Zealand with no road fatalities.

New provisions came into effect that allowed the courts to give an alcohol interlock disqualification, for repeat drink-drive offenders and first time offenders convicted of driving with blood alcohol levels double the current adult limit. In addition, a three year zero alcohol licence was introduced for certain repeat drink-drive offenders who were required to obtain it after their disqualification or other sanction ends. During the three year term of this licence the holder is subject to a zero alcohol limit.

Give way rules at intersections were changed to make them safer and the driving test was made more difficult.

Provisional data for 2013

Provisional data for the year 2013 show another significant reduction in fatalities (-18%).

2013 saw the lowest road toll since 1952. Legislation came into effect that increased the mandatory requirement for child restraint use to child passengers aged up to seven years of age. The lowering of the blood alcohol limit to 50 mg per litre of blood (from 80mg) was announced to come into effect in 2014/2015. A new road safety campaign called “Drive Social” was begun that reminded people of their responsibilities both to themselves and to others on the road.

3. Trends in traffic and road safety (1990- 2013)

Traffic

Between 1990 and 2012, the number of motorised vehicles increased by 46.8%. Since 2000, the number of registered vehicles increased by 24% and the overall vehicle kilometres driven by 18%. However, since 2007, there has been a marked slowdown in the development of road traffic.

Provisional figures for the first half of 2013 indicate only a small growth in overall traffic volumes compared to the previous year.

Change in the number of fatalities and injury crashes (1990-2012)

Between 1990 and 2012, the number of fatalities decreased by 57.8%. More recently (2000-2012) the number of fatalities continued to fall, by 33%. 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. The number of injury crashes has decreased over the last 5 years.

In 1993, road safety policy development was separated from delivery with the creation of a new entity called the Land Transport Safety Authority, now called the NZ Transport Agency. Around the same time, traffic policing was merged into the NZ Police.

We have made substantial changes to land transport policy since 1990 aimed at continuing the reduction in road trauma. For example, a graduated driving licence system and a photo licence were introduced. We have brought in compulsory breath testing, speed cameras, new drug driving laws; increased penalties for serious offending, and increased the driving age. The development and subsequent implementation of a road safety strategy called “Safer Journeys” taking a safe system approach has been a major change in the way we progress road safety.

Rates

Between 1990 and 2012, the mortality rate, expressed in terms of deaths per 100 000 population, decreased by 67.5%. In 2012, it was at 6.9.

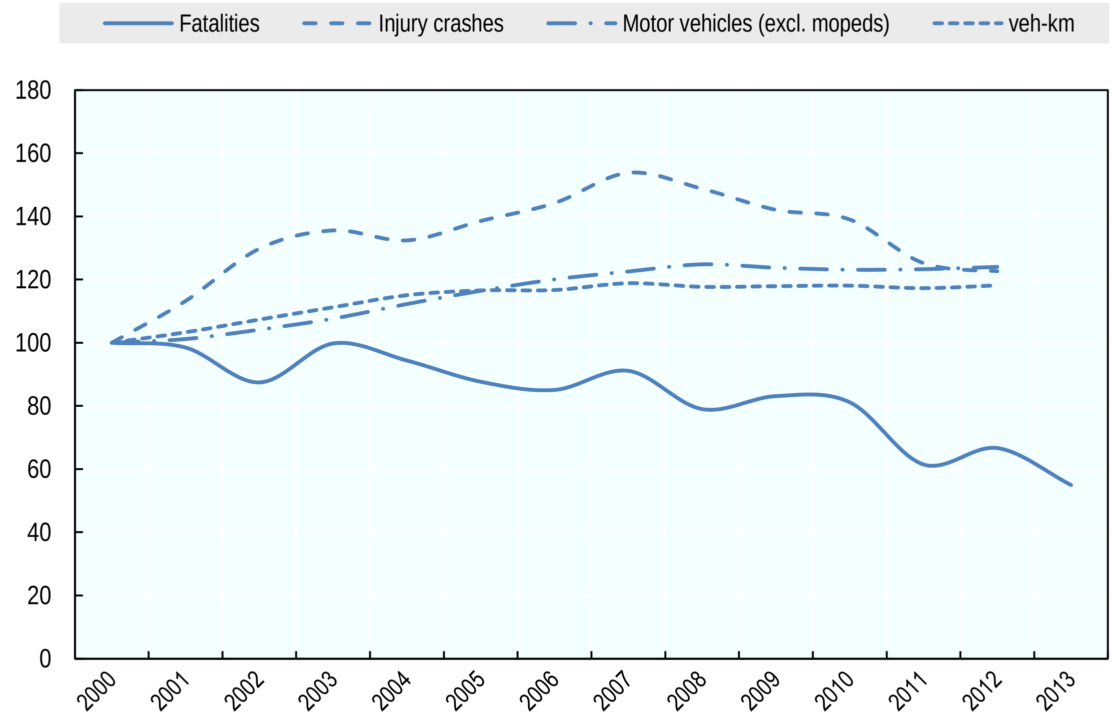
Table 1. **Road safety and traffic data**

						2012 % change from		
	1990	2000	2010	2011	2012	*2011*	*2000*	*1990*
Reported safety data								
Fatalities	729	462	375	284	308	8.5%	-33.3%	-57.8%
Injury crashes	12 818	7 830	10 886	9 804	9 604	-2.0%	22.7%	-25.1%
Injured persons hospitalised	8 578	5 884						
Deaths per 100,000 population	21.4	12.0	8.6	6.4	6.9	7.8%	-42.0%	-67.5%
Deaths per 10,000 registered vehicles	3.3	1.8	1.2	0.9	1.0	7.8%	-46.2%	-71.2%
Deaths per billion vehicle kilometres		13.6	9.4	7.2	7.7	7.6%	-43.6%	
Traffic data								
Registered vehicles[2] (thousands)	2 198	2 602	3 204	3 208	3 227	0.6%	24.0%	46.8%
Vehicle kilometres (millions)		33 856	39 980	39 708	40 012	0.8%	18.2%	
Registered vehicles per 1,000 population)	644.6	674.5	733.4	728.3	727.9	-0.1%	7.9%	12.9%

Source: IRTAD

2. Registered vehicles excluding mopeds.

Figure 1. **Road safety and traffic data**



Source: IRTAD

Road users

All user groups, but especially vulnerable road users, have benefited from the improvement. Between 1990 and 2012, the number of cyclists killed decreased by 70%, and the number of pedestrians killed by 68%. For the latter group most of the gains were achieved between 1990 and 2000.

In 2000-2012, all user groups – except motorcyclists – benefited from a decrease in the number of fatalities. The number of motorcyclists killed increased by 60% compared to 2000; in particular in the year 2012 only the number of motorcyclists killed increased by 54.8%.

Table 2. **Road fatalities by road user group**

	1990	2000	2010	2011	2012	2012 % change from *2011*	*2000*	*1990*
Bicyclists	27	19	10	9	8	n.a	-57.9%	-70.4%
Mopeds	0	1	0	2	2	n.a	n.a	n.a.
Motorcycles	114	30	50	31	48	54.8%	60.0%	-57.9%
Passenger car occupants	465	358	259	199	205	3.0%	-42.7%	-55.9%
Pedestrians	104	35	35	31	33	6.5%	-5.7%	-68.3%
Others incl. unknown	19	19	21	12	12	0.0%	-36.8%	-36.8%
Total	*729*	*462*	*375*	*284*	*308*	*8.5%*	*-33.3%*	*-57.8%*

Source: IRTAD

Age

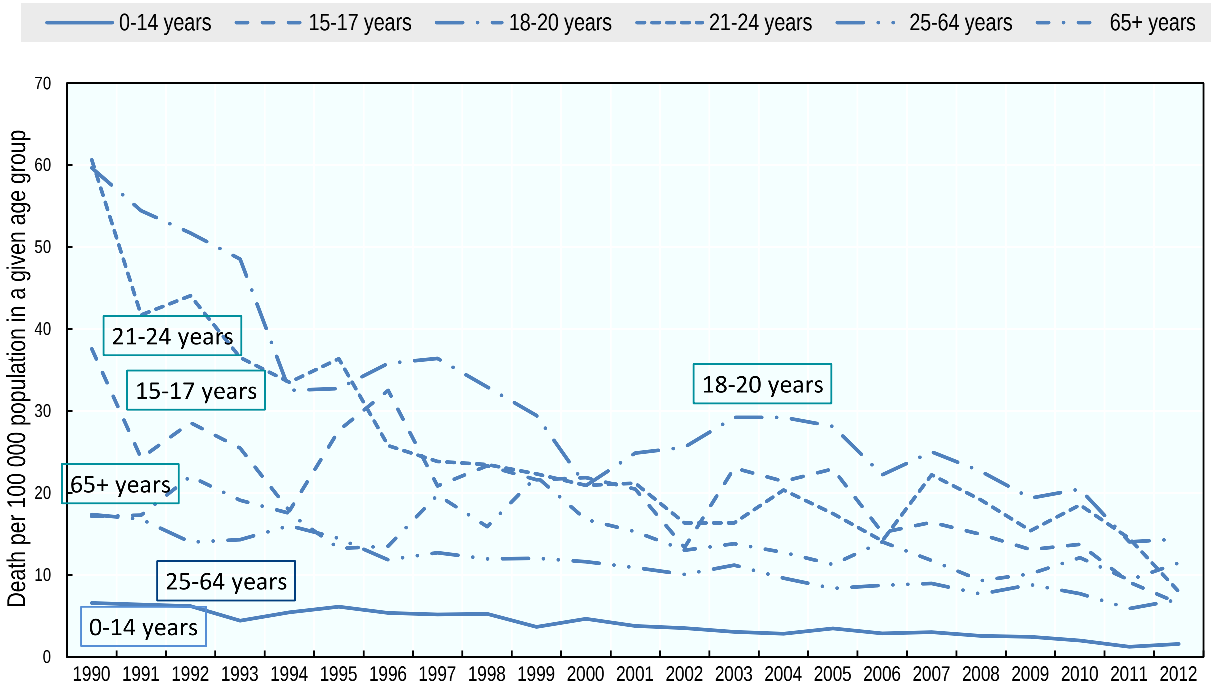
Since 1990, the reduction in fatalities has benefited all age groups, but the elderly has a fatality decrease much smaller than the other age groups. The elderly are particularly vulnerable as pedestrians.

Table 3. **Road fatalities by age group**

Age	1990	2000	2010	2011	2012	2012 % change from... *2011*	*2000*	*1990*
0-5	18	16	9	3	6	n.a	-62.5%	-66.7%
6-9	17	9	1	1	3	n.a	-66.7%	-82.4%
10-14	17	16	8	7	5	n.a	-68.8%	-70.6%
15-17	65	36	26	17	12	-29.4%	-66.7%	-81.5%
18-20	108	34	41	28	28	0.0%	-17.6%	-74.1%
21-24	131	42	46	37	21	-43.2%	-50.0%	-84.0%
25-64	290	232	175	135	160	18.5%	-31.0%	-44.8%
>65	65	76	69	55	70	27.3%	-7.9%	7.7%
Total incl. unknown	*729*	*462*	*375*	*284*	*308*	*8.5%*	*-33.3%*	*-57.8%*

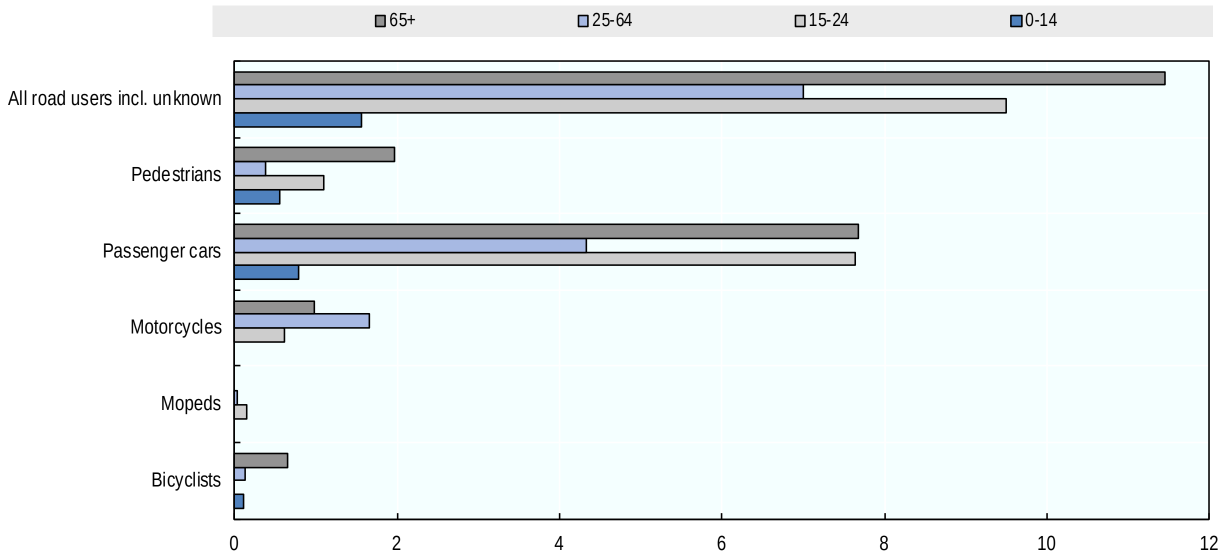
Source: IRTAD

Figure 2. **Road death rates by age group**
Fatalities per 100 000 population in a given age group, 1990-2012



Source: IRTAD

Figure 3. **Road death rate by age and road user group**
Fatalities per 100 000 population

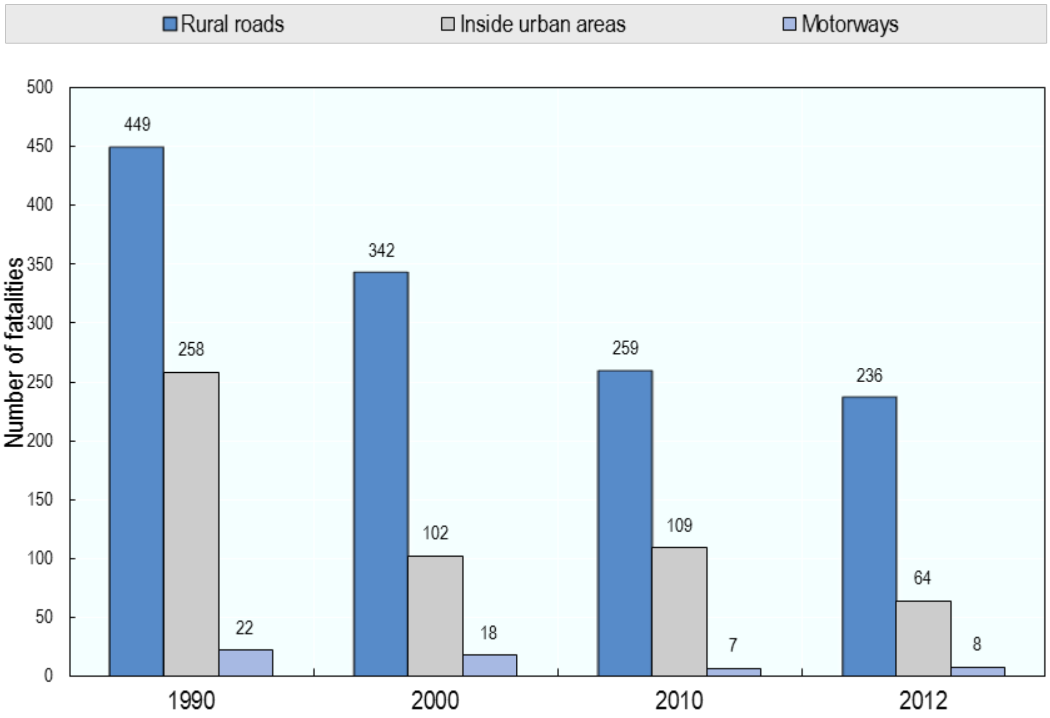


Source: IRTAD

Road Type

In 2012, the large majority (77%) of fatalities 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.

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



Source: IRTAD

4. Economic costs of traffic crashes

The social cost of a road crash or a road injury is defined as the total cost that occurs as a result of the road crash or injury. Its value depends on the number of cost components estimated and the estimation methods adopted. In New Zealand, the social cost of a road crash or a road injury includes the following components:

- loss of life and life quality
- loss of output due to temporary incapacitation
- medical costs
- legal costs
- vehicle damage costs

These social cost components are either measurable or can be estimated in dollar terms. A "willingness-to-pay" valuation technique is used to express pain and suffering from loss of life or life

quality in dollar terms (i.e. the willingness-to-pay based value of statistical life or VOSL). Various methodologies have been developed to estimate the value of other social cost components. Full information is provided at:
http://www.transport.govt.nz/assets/Uploads/Research/Documents/Social-Cost-of-Road-Crashes-and-Injuries-June-2013-update.pdf

The total social cost of all motor vehicle crashes is estimated at NZD 3.84 billion: NZD 3.29 billion for motor vehicle injury crashes and NZD 0.55 billion for non-injury crashes (i.e. property damage costs).

Table 4. **Costs of road crashes, 2012**

Costs	Unit Cost	Total
Fatalities	NZD 3 879 000	
Seriously injured persons	NZD 694 000	
Slightly injured persons	NZD 66 000	
Non-injury crashes – vehicle damage	NZD 2800	
Total		NZD 3.84 billion *(USD 3.33 billion)*
Total as % of GDP		2.4%

Source: Ministry of Transport (2013), *The social cost of road crashes and injuries, 2013 update*

5. Recent trends in road user behaviour

Impaired driving

Drink driving

The maximum authorised BAC is currently 0.8 g/l for drivers aged 20 and over. A 0.5 g/l limit will be submitted to Parliament in 2014. 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 (BAC above 0.8 g/l).

Drivers killed with excess alcohol	2005	2010	2011	2012
Number	58	68	48	35
Percentage	25%	30%	26%	27%

Road deaths in alcohol related crashes are defined as any death occurring within 30 days as a result of a fatal road crash in which any motor vehicle driver was found with a blood alcohol level above the legal limit, or, for cases where no blood alcohol level is available, where the reporting officer suspected alcohol was a contributing factor.

Road deaths in alcohol related crashes	2000	2005	2010	2011	2012
Number of deaths in alcohol crashes	103	106	119	76	93
Proportion of total road traffic deaths	22%	26%	32%	27%	30%

Drugs and driving

Drugs related crashes include crashes where the reporting officer suspected drug use was a contributing factor based on the crash investigation. In 2012, there were 19 road deaths (6%) for which the presence of drugs was found.

Road deaths with drugs	2000	2005	2010	2011	2012
Number with alcohol and drugs	4	14	9	3	10
Number with drugs no alcohol	6	9	25	11	9
Total number with drugs	10	23	34	14	19
Proportion of total road deaths	2%	6%	9%	5%	6%

Distraction

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. Based on police records, fatal crashes due to the use of cell phone are not very frequent

Deaths in crashes where cell phone use was a contributing factor

	2000	2005	2010	2011	2012
Deaths with cell phone	2	10	6	7	3

Fatigue

In 2012, fatigue was identified as a contributing factor for 15% of the road deaths.

	2000	2005	2010	2011	2012
Deaths with fatigue	70	51	56	32	46
Percent of deaths with fatigue	15	13	15	11	15

Speed

The tables below illustrate the main speed limits in New Zealand and the percentage of drivers above the speed limit. 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 56%), which is worrying for ensuring the safety of vulnerable road users in these areas.

Table 4a. **Passenger car speed limits by road type, 2014**

	General speed limit	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	

Source: IRTAD

Table 4b. **Percentage of drivers above the posted speed limit**

Speed (survey unimpeded speeds)	2005	2010	2011	2012	2013
% exceeding open road 100 km/h limit	36%	29%	31%	25%	25%
% exceeding urban 50 km/h limit	63%	58%	59%	53%	56%

Source: Ministry of Transport

Table 4c. **Deaths in crashes where speed* was a contributing factor**

	2005	2010	2011	2012
Number of deaths with speed	133	131	84	85
Percent of deaths with speed	33%	35%	30%	28%

* Speed here is 'travelling too fast for conditions', not necessarily above the speed limit
Source: Ministry of Transport

Seatbelts and helmets

Seat-belt use has been compulsory in front seats since 1972 and in rear seats since 1979. Based on a roadside survey conducted in 2012, the rate of seat-belt use is around 96% in front seats. Regarding rear seats, the latest survey was conducted in 2011 and revealed a 90% wearing rate for adults and 92% for children (in appropriate child restraints).

In the 3 years 2010 to 2012, 33% of vehicle occupants who died in road crashes were not wearing a safetybelt at the time of the crash.

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 5. **Seat-belt wearing rate by car occupants and helmet wearing by cyclists**

	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%

Source: Ministry of Transport
Note: Motorcycle helmet wearing is not surveyed

6. National road safety strategies and targets

Organisation of road safety

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. .

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.

Target setting

The Road safety Strategy 2011-2020 does not include a general fatality target, but several sub-targets and performance indicators.

Evaluation of past road safety strategy

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.

7. Recent safety measures (2011-2013)

Driver behaviour

Driving license for motorcyclists

- 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.

Speed management

- A speed management plan is being developed currently: current travel speeds on parts of New Zealand's road network are not appropriate given many roads' function, design and use. A speed management plan is been developed and will ensure consistency in speed limits around the country and to optimal speeds that combine safety and economic development objectives.
- 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.

Impaired driving

- The New Zealand Government announced on 4 November 2013 the lowering of the blood alcohol limit for driving from 80 to 50 milligrams of alcohol per 100 millilitres of blood for drivers aged over 20 years of age.
- In 2012, a new legislation was introduced, including the following measures:
  - 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.
  - 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.
  - Possibility for the 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.

Enforcement

A new legislation entered into force in 2012 to reduce the impact of high-risk drivers, which:

- 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.

Seatbelt and helmet use

- From 1 November 2013, new child restraint laws came into effect. The mandatory use of child restraints in vehicles was extended by two years, with all children required to be correctly secured in an approved restraint until their seventh birthday. The law continues to require all children aged seven to be secured in an approved child restraint if one is available in the vehicle, and if not in any child restraint or safetybelt.

Education and awareness

- A number of education and communication campaigns continue to be introduced. The most recent targets drink driving is entitled "Know when to go". This campaign focuses on a person´s wider community of friends, colleagues and regular contacts, all of whom are in a position to influence a drinking driver, whether it be in an overt or subtle way. The campaign targets men living in the countryside or small towns aged between 20 and 40 years who live, work and socialise together. These guys already know that they should only have one or two drinks if they're driving. Ultimately the campaign aims to get these guys to recognise that a drink or two can easily turn into something more complicated and to know when to stop drinking and go if they're driving or riding. http://www.nzta.govt.nz/about/advertising/drink-driving/catch.html

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.

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.

Vehicles

- 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

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 categorises roads according to their function and sets a consistent and predictable level of service for each category. This can help drivers understand what to expect and how to behave on different categories of road.
- Progress on the seven Roads of National Significance. These were identified as roads that are important to the economy, 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.

8. Recent and on-going research

Year commissioned	Project title	Researcher
2013/14	Survey methods for driver cellphone use	Opus International Consultants
2012/13	Acceptance and compliance with safe speeds	Beca Infrastructure

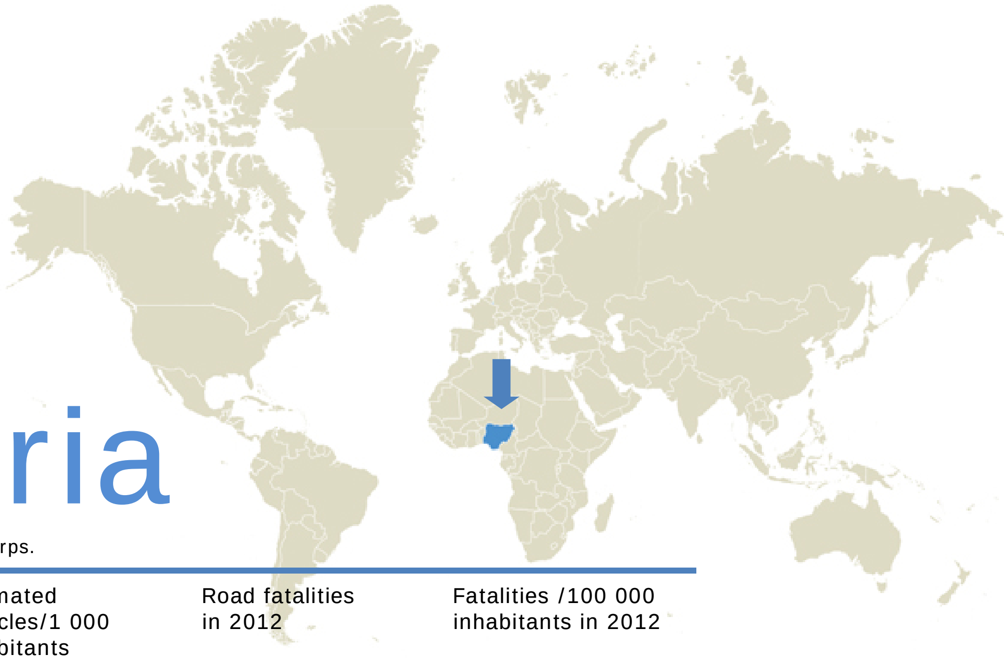
More information at: http://www.nzta.govt.nz/resources/research/index.html#safety

Useful websites and references

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
New Zealand's road safety strategy to 2020	http://www.saferjourneys.govt.nz
Drive Social	http://www.drivesocial.co.nz
Statistics New Zealand: Serious injury outcome indicators : technical report	http://www.stats.govt.nz/browse_for_stats/health/injuries/serious-injury-outcome-tech-report.aspx

Contact

For more information, please contact: w.jones@transport.govt.nz or l.mortimer@transport.govt.nz



Nigeria

Source: Federal Road Safety Corps.

Inhabitants	Estimated Vehicles/1 000 inhabitants	Road fatalities in 2012	Fatalities /100 000 inhabitants in 2012
160 million	**80**	**6 092**	**4**

The Federal Road Safety Corps (FRSC) joined IRTAD as an Observer in 2014. Data included in this report have not been validated by IRTAD.

1. Road safety data collection

Definitions:

- Road crash: collision involving one or more vehicles or a moving vehicle and a stationary vehicle/object or pedestrian resulting in death of persons, injury or damage to vehicle or loss of physical property.
- Fatal crash: road crash which results in death of person(s) within 30 days from the day of the crash.
- Injury crash: road crash which results in a person or persons sustaining severe/minor injuries but not leading to death. The injury is usually visible to witnesses at the crash scene. Whereas serious injuries are the number of injured persons as a result of a serious road crash.

Data collection and analysis

Road safety data in Nigeria is collected using crash templates at the scene of crash by road safety personnel on patrol, or upon receipt of a phone call at the toll-free emergency call centre, or other forms of reporting to the agency or personnel. Police personnel also collect crash data during the investigation of a crash.

Previously, Data Information Officers (DIOs) of the Federal Road Safety Corps (FRSC) collected, collated and forwarded data to Sector Commands at the State level. Sector Commands collected and forwarded all collated data from local level to zonal headquarters. Zonal Commands forwarded validated crash data to Road Safety Headquarters for analysis.

Now, the Corps has digitalised the data collection process through the use of computers and hand-held tablets at the scene of a crash, whereby information is directly imputed into the FRSC data portal.

For harmonisation of data from different agencies such as the police, the Ministry of Health (hospital data), the Vehicle Inspection Unit and State Traffic Agencies, a new arrangement, called National

Crash Report Information System (NACRIS) is in place to harmonise all traffic crash data in Nigeria. The scheme was inaugurated in April 2014.

Gaps still exist in the data collection as not all crashes are recorded, especially in places not regularly covered by the patrol teams of the FRSC and the police. To address this issue, Data Information Officers (DIO) regularly visit these areas and collate the missing data; however, this is an expensive undertaking.

2. Most recent safety data

Road crashes in 2011, 2012 and 2013

In 2012, there were 13 262 reported road crashes, which caused the deaths of 6 092 persons, 1% more than in 2011.

In 2013, there was a 2% increase in road traffic crashes, a 2% increase in injuries and a 6% increase in fatalities when compared with the 2012 figures.

				2013 % change from
	2011	2012	*2013*	*2012*
Reported safety data				
Road crashes	13 191	13 262	13 583	2%
Injuries	41 165	39 348	40 057	2%
Fatalities	6 054	6 092	6 450	6%

Source: FRSC.

The main highlights of traffic safety in 2013 include the following:

- Speed violation accounted for 32% of identified probable causes of crashes, followed by Loss of control and Dangerous driving, at 17.1% and 12.1%, respectively;
- 104 routes had more than 20 road traffic crash cases nationwide, out of which 19 routes had above 100 cases;
- The highest number of crashes was recorded on the three routes: Abuja–Lokoja;Abuj–Keffi; and Abuja–Kaduna) as well as the Kubwa Expressway, Abuja;
- 89 of the cases in 2013 involved bicycles.

The Corps led a number of road safety initiatives in 2013, including:

- Stakeholders' meeting to begin implementing speed-limiting devices on commercial vehicles;
- Commencement of the public advocacy on the use of bikes for transportation;
- Enhanced public education;
- Improved road crash reporting;
- Certification and classification of fleet operators under the RTSSS;
- Training of 40 truck-driving instructors in France to improve the knowledge of instructors on truck safety.

1. Trends in traffic and road safety (1990-2013)

Traffic

Mobility in Nigeria is mainly by road, which has led to the overdependence on road infrastructure and, as a result, much pressure on the available road infrastructure. The disorganisation of the railway system and the high cost of travelling by air have not helped matters. The Government therefore has to invest heavily in improving road conditions.

There was an increase in vehicle ownership in the country. The recent evolution in transportation is in the use of tricycles for commercial transport. The increase in the motorcycle fleet has led to an increase in crashes involving motorcycles.

Change in the number of fatalities and injury crashes (1990-2012)

Between 1990 and 2012, the number of fatalities decreased by 25%, while the number of people seriously injured increased by 73%. More recently (2000-2011), the number of fatalities decreased by 28.5%.

Important measures implemented by the FRSC during the last decade include:

- Improvement of patrol activities;
- Introduction of the Road Transport Safety Standardisation Scheme (RTSSS), with the aim of enhancing fleet management safety nation-wide;
- Driving School Standardisation Programme (DSSP);
- Quality Management System (QMS ISO 9001-2008) certification;
- Revamp of the National Uniform Licensing Scheme (NULS);
- Nigerian Road Safety Partnership (NRSP);
- Nigerian Road Safety Strategy (NRSS);
- Introduction of Information Communications Technology to enhance road safety;
- Enhanced public enlightenment and education nation-wide.

Rates

Since 1990, the death rate per 100 000 population has decreased by 57%.

Table 1. **Road safety and traffic data**

						2012 % change from		
Year	1990	2000	2010	2011	2012	2011	2000	1990
Population	90 557 000	118 953 000	156 051 000	164 224 341	169 653 245	3%	43%	87%
Reported number of fatalities	8 154	8 473	6 052	6 054	6 092	1%	-28%	-25%
Reported number of injury crashes	22 786	20 677	35 691	41 165	39 348	-4%	90%	73%
Reported number of deaths per 100 000 inhabitants	9	7	4	4	4	-3%	-50%	-60%
Estimation of the number of registered vehicles	Na	5 772 061	12 366 366	13 147 865	13 539 090	3%	135%	Na
Deaths per* 10 000 registered vehicles	Na	15	5	5	4	-2%	-69%	Na
Registered vehicles per 1 000 population	Na	49	79	80	80	0%	64%	Na

Source: FRSC.

Road users

Except in some major cities, there is little safety provision for pedestrians.

The use of motorcycles is increasing in Nigeria, especially for commercial purposes. As a consequence, the number of crashes involving motorcycles is increasing. The use of motorcycles for commercial purposes has been banned in some major cities due to the high fatality rate resulting from motorcycle crashes; however, motorcycles are still being used for commercial purposes in many cities, outskirts of some urban centres and rural areas.

4. Economic costs of traffic crashes

No information is available.

5. Recent trends in road user behaviour

Impaired driving

Drink driving

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

Based on police reports, around 1% of fatal crashes are due to drink driving.

Drugs and driving

It is estimated that impaired driving due to the consumption of drugs was responsible for 1% of fatal crashes in 2013

Distraction

It is estimated that the use of mobile phones while driving was a contributing factor in 0.4% of fatal crashes in 2013.

Fatigue

In 2013, it is estimated that fatigue was the main contributing factor in 2% of fatal crashes.

Speed

The table below summarises the main speed limits in Nigeria.

Table 2. **Passenger car speed limits by road type**
2014

Urban roads	50 km/h
Rural roads	80 km/h
Motorways	100 km/h

Source: FRSC.

In 2013, inappropriate or excessive speed was the main contributing factor in 32% of fatal crashes.

Consultation is underway to start the process for installing speed limiters on commercial vehicles.

Seatbelts and helmets

Seat-belt use has been compulsory in front seats and rear seats since 1997; however, enforcement regarding the use of seat belts in front seats only started in 2002. Enforcement regarding the use of seat belts in rear seats will start in 2015.

All riders of motorised two-wheelers are required to wear safety helmets. There is no mandatory law on helmet use for cyclists. The helmet-wearing rate by riders of motorised two-wheelers is at 60%.

Table 3. **Seat-belt wearing rate by car occupants**

	2000	2013
Front seat		
General	< 5%	80%
Urban roads	< 5%	90%
Rural roads	< 2%	60%
Rear seats		
Adults	< 1%	< 5%
Children	< 1%	<1%

Source: FRSC.

6. National road safety strategies and targets

Organisation of road safety

The responsibility for Road Safety is vested in the Federal Road Safety Corps, the lead agency established by the Federal Government of Nigeria. The agency is a paramilitary organisation, established in February 1988 and funded through budgetary allocation. It is made up of a Commission which supervises the corps of officers and staff that carry out day-to-day activities. The functions of the Federal Road Safety Corps (FRSC) include:

- Preventing and minimising road traffic crashes;
- Clearing obstructions on the highways;
- Educating drivers, motorists and other road users on the proper use of the roads;
- Prompt attention and care to victims of road traffic crashes;
- Providing road-side and mobile clinics for the treatment of accident victims, free of charge;
- Conducting research into causes of crashes and putting into use the results of such research;
- Determining and enforcing speed limits for all categories of vehicle and road;
- Co-operating with bodies, agencies and groups engaged in road safety activities;
- Making regulations in pursuance of any of the functions assigned to the corps by the law.
- Determining requirements to be satisfied by all driver's licence applicants;
- Designing and producing drivers' licences for all categories of driver;
- Designing and producing vehicle number-plates for all categories of vehicle;
- Advising the Federal and State Governments, including the Federal Capital Territory Administration and relevant governmental agencies, on measures to improve road safety.

Road safety strategy for 2014-2018

The Nigerian Road Safety Strategy (NRSS 2014-2018) is under development. It has been considered by the Federal Executive Council, which constituted an Interministerial Committee, under the Chairmanship of the Minister of National Planning, to fine-tune the document. Final endorsement shall take place in 2014.

The strategy is driven by three main objectives:

1. A reduction of 50% in the number of road traffic crashes by 2015, as recommended in the Accra Declaration of February 2007;
2. Aligning the operational strategies to achieve the nation's vision of becoming one of the top 20 countries with the safest roads in the world by the year 2020;
3. Meeting targets set by the United Nation's Decade of Action, to reduce by half the number of fatalities in 2020 in comparison to the 2010 level.

Monitoring

Performance towards these main goals is monitored annually through key performance indicators.

7. Recent safety measures (2011-2013)

Road safety management

- Assistance by the World Bank to provide manpower and operational equipment to conduct a road safety assessment on six major corridors. The results of the assessment have led to the establishment of 16 additional FRSC Command Units but, most significantly, to a consistent decline in road fatalities despite increased motorisation on the corridors, as detailed in the table below:

S/N	Corridor	% increase in traffic volume	% decrease in fatalities
01	Abuja-Kaduna-Kano	21%	33%
02	Benin-Ifon-Akure-Ilesa	16%	30.4%
03	Mokwa-Bida-Lambata-Suleja	21.1%	28.5%
04	Jos-Bauchi-Gombe	32.3%	65.3%
05	Enugu-Abakaliki-Ikom-Mfum	38.07%	18.29%
06	Abuja Metro	93.2%	25.1%

- Development of good practice guidelines on road safety management;
- Institution of weekly management meetings to monitor and promptly intervene in traffic safety management where necessary;
- Use of evidence-based dashboard for management decisions to identify high-risk routes, requiring immediate interventions for crash and fatality reductions.

Driver behaviour

- Intense road safety campaigns;
- Strengthened enforcement strategies through information and communications technologies;

- Development of the Driving School Standardisation Programme;
- Introduction of compulsory medical exams for commercial drivers;
- Enhanced driver training (classes have led to a reduction in repeat offenders).

Speed management

- Improvement of the level of education on the dangers of over-speeding.

Seat-belt and helmet use

- Enforcement of the compulsory use of seat belts and crash helmets.

Education and awareness

- Distribution of hand-bills and the use of the media to disseminate information on road safety to all drivers. All apprehended drivers are also made to go through enlightenment sessions.

Vehicles

- Free safety checks for all vehicles on the highways. Defects are identified and brought to the attention of the owners of the vehicles for remedial action without the issuance of tickets. More than 230 000 vehicles have been checked so far under this arrangement;
- Implementation of a standard school bus design;
- Introduction of speed limiters on commercial vehicles;
- Periodic technical inspection- new inspection guidelines have been developed for the states. Inspectors have received advanced training. States are further encouraged to acquire the necessary modern equipment for vehicle inspections.

Infrastructure

- Conduct of regular road safety audits, resulting in reports to the relevant agencies;
- Inclusion of road safety components on all World Bank corridors;
- Progressive implementation of the recommendation of the “Make Roads Safe” campaign to dedicate 10% of road infrastructure investment to the road safety component.

Post-crash care

- Acquisition of more ambulances and tow trucks into the fleet of the Corps;
- Introduction of the new template (RTI form) for the collection of road traffic crash data;
- Establishment of emergency ambulance points (called ZEBRA) along major corridors;
- Introduction of a road safety emergency call centre and a toll-free emergency number;
- Collaboration with the Federal Ministry of Health for the collection of injury data.

8. Recent and on-going research

- Survey on Removal of Fuel Subsidies: Implications for FRSC Activities (November 2011);
- Survey on Night Traffic counts across the six geopolitical zones in Nigeria (December 2011);
- Survey on the impact of speed-breaker installations along the Owo-Akure and Akure-Ilesha highways (August 2013);
- Assessment of the day-time and night-time speed trends of Nigerian drivers. A case study of Abuja metropolis (October 2012);
- School bus awareness survey in Abuja (November 2012);
- Appraisal on Emergency Ambulance/Rescue services from 2002 to May 2013 (June, 2013);
- Survey on funding of ROSOWA activities (July, 2013);
- RTC and Traffic counts along crash-prone routes (September 2013);
- Analysis of Trends in Road Traffic Crashes and Special Intervention Patrols, 2013 (November 2013);
- Assessment on the Impact of the FRSC emergency toll-free line 122 (November 2013);
- Survey on the National Average Vehicular Speed and Black-spot Intervention on Nigerian roads (January 2014);
- The Evaluation of the efficiency of Bannex, Mabushi and Apo Overheard bridges, based on traffic studies (April, 2014 - still ongoing).

Useful websites and references

Federal Road Safety Corps	www.frsc.gov.ng

Contact

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Norway

Source: IRTAD, Public Roads Administration

Inhabitants	Vehicles/1 000 inhabitants	Road fatalities in 2012	Fatalities /100 000 inhabitants in 2012
5.0 million	**703**	**145**	**2.9**

1. Road safety data collection

Definitions

- Road fatality: person killed in a traffic crash or deceased because of an injury within 30 days after the crash.
- The police do not use MAIS3+ to classify injuries, but this will be done in the future when injury data is provided by hospitals. In the meantime, Norway will use a transformation factor to supply MAIS3+ data.

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 crashes. At the moment injury data is collected by the police, but there are plans to use hospital data in the future.

2. Most recent safety data

Road crashes in 2012

A total of 145 persons were killed in road traffic crashes in 2012; 23 fewer than the year before. The number of killed in 2012 was the lowest since 1950, and the number of fatalities per 100 000 inhabitants was 2.9, the lowest ever.

The largest decrease in fatalities was in the number of head-on collisions (-15) and off-the-road accidents (-10). The number of pedestrians killed increased by five but the number of killed on bicycles was the same as in 2011.

Provisional data for 2013

Provisional data for 2013 indicate that 187 persons were killed on the roads in 2013, an increase of 42 fatalities and an almost 30% rise in comparison to 2012. There is no single explanation for this increase in fatalities.

The largest increase in fatalities was found among off-the-road accidents (+25), but there was also an increase in head-on collisions (+13). The number of motor-cyclists killed also increased (+5). The number of pedestrians killed has, however, decreased (-6) and the number of killed on bicycles is stable.

Even though there was an increase in the number of young people killed in traffic in 2013 compared with 2012, the number of fatalities among older road users increased even more, in both the age groups 45-64 and 65+. This development is of increasing concern, since these age groups are growing in the general population. There was also a high increase in accidents with more than one death involved.

3. Trends in traffic and road safety (1990-2013)

Traffic

In 2012, around 43 900 million vehicle-kms were registered on Norwegian public roads.

About 44% of these were 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-kms has increased by 58% on public roads.

Change in the number of fatalities and injury crashes (1990-2012)

Since 2000, the number of road deaths has been more than halved, and the number of injury crashes decreased by 30%.

The long-term trend is positive, especially among the young drivers. The number of children killed and seriously injured (0-6 and 7-15) has decreased dramatically since 1990.

Between 2008 and 2012, the number of fatalities decreased by more than 40%. There is no single reason for this very positive development, but the result of a broad systematic, long-term and fact-based approach. There were positive developments on indicators like speed, seat-belt wearing, lane barriers and other key factors with known effects on severe traffic accidents.

Rates

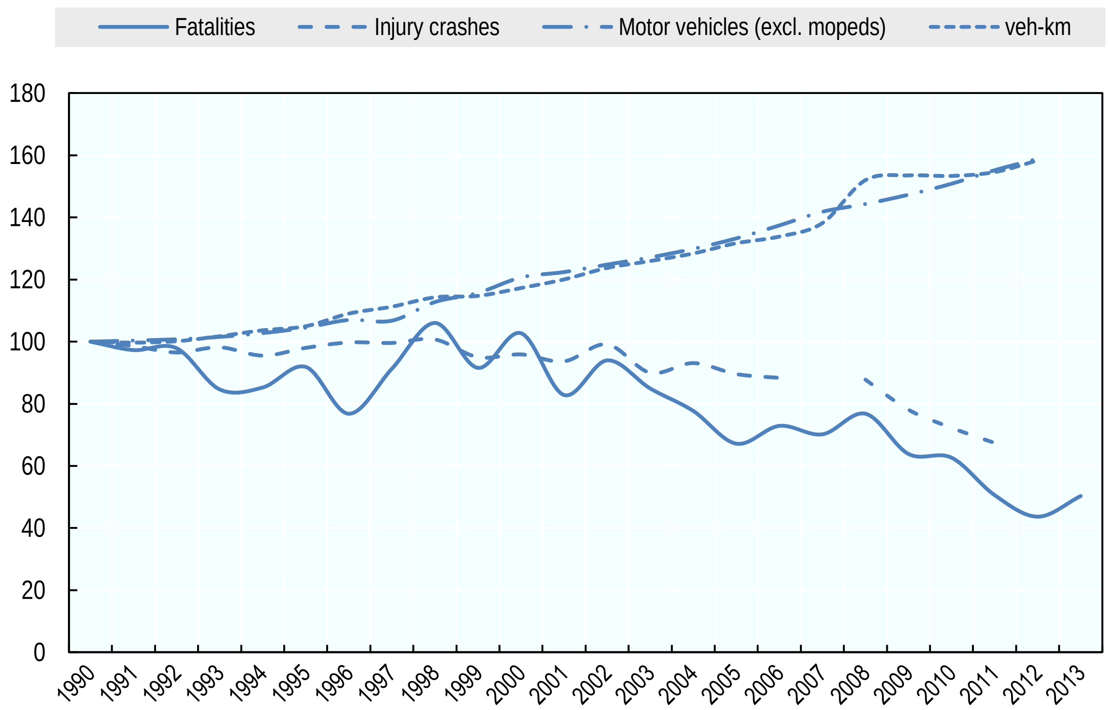
In 2012, Norway reached its lowest level of mortality with a rate of 2.9 fatalities per 100 000 population, thus ranking among the best performing countries.

Table 1. **Road safety and traffic data**

	1990	2000	2010	2011	2012	2012 % change from 2011	2000	1990
Reported safety data								
Fatalities	332	341	208	168	145	-13.7%	-57.5%	-56.3%
Injury crashes	8 801	8 440	6 360	5 927	5 893			
Deaths per 100,000 population	7.8	7.6	4.3	3.4	2.9	-15.1%	-61.9%	-63.0%
Deaths per 10,000 registered vehicles	1,4	1.2	0.6	0.5	0.4	-15.7%	-67.7%	-72.5%
Deaths per billion vehicle kilometres	12.0	10.5	4.9	3.9	3.3	-15.8%	-68.5%	-72.4%
Traffic data								
Registered vehicles[1] (thousands)	2 205	2 661	3 326	3 422	3 503	2.4%	31.6%	58.9%
Vehicle kilometres (millions)	27 755	32 547	42 561	42 903	43 952	2.4%	35.0%	58.4%
Registered vehicles per 1,000 population)	520.9	594.2	684.6	695.4	702.6	1.0%	18.2%	34.9%

Source: IRTAD.

Figure 1. **Road safety and traffic data**



Source: IRTAD.

1 Registered vehicles excluding mopeds.

Road users

Since 2000, road safety improvements benefited pedestrians and motorcyclists the most, while there has been less progress with cyclists' safety.

In 2012, the number of pedestrians killed in Norway was 23. This means an increase of 44% from 2011 but a decrease by 26% from 2005.

Table 2. **Road fatalities by road user group**

	1990	2000	2010	2011	2012	2012 % change from 2011	2012 % change from 2000	2012 % change from 1990
Bicyclists	17	13	5	11	12	Figures too small for meaningful comparisons.		
Mopeds	14	6	0	4	4			
Motorcycles	25	40	26	13	17			
Passenger car occupants	214	225	125	100	72			
Pedestrians	55	47	24	17	22			
Others incl. unknown	7	10	28	23	18			
Total	*332*	*341*	*208*	*168*	*145*	*-13.7%*	*-57.5%*	*-56.3%*

Source: IRTAD.

Age

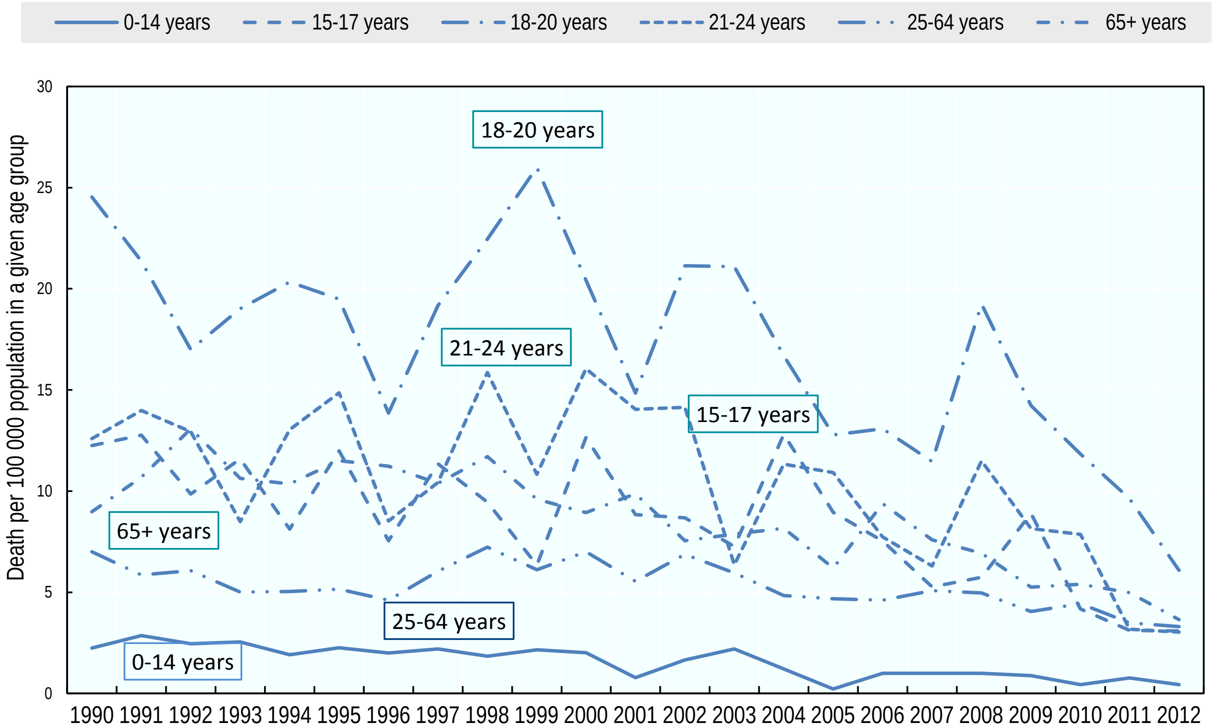
We see an increase in the number of killed in the older age groups (45-65 and 65+).

Table 3. **Road fatalities by age group**

Age	1990	2000	2010	2011	2012	2012 % change from... 2011	2012 % change from... 2000	2012 % change from... 1990
0-5	9	8	1	0	3	Figures too small for meaningful comparisons.		
6-9	3	6	0	3	1			
10-14	6	4	3	4	0			
15-17	23	20	8	6	6			
18-20	49	33	23	19	12			
21-24	34	36	19	8	8			
25-64	146	165	115	91	87			
>65	62	61	39	37	28			
Total incl. unknown	*332*	*341*	*208*	*168*	*145*	*-13.7%*	*-57.5%*	*-56.3%*

Source: IRTAD.

Figure 2. **Road death rates by age group**
Fatalities per 100 000 population in a given age group, 1990-2012



Source: IRTAD.

Road type

In 2012, approximately 75% of road fatalities occurred on roads outside densely-populated areas. Thirty-nine per cent were killed in head-on collisions and 33% of those were killed in run-off-the-road accidents.

4. Economic costs of traffic crashes

Traffic crashes represent a very significant cost for society, estimated at around EUR 1.93 billion (excluding property damage costs). Costs are calculated by a willingness-to-pay approach.

Table 4. **Costs of road crashes, 2012**

Costs (EUR billion)	Unit Cost	Total
Fatalities		0.63
Hospitalised people		0.79
Slight injuries		0.51
Property and damage costs		*Not included*
Total (EUR)		1.93

Source: Public Roads Administration.

5. Recent trends in road user behaviour

Impaired driving

Drink 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.

Drugs and driving

The legal maximum content of illegal drugs is equivalent to 0.2 g/l alcohol. The number of impaired drivers due to drugs seems to be fairly stable or slightly increased.

Distraction

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.

Fatigue

In-depth studies show that fatigue and sleepiness was the cause in 19% of all fatal crashes in Norway in 2012.

Speed

In-depth studies in Norway show that excessive speed or high speeds incompatible with road conditions (snow, ice, fog or rain) are an important element in fatal accidents and their consequences.

The average speed has been decreasing over the last few years. In almost 40% of “high-speed crashes”, high speed has been vital or of great importance.

The table below summarises the main speed limits in Norway.

Table 5. **Passenger car speed limits by road type, 2014**

	General speed limit	Comments
Urban roads	50 km/h	No restriction regarding age or weather conditions.
Rural roads	80 km/h	
Motorways	100 km/h	

Source: National Public Roads Administration.

The development in speed has been positive over the last few years. The average speed, regarding all speed limits except 100 km/t, has decreased since 2008.

Seat belts and helmets

Seat-belt use has been compulsory in front seats since 1975 and in rear seats since 1985. The seat-belt wearing rate is high, 95% in 2013.

There is no monitoring of seat-belt use in rear seats yet, but it is estimated to be seven to eight percentage points lower.

An in-depth analysis of all fatal crashes estimates that 41% of car occupants killed were not wearing a seat belt. Studies suggest that as many as 50% of these fatalities could have been avoided.

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, and close to 100%. Helmet use by cyclists over the age of 12 is 52%.

In 2012, 7 of the 12 cyclists killed on the roads did not wear a helmet.

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

	2000	2010	2013
Front seat			
General	88%	91%	95%
Urban roads	92%	91%	94,4%
Rural roads	80%	94%	95,6%
Rear seats			
Adults	84%		

Source: IRTAD.

6. National road safety strategies and targets

Organisation of road safety

Norway adopted Vision Zero by a decision in 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 reiterated that Vision Zero will provide the basis for traffic safety activities in Norway in all subsequent 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. The highest priority is given to the reduction of head-on crashes, single-vehicle crashes and collisions with vulnerable road users (cyclists and pedestrians). High-risk road users, such as young drivers, elderly road users and motorcyclists, are also paid special attention.

The traffic safety work in Norway is co-ordinated by the Norwegian Public Roads Administration (NPRA). In addition to NPRA, the police, the public administrations of both Health and Education training, together with the leading NGOs, are main stakeholders in the traffic safety work at national level. At regional and local levels, the work of counties and municipalities is of key significance.

This broad and collaborative approach is of great importance, as well as the co-ordination of efforts among all stakeholders, based on a common strategy.

Road safety strategy for 2014-2024

The Road Traffic Safety Plan 2014-2017 was released in March 2014 and is available on http://www.vegvesen.no/Fag/Fokusomrader/Trafikksikkerhethttp://www.vegvesen.no/_attachment/598739/binary/949929?fast_title=Nasjonal+tiltaksplan+for+trafikksikkerhet+2014-17.pdf. The report is not yet translated to English, but this will be done by the end of May 2014.

Target setting

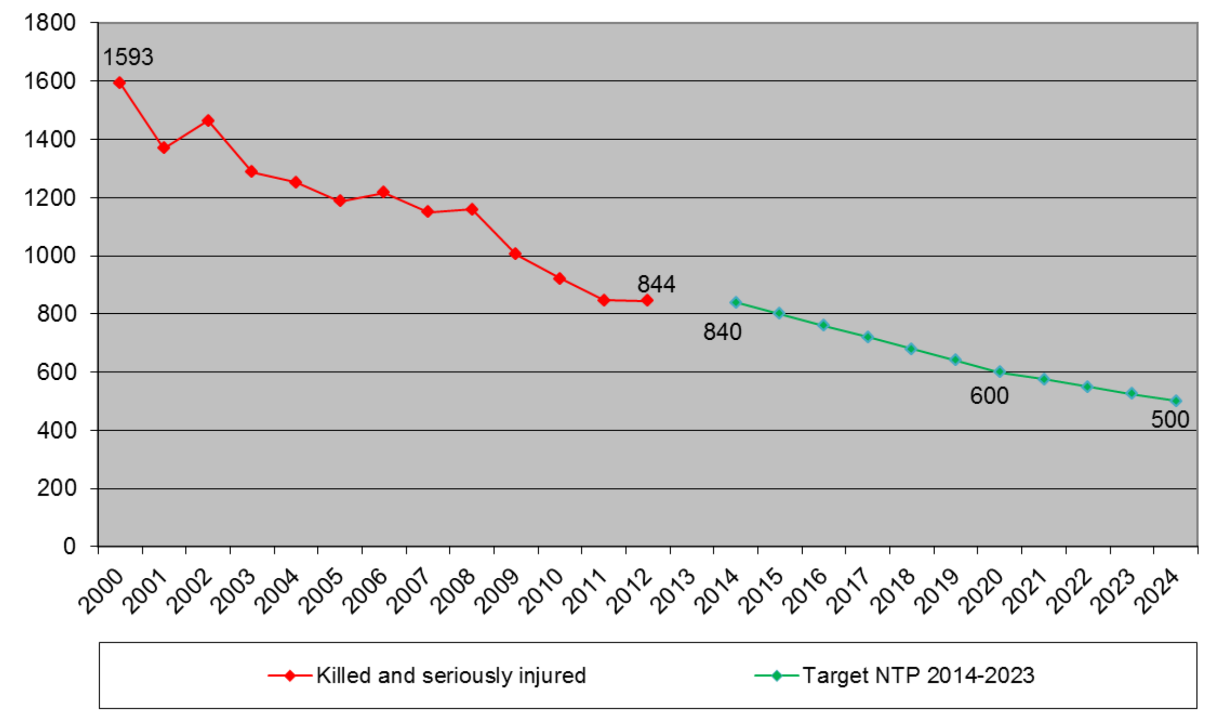
The Plan's target is to reduce by half the number of killed and seriously injured by 2024. Calculations based on existing knowledge show that it is possible to reach 630 fatalities and seriously injured by 2024. In addition, taking into account the fact that it is not possible to assess the effect of all measures and that new technology may bring additional benefits, a new target was set of no more than 500 fatalities and seriously injured by 2024.

Monitoring

Developments concerning fatalities and the seriously injured are constantly monitored.

In addition, the Norwegian Public Roads Administration is monitoring a set of safety performance indicators, related to speed, seat-belt wearing and heavy vehicle safety standards.

Figure 3. **Trends in road fatalities towards national targets**



Evaluation of past road safety strategy

Every year the NRPA reports to the Government on 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 was incorporated into the work on the National Plan of Action for Traffic Safety 2014-2017.

7. Recent safety measures (2011-2013)

Driver behaviour

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 average speed cameras. 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 were published in 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 10-15 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 kms of road the speed limit will be lowered from 80 to 70 km/h and on 70 kms 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

- From 1st February 2012 impairment-based legislative limits for driving under the influence of non-alcohol drugs has been implemented. For further information: Vindenes, V. *et al*. (2011), “Impairment-based legislative limits for driving under the influence of non-alcohol drugs in Norway”, *Forensic Science International*, November, 24.
- Introduction of 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.

Education and awareness

- The NPRA is running three big national traffic safety campaigns on speed, seat belts 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.

Vehicles

- Norway has no car industry. 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 focused 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.

Useful websites and references

Public Road Administration	www.vegvesen.no
TOI – Research Institute forTransport Economics	www.toi.no
International Research Institute	www.iris.no
SINTEF	www.sintef,no
Norwegian Institute of Public Health, Division of Forensic medicine and Drug Abuse Research	www.fhi.no
National Road Safety Plan	http://www.vegvesen.no/en/Traffic/Road+safety/Road+safety

Contact

For more information, please contact: guro.ranes@vegvesen.no.

Poland

Source: IRTAD, Motor Transport Institute, National Road Safety Council

Inhabitants	Vehicles/1 000 inhabitants	Road fatalities in 2012	Fatalities /100 000 inhabitants in 2012
38.5 million	**645**	**3 571**	**9.2**

1. Road safety data collection

Definitions

- Road fatality: death which occurred within 30 days after the road crash.
- Seriously injured: a person who sustains a serious disability, a serious incurable disease or a chronic life threatening long disease, permanent mental disease, complete or substantial permanent incapacity to work in current occupation, or permanent or substantial scarring or disfiguration of the body; the definition also includes persons who have suffer other injuries incapacitating their bodies or causing health breakdown for longer than 7 days.
- Slightly injured: person, who experiences loss of health other than in the case of serious injury, disturbing functions of the body organ or having health dysfunctions for a period not longer than 7 days, diagnosed by the physician.
- Injury crash: crash resulting in at least one injured or killed person.

MAIS 3+ is not currently used in Poland. The medical ICD 10 classification is used instead. However, with the IRTAD and EC recommendation to define '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.

Data collection

The basic source of road crash 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 (e.g. description of the crash site, circumstances of the crash; behaviour of participants; type of injuries, etc.). Guidelines for gathering crash 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 crash 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 crashes 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.

2. Most recent safety data

Road crashes in 2012

In 2012, 37 046 injury crashes (decrease of 8%) occurred on Polish roads, in which 3 571 people were killed (decrease of 15%) and 45 792 were injured (decrease of 8%).

The number of people injured in road crashes dropped by 8%, but the number of seriously injured decreased only by 4%. The positive changes concern mostly passenger cars occupants (-10%), motorcyclists (-10%), moped drivers (-9%). The number of injured pedestrians dropped by only 6%.

Data for 2013

Recently published final 2013 data show that there were 3 557 road fatalities in 2013 — a 6% reduction in comparison to 2012, 44 059 injuries (-4%) and 35 847 injury crashes (-4%).

3. Trends in traffic and road safety (1990- 2013)

Traffic

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 (1990-2012)

A peak in the number of fatalities was reached in 1991, with 7 901 deaths. In recent years (2000-2012) the upward trend has broken, and the number of fatalities and injury crashes fell by 43% and 35%, respectively.

Since 1991, the following legislations and policies have been implemented in Poland:

- Compulsory seatbelt wearing for all car occupants,
- Appointment of National Road Safety Council,
- National Road Safety Programme GAMBIT,
- Demerit point system,
- Compulsory child restraint usage,
- Severe penalties for drunk driving,
- Speed enforcement (including automatic speed enforcement),
- 50 km/h limit in build-up areas,
- Daytime running lights,
- Changes in drivers' education system,
- Implementation of the new law for bicyclists,
- Implementation of the EU directive on road safety management.

Rates

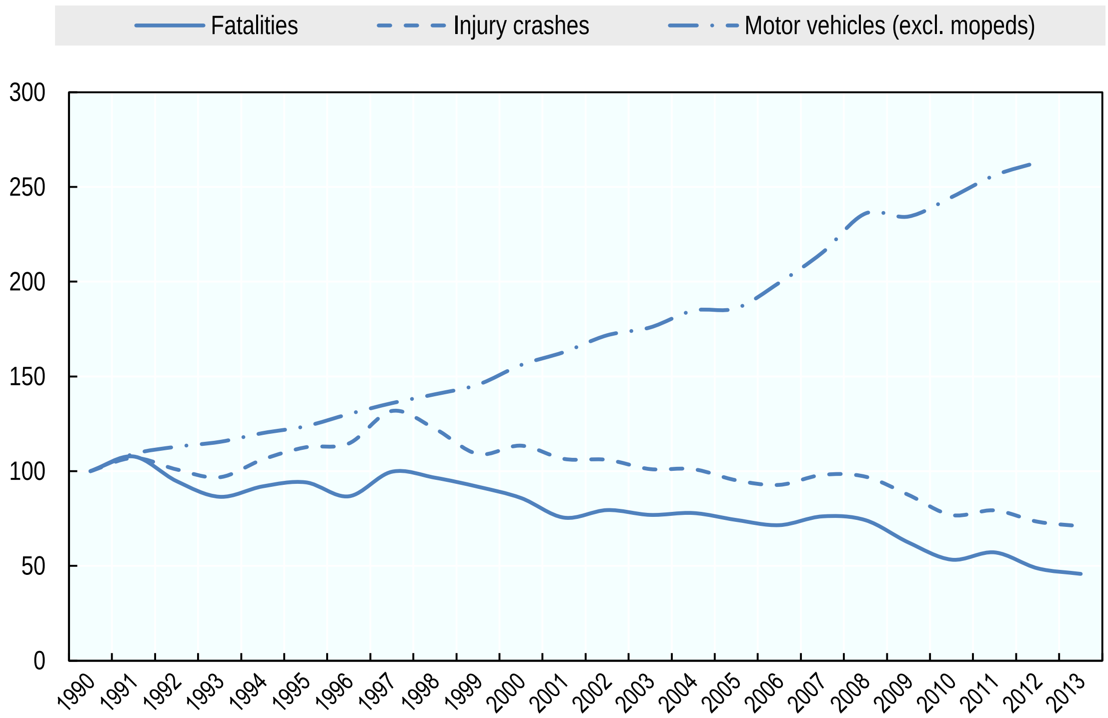
In 2012, Poland had a fatality rate, expressed in terms of deaths per 100 000 population, of 9.2.

Table 1. **Road safety and traffic data**

	1990	2000	2010	2011	2012	2012 % change from 2011	2000	1990
Reported safety data								
Fatalities	7 333	6 294	3 908	4 189	3 571	-14.8%	-43.3%	-51.3%
Injury crashes	50 532	57 331	38 832	40 069	37 046	-7.5%	-35.4%	-26.7%
Deaths per 100,000 population	19.3	16.4	10.2	10.9	9.2	-15.4%	-44.1%	-52.3%
Deaths per 10 000 registered vehicles	8.1	4.5	1.8	2.3	2.0	-13.0%	-55.2%	-75.3%
Traffic data								
Registered vehicles[1] (thousands)	9 041	14 106	22 115	23 156	23 775	2.7%	68.5%	163.0%
Registered vehicles per 1 000 population)	237.7	368.7	579.4	633.0	645.0	1.9%	75.0%	171.4%

Source: IRTAD

Figure 1. **Road safety and traffic data**
Index 100 = 1990



Source: IRTAD

1. Registered vehicles excluding mopeds.

Road users

Since 2000, all user groups except motorcyclists and moped riders have benefited from a decrease in the number of fatalities. The number of motorcyclists killed increased by nearly 50% in the last decade. Nevertheless motorcyclists make up only 7% of a total number of all killed in road crashes. In recent years the number of high capacity engine motorcycles has increased significantly.

Half of the total number of people killed in road crashes in Poland were vulnerable road users. Pedestrians make up 34% of all fatalities (in European Union the share is 21%). In 2012, the most significant reduction in the number of fatalities was observed for pedestrians and passenger car occupants – a decrease of 18% and 20% respectively. The number of killed motorcyclists decreased by 11%.

Table 2. **Road fatalities by road user group**

						2012 % change from		
	1990	2000	2010	2011	2012	*2011*	*2000*	*1990*
Bicyclists	574	692	280	314	300	-4.5%	-56.6%	-47.7%
Mopeds	288	75	83	87	82	-5.7%	9.3%	-71.5%
Motorcycles	749	178	259	292	261	-10.6%	46.6%	-65.2%
Passenger car occupants	2 237	2 709	1 853	1 897	1 615	-14.9%	-40.4%	-27.8%
Pedestrians	2 977	2 256	1 236	1 408	1 157	-17.8%	-48.7%	-61.1%
Others incl. unknown	508	384	197	191	156	-18.3%	-59.4%	-69.3%
Total	*7 333*	*6 294*	*3 908*	*4 189*	3 571	*-14.8%*	*-43.3%*	*-51.3%*

Source: IRTAD

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 89 in 2012, corresponding to a decrease of 80%.

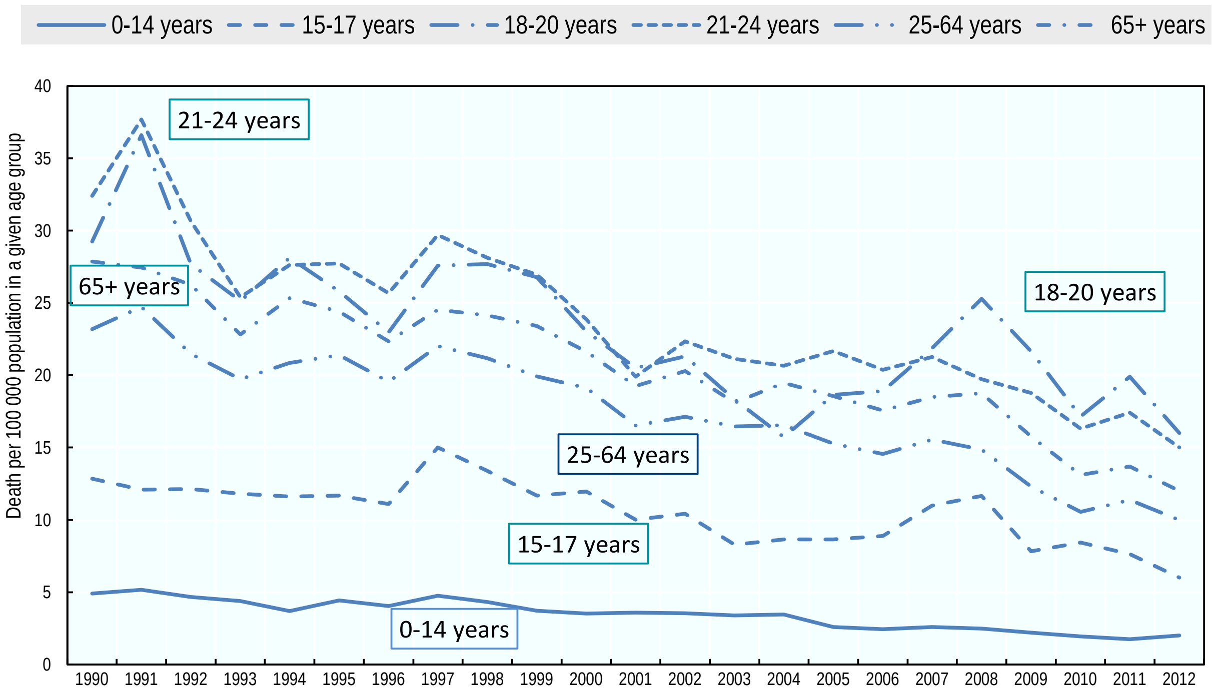
Young people 18-24 have a fatality risk nearly twice as high as the general population.

Table 3. **Road fatalities by age group**

Age	1990	2000	2010	2011	2012	2012 % change from 2011	2012 % change from 2000	2012 % change from 1990
0-5	139	66	31	31	28	-9.7%	-57.6%	-79.9%
6-9	176	89	25	22	24	9.1%	-73.0%	-86.4%
10-14	156	112	56	49	37	-24.5%	-67.0%	-76.3%
15-17	223	245	122	106	86	-18.9%	-64.9%	-61.4%
18-20	455	443	280	315	250	-20.6%	-43.6%	-45.1%
21-24	636	583	392	401	335	-16.5%	-42.5%	-47.3%
25-64	4 493	3 751	2 293	2 525	2 150	-14.9%	-42.7%	-52.1%
>65	1 055	1 004	676	710	655	-7.7%	-34.8%	-37.9%
Total incl. unknown	*7 333*	*6 294*	*3 908*	*4 189*	*3 571*	*-14.8%*	*-43.3%*	*-51.3%*

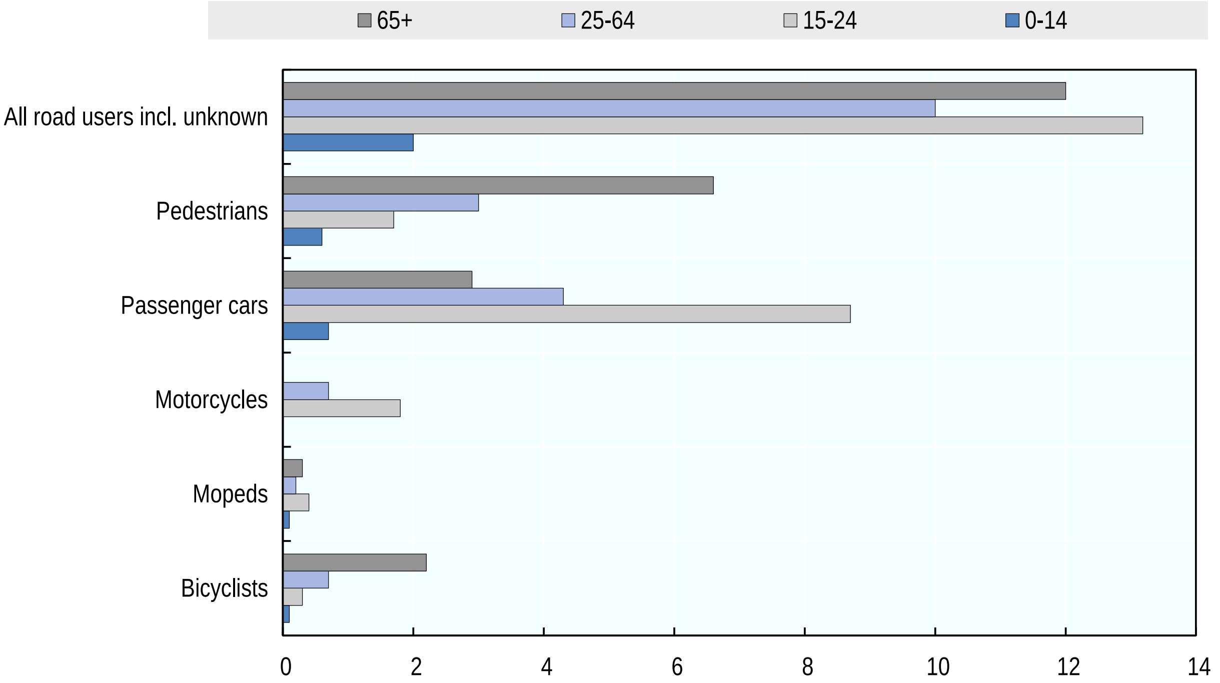
Source: IRTAD

Figure 2. **Road death rates by age group**
Fatalities per 100 000 population in a given age group, 1990-2012



Source: IRTAD

Figure 3. **Road death rate by age and road user group**
Fatalities per 100 000 population



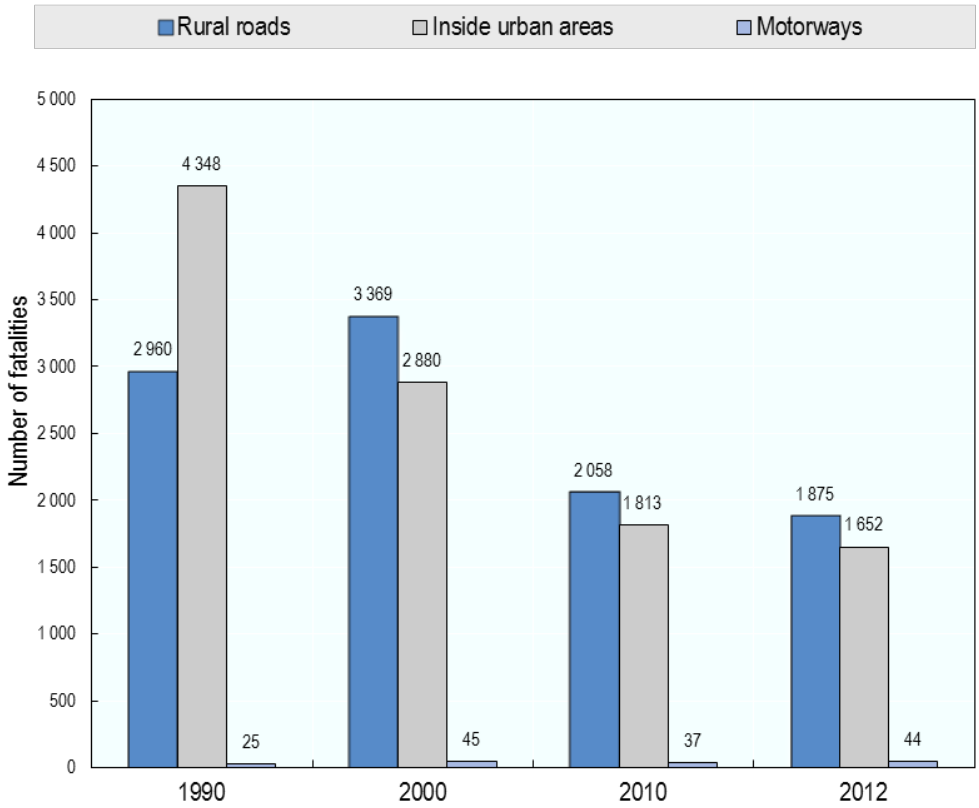
Source: IRTAD

Road Type

The decrease in fatalities over the last twenty years has been achieved mainly through the improvement of road safety on rural roads.

Motorways only account for 1% of fatalities; this is because there is a limited number of motorways in Poland. In 2012, the total length of motorways amounted to 1 368 km, i.e. 0.5% of the whole road network. The motorway network has, however, being significantly developed over the last few years.

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



Source: IRTAD

4. Economic costs of traffic crashes

Costs of traffic crashes are calculated based on the capital approach[2].

Traffic crashes represent a very significant cost for society, estimated at around PLN 20.1 billion[3] (around EUR 4.85 billion), i.e. 1.3% of GDP. They account for more than the budget deficit in Poland.

According to the World Bank, crash costs could be higher and amount to PLN 27-34 billions (EUR 6.5-8.2 billions), i.e. 2% of GDP.

2. http://krbrd.gov.pl/download/pdf/koszty_wypadkow_drogowych_na_sieci_drog_w_polsce_na_koniec_roku_2011.pdf

3. Instytut Badawczy Drog i Mostow, 2012

Table 4. **Costs of road crashes, 2012**

Costs (EUR billion)	Unit Cost	Total
Fatalities		
Hospitalised people		
Slight injuries		
Property / damage costs		
Total (EUR)		4.85
Total as % of GDP		1.3

Source: Instytut Badawczy Drog i Mostow, 2012

5. Recent trends in road user behaviour

Impaired driving

Drink driving

The maximum authorised blood alcohol concentration (BAC) level in Poland is 0.2 g/l for all drivers. Crashes are classified "alcohol related" if one of the crash participants has a BAC of 0.2 g/l or more.

In the last ten years, the number of crashes caused by drivers under the influence of alcohol has decreased by 40%. People killed in crashes involving drink-driving represent 9% of all traffic fatalities.

In 2012, the number of alcohol-related crashes decreased by 13%.

Drugs and driving

In Poland, driving under the influence of alcohol and other psychoactive substances is forbidden.

According to the DRUID research project[4], the prevalence of alcohol and other psychoactive substances in the driving population of Poland is lower than the EU average which, for alcohol, is 3.5%, whilst in Poland it is 1.5%. The prevalence of illegal drugs in the EU is 1.9%, whilst in Poland it is 0.7%.

Distraction

The use of hand-held mobile phones while driving is forbidden in Poland, the use of hands-free phones is allowed.

Fatigue

There are no research findings on fatigue.

4. European project DRUID (Driving under the Influence of Drugs, Alcohol and Medicines)

Speed

In the last ten years, the number of fatal crashes involving speeding has 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 are constantly increasing. New regulations regarding automatic speed enforcement are being introduced into Polish law.

The table below summarises the main speed limits in Poland.

Table 5. **Passenger car speed limits by road type, 2014**

Urban roads	50 km/h
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

Source: IRTAD

Seatbelts and helmets

Seatbelt use has been compulsory in front and rear seats since 1991.

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

	2011	*2013*
Front seat		
General	86%	84%
Urban roads	84%	87%
Rural roads	89%	National roads:89% Provincial roads:81% County roads: 67%
Rear seats		
Adults	65%	59%
Children	82%	88% (child seats)

Source (for 2011): Public opinion survey for Motor Transport Institute
Source (for 2013): Observation study for the Secretariat of National Road Safety Council, (Politechnika Gdanska, Politechnika Krakowska, FRIL)

Helmet wearing has been compulsory on motorcycles and mopeds since 1997. Helmet use is not compulsory on bicycles. The helmet wearing rate by riders of motorised two-wheelers is high, at nearly 100%.

6. National road safety strategies and targets

Organisation of road safety

The National Road Safety Council (NRSC; Polish: Krajowa Rada Bezpieczeństwa Ruchu Drogowego) was established on 1st January, 2002 under the Act of Road Traffic Law as an auxiliary interministerial body for the Polish Council of Ministers for road safety issues. NRSC is chaired by the minister responsible for transport. The members of the NRSC are high level representatives of several ministries and governmental institutions. The executive unit is the Secretariat of NRSC, based in the Ministry of Infrastructure and Development. The National Road Safety Council sets directions and coordinates activities of the governmental administration in the area of road safety.

The main areas of the National Road Safety Council activities include:

- recommending guidance of state policy;
- developing and appraising road safety programmes;
- initiating research works, legal acts, international agreements and staff training programmes;
- conducting international cooperation;
- working closely with social institutions and NGOs;
- instigating road safety education, publicity and promotion campaigns;
- monitoring and evaluation of road safety activities;
- implementation of the new law for bicyclists.

Road safety strategy for 2013-2020

On 9 January 2013, the National Road Safety Council adopted a new National Road Safety Programme for the years 2013-2020[5], developed by the Secretariat of the National Road Safety Council and government bodies' experts, and based on the Vision Zero approach.

Target setting

The 2013-2020 Programme includes the targets to reduce road deaths by 50% and the number of people seriously injured by 40% by 2020, in comparison to 2010 levels.

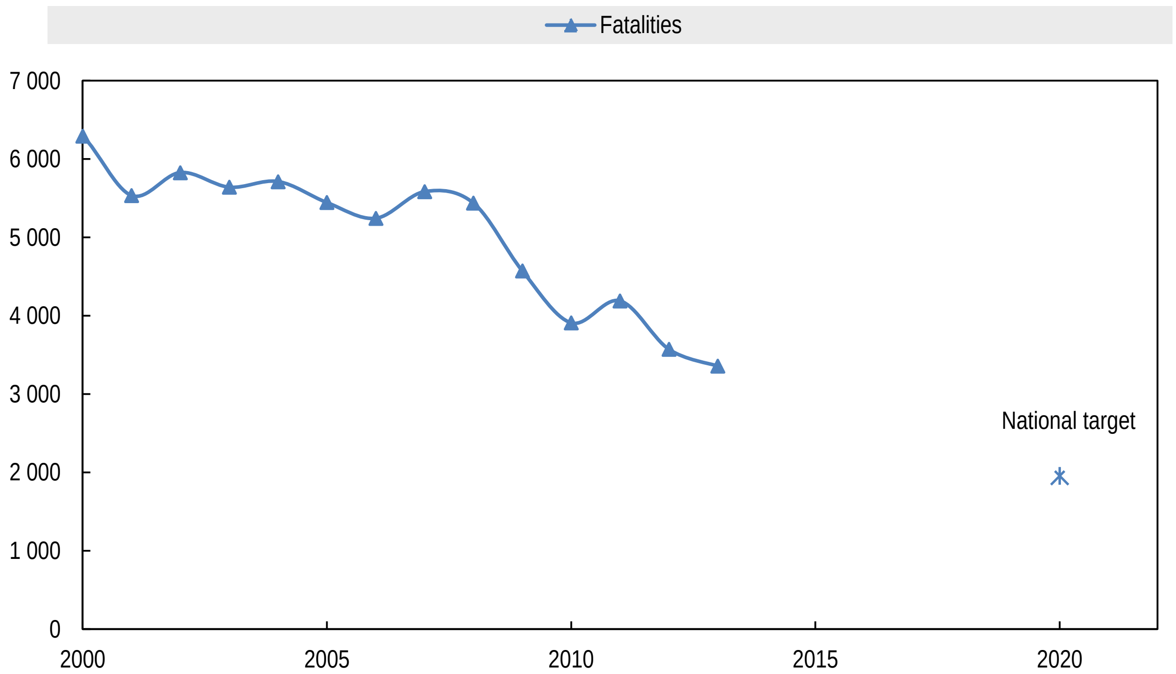
The targets of the new National Road Safety Programme are based on the targets of both the UN Decade of Action for Road Safety and the European Union's recommendations. The targets are consistent with National Transport Policy and Transport Development Strategy.

Monitoring

The National Road Safety Council is in charge of monitoring. Interim reports are expected in 2014 and 2017.

5. http://www.krbrd.gov.pl/download/pdf/NP%20BRD%202020_przyjety_przez_KRBRD.pdf

Figure 5. **Trends in road fatalities towards national target**



Source: IRTAD

Evaluation of past road safety strategy

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 the number of fatalities by 50% 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).

7. Recent safety measures (2011-2013)

Road safety management

- Implementation of the EU Directive 2008/96/EC on Road Safety Management.
- Creation of the National Road Safety Observatory

Driver behaviour

Speed management

- Since 1 July 2011 Poland has developed its automatic speed camera system. The new system is managed by the Road Transport Inspection. In early 2013 the system comprised 611 fixed speed cameras (375 managed by the Road Transport Inspection and 236 managed by municipal guards). In addition, 29 cars of the Road Transport Inspection are equipped with on board mobile cameras. Speed is of course also enforced by police. They have 1900 radars and 390 cars with in-built mobile cameras.

Impaired driving

- Following a dramatic alcohol related crash on 1 January 2014, in which six pedestrians, including a child, were killed, the Prime Minister announced that the court will apply more severe sanctions against drunk drivers, including fines of up to 5,000 PLN (EUR 1200) and 3-year license withdrawal. Additional measures such as the alcohol interlocks are consider to be introduced into Polish law system.

Seatbelt and helmet use

- Observation studies on seat-belt wearing rate (and child restraint system) are being regularly conducted for the Secretariat of National Road Safety Council.

Education and awareness

- Awareness campaigns on the use of seatbelts and child restraint system.

Vehicles

- Special inspections of the coaches and buses which are used for transportation of children during vacation time.

Infrastructure

- Road Safety Audit has become obligatory for all road design within the TEN-T road network (based on Directive 2008/96/EC) and the training programme for auditors has been elaborated in Poland.

Post crash care

Elaboration and implementation of the Post-Crash Care Action Plan for motorways managed by the General Directorate of National Roads and Motorways.

Useful websites and references

Ministry of Infrastructure and Development	http://www.mir.gov.pl/english/Strony/main_mrr_eng.aspx
National Road Safety Council (KRBRD)	www.krbrd.gov.pl
Motor Transport Institute	www.its.waw.pl
National Road Safety Programme for the years 2013-2020	http://www.krbrd.gov.pl/download/pdf/NP%20BRD%202020_przyjety_przez_KRBRD.pdf

Contact

For more information, please contact: justyna.wacowska-slezak@its.waw.pl

Portugal

Source: IRTAD, ANSR

Inhabitants	Vehicles/1 000 inhabitants in 2012	Road fatalities in 2012	Fatalities /100 000 inhabitants in 2012
10.5 million	**550**	**718**	**6.8**

1. Road safety data collection

Definitions

- Road fatality – A person who died immediately after the crash or within the next 30 days. Until 2010, only fatalities within 24 hours after the crash were recorded as such. A correction factor of 0.26 was applied in the IRTAD database to match with the 30 days definition.
- Serious injury—A person who was hospitalised as a result of the crash for a period of 24 hours or more and did not die within the next 30 days after the crash.
- Slight injury—A person who was injured as a result of the crash and was not hospitalised, or was hospitalised for a short period (up to 24 hours) and did not die within the next 30 days after the crash.

Data collection In Portugal, the authorities responsible for reporting on road crashes are the:

- Public Security Police (PSP), inside urban areas;
- National Republican Guard (GNR), w 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 crashes is not included in national statistics (underreporting).

All the registration forms (Beav's)—which constitute the basis of road crash analyses—are sent to the National Authority for Road Safety (ANSR) 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.

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 is 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.

2. Most recent safety data

Road crashes in 2012

In 2012, there were 718 road deaths in Portugal, a 19.4% decrease in comparison with 2011. The number of injury crashes decreased by 8.2% and the number of persons hospitalised by 14.3%.

Factors to explain this good performance include the fruits of the National Road Safety Strategy for the period 2008-2015. Also, the serious economic crisis that the country is facing also had an impact.

Provisional data for 2013

Provisional data for 2013 (January to September) show that there is a decrease of 18.5% in the number of fatalities compared to 2012 (552 in 2012 and 450 in 2013) and of 5.8% in serious injuries (1475 in 2012 and 1389 in 2013).

3. Trends in traffic and road safety (1990- 2013)

Traffic

In Portugal there is no estimation available on the evolution in traffic volume (veh-km).

Between 1990 and 2012, the number of motorised vehicles has more than doubled, rising from about 2.188 million vehicles in 1990 to 5.775 million in 2012 (+164%).

Change in the number of fatalities and injury crashes (1990-2012)

Since 1990, the number of road fatalities decreased by 75% and the number of injury crashes by 33%.

Between 1970 and 1989, there was an average annual increase in road deaths (+3.5%) and injury crashes (+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 8.4% between 2000 and 2012.

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 seat belts, especially on rear seats and child restraint systems.
- Improved passive safety features of vehicles.
- Advances in post-impact care.

Rates

In 2012, Portugal had a mortality rate, expressed in terms of road death per 100 000 population, of 6.8, one third of what it was in 2000.

Regarding the fatality risk, expressed by the number of fatalities per 10 000 motorised vehicles, the situation has also improve. The rate was 13.4 in 1990 and 1.2 in 2012.

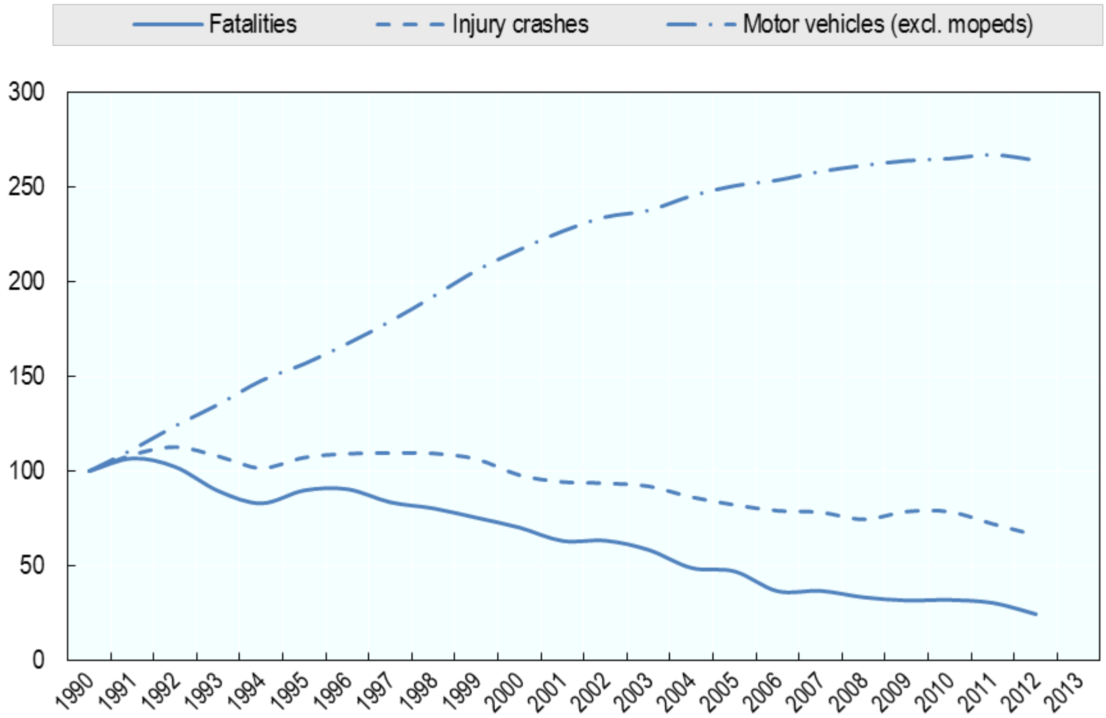
Table 1. **Road safety and traffic data**

						2012 % change from		
	1990	2000	2010	2011	2012	*2011*	*2000*	*1990*
Reported safety data								
Fatalities	2 924	2 053	937	891	718	-19.4%	-65.0%	-75.4%
Injury crashes	45 110	44 159	35 426	32 541	29 867	-8.2%	-32.4%	-33.8%
Injured persons hospitalised	12 165	6 918	2 475	2 265	1 941	-14.3%	-71.9%	-84.0%
Deaths per 100 000 population	29.3	20.1	8.8	8.4	6.8	-19.2%	-66.2%	-76.7%
Deaths per 10 000 registered vehicles	13.4	4.3	1.6	1,5	1,2	-18,5%	-71,3%	-90,7%
Deaths per billion vehicle kilometres								
Traffic data								
Registered vehicles[1] (thousands)	2 188	4 743	5 795	5 840	5.775	-1,1%	21,8%	163,9%
Registered vehicles per 1 000 population)	218.9	465.2	544.8	552,9	550,7	-0,4%	18,4%	151,6%

Source: IRTAD

1 Registered vehicles excluding mopeds.

Figure 1. **Road safety and traffic data**
1990= Index 100



Source: IRTAD

Road users

Since 1990, all user groups, with the exception of two-wheeled motor vehicles, benefit from the improvements in road safety. The number of killed among moped riders was divided by 10 to be analysed in conjunction with the lack of popularity of these types of vehicles.

In 2012, there was a marked decrease in the number of cyclists killed (-31.8%), but in 2011 their mortality increased by 41%.Passenger car occupants also had a very significant decrease in terms of fatalities (-23.0%) and the number of pedestrians killed was reduced by 20.1%.

Table 2. **Road fatalities by road user group**

						2012 % change from		
	1990	2000	2010	2011	2012	*2011*	*2000*	*1990*
Bicyclists	120	62	31	44	30	-31.8%	-51.6%	-75.0%
Mopeds	786	248	77	71	57	-19.7%	-77.0%	-92.7%
Motorcycles	106	234	128	117	106	-9.4%	-54.7%	0.0%
Passenger car occupants	898	809	367	331	255	-23.0%	-68.5%	-71.6%
Pedestrians	742	425	195	199	159	-20.1%	-62.6%	-78.6%
Others incl. unknown	272	275	139	129	111	-14.0%	-59.6%	-59.2%
Total	*2,924*	*2,053*	*937*	*891*	*718*	*-19.4%*	*-65.0%*	*-75.4%*

Source: IRTAD

Age

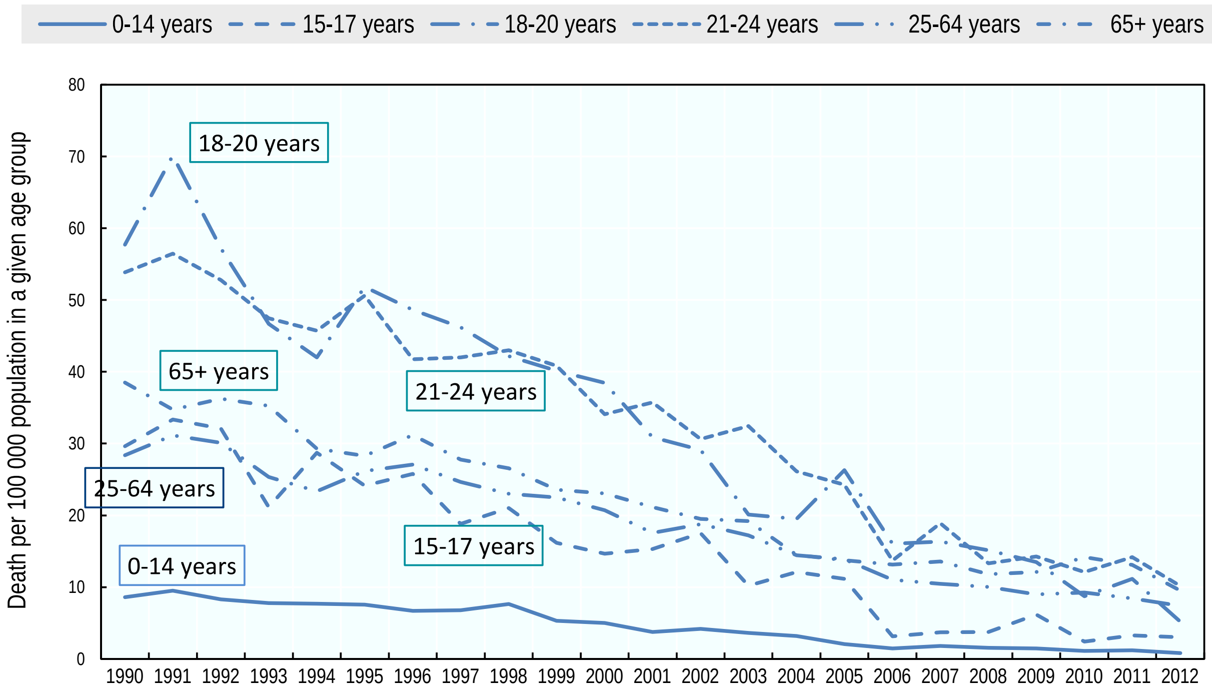
Between 1990 and 2012, all age groups benefited from safety improvements, with fatality reduction above 90% for the youngest groups (0 to 20 years old). The older age groups (65+) have shown a slower decrease than the other groups; they also have a higher death rate than the general population, similar to those of the young (21 24).

Table 3. **Road fatalities by age group**

						2012 % change from...		
Age	1990	2000	2010	2011	2012	*2011*	*2000*	*1990*
0-5	47	38	6	8	2	-75.0%	-94.7%	-95.7%
6-9	52	20	7	4	4	0.0%	-80.0%	-92.3%
10-14	81	25	5	7	7	0.0%	-72.0%	-91.4%
15-17	152	60	8	11	10	-9.1%	-83.3%	-93.4%
18-20	282	171	31	39	18	-53.8%	-89.5%	-93.6%
21-24	333	221	60	66	47	-28.8%	-78.7%	-85.9%
25-64	1 411	1 120	549	492	429	-12.8%	-61.7%	-69.6%
>65	509	377	270	264	195	-26.1%	-48.3%	-61.7%
Total incl. unknown	*2 924*	*2 053*	*937*	*891*	*718*	*-19.4%*	*-65.0%*	*-75.4%*

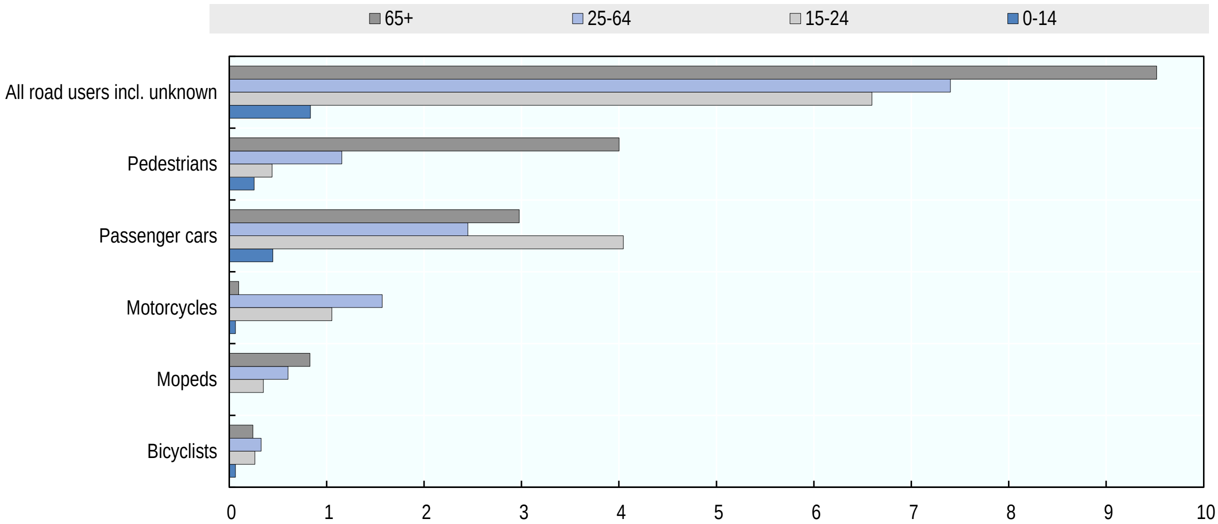
Source: IRTAD

Figure 2. **Road death rates by age group**
Fatalities per 100 000 population in a given age group, 1990-2012



Source: IRTAD

Figure 3. **Road death rate by age and road user group**
Fatalities per 100 000 population



Source: IRTAD

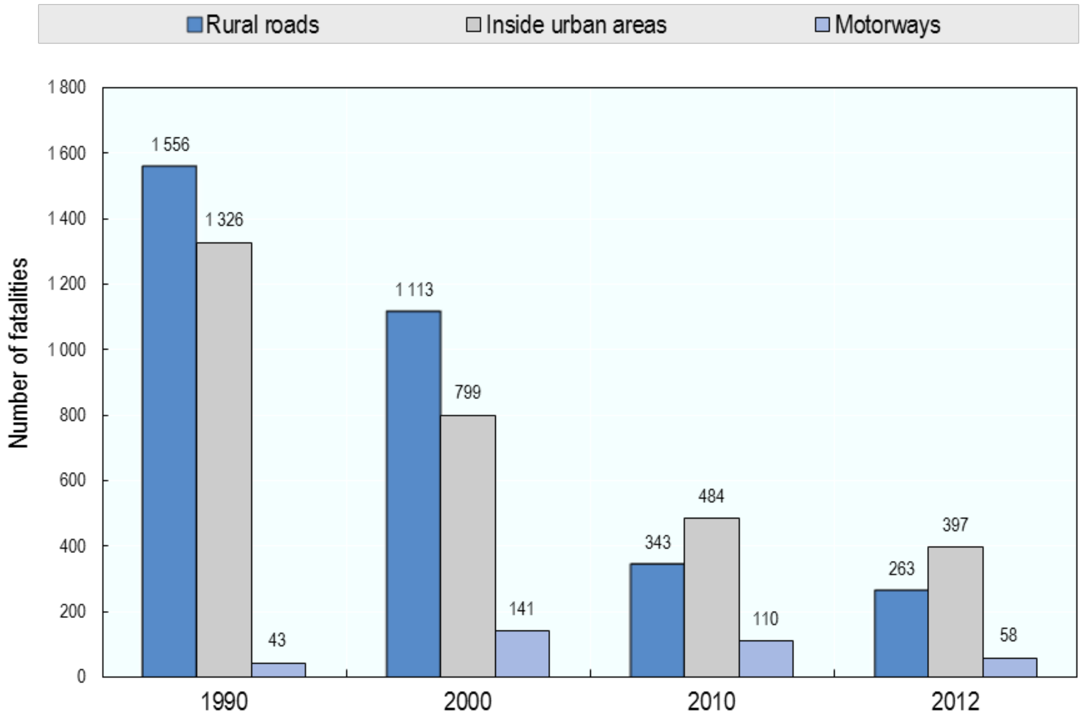
Road Type

In 2012, there were more fatalities in urban areas (55%) than on country roads (37%). 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.

Compared to 2010, the number of road fatalities on motorways was nearly halved. It can be noted that the economic crisis in Portugal led to an important reduction in motorway traffic (-10% in vehicle kilometres travelled) along with an overall speed reduction. The increase of speed enforcement was also a measure that contributed to the decrease of road fatalities on motorways.

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



Source: IRTAD

4. Economic costs of traffic crashes

The National Authority for Road Safety (ANSR), in partnership with a Portuguese university (Universidade Autónoma de Lisboa), conducted 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 4. **Costs of road crashes**
Estimation for 2010

Costs (EUR)	Unit Cost	Total
Fatalities	625 000	0.46 billion
Injury and disability	Seriously injured: EUR 102 000 Slightly injured: EUR 26 000	1.43 billion
Property / damage costs		
Total (EUR)		1.89
Total as % of GDP		1.2%

Source: ANSR, University of Lisbon

5. Recent trends in road user behaviour

Impaired driving

Drink driving

Until 2013, the BAC limit in Portugal was 0.5 g/l for all drivers. Following the revision of the Road Code that entered into force on the 1st of January of 2014, a lower limit of 0.2 g/l now applies for novice drivers (up to 3 years of driving license) and the following professional drivers: drivers of emergency/medical service vehicles, taxis, school buses, heavy vehicles and dangerous goods transport vehicle.

A drink driving crash is defined as a crash where at least one of the drivers involved is over the legal alcohol limit (BAC>=0.5g/l). However, the data are incomplete because some drivers involved in road accidents have not been tested for several reasons, namely because they were too seriously injured to take a test.

According to the data of INMLCF (the National Institute for Legal Medicine and Forensic Sciences – Toxicological Department), in 2012, 37.4% of drivers killed in road crashes who were tested were found to be over the legal blood alcohol.

Drugs and driving

It is forbidden by law to drive under the influence of psychotropic substances. Every driver involved in a fatal or serious injury crash is tested for drugs consumption and the application of roadside drug test devices is allowed when there is a suspicion of drugs abuse.

According to the data of INMLCF (the National Institute for Legal Medicine and Forensic Sciences – Toxicological Department), in 2012 9.8% of killed drivers were tested positive for drugs.

Distraction and fatigue

The Portuguese law regarding mobile phone use while driving allows the use of hands-free kits.

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.

Speed

The table below summarises the main speed limits in Portugal. The revised Road Code introduced the concept of "Coexistence zones" where vulnerable users and others have to respect different rules from other roads. In these coexistence zones the speed limit is of 20Km/h.

Table 5. **Passenger car speed limits by road type**
2014

Urban roads	50 km/h
Rural roads	90 km/h
Motorways	120 km/h

Source: IRTAD

National data on speed distributions are not available; however according to police records of speeding traffic offences in the last three years (2010 to 2012) the number of drivers controlled increased by 5% while the number of offenders in the same period rose by 37%. Consequently, the rate of speeding violations increased from 6% in 2010 to 8% in 2012.

Seatbelts and helmets

Seat-belt 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.

Table 6. **Share of killed car occupants who did not wear a seatbelt**

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Car occupants killed not wearing seatbelt	135	137	158	115	118	82	95	89	89	67
Car occupants killed	1110	931	906	713	717	640	607	742	692	559
%	12,2%	14,7%	17,4%	16,1%	16,5%	12,8%	15,7%	12,0%	12,9%	12,0%

Source: ANSR

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

6. National road safety strategies and targets

Organisation of road safety

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 past road safety strategy

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 revision of the National Road Safety Strategy (ENSR) for its second period (2013-2015) has been approved by the Council of Ministers. This led to the redefinition of the initial strategic goals and the definition of new ones, as well as the related key actions.

Based on the identification of the main risk groups and risk factors, there were defined 7 strategic targets:

– The improvement of driver behaviour

– Protection of the vulnerable road users

– Increase of 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

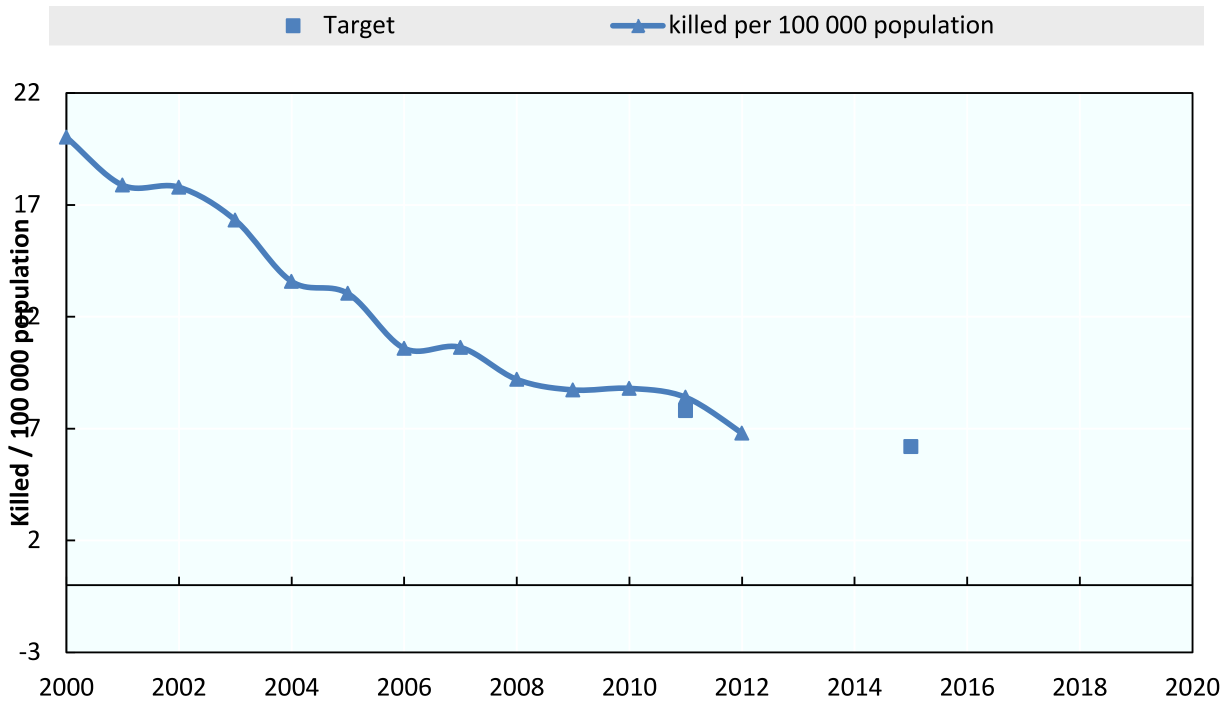
Thirteen operational objectives have been established, with each one being assigned to a work group, composed by different public and private entities, who defined 131 key actions that will be subject of a regular monitoring and evaluation.

Target setting and monitoring

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. However, with the very significant decrease achieved in 2011 and 2012, Portugal is on track to reach its target

In the framework of the National Road Safety Strategy, all the strategic and operational targets and respective actions established should be evaluated (and possibly reformulated), annually.

Figure 5. **Trends in road fatalities towards national target**



Source: IRTAD

7. Recent safety measures (2011-2013)

Driver behaviour

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”.

Useful websites and references

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.

Inhabitants	Vehicles/1 000 inhabitants in 2011	Road fatalities in 2012	Fatalities /100 000 inhabitants in 2012
7.2 million	**280**	**688**	**9.7**

The Road Traffic Safety Agency joined the IRTAD Group in 2013 as an Observer country. Data and information provided in this report are provided by the Road Traffic Safety Agency and have not been validated by IRTAD.

1. Road safety data collection

Definitions

- Road fatality: any person killed immediately or dying after 30 days as a result of a road crash.
- Person seriously or slightly injured: The Republic of Serbia has not yet adopted a definition for slight and serious injuries.

Data collection

Data on road deaths are available since 1981. More detailed information on road crashes is available for the years 1996 onward and included in the police crash database established in 1996. A project, funded by the World Bank, is underway to develop a new, unique database, compatible with the CADAS structure of the European Commission's CARE database. The development of this new database should be finalised in 2014.

When a crash occurs, the traffic police go to the scene of the crash to secure the site, organise relief and collect data for the road crash database, using a dedicated form.

Data on levels of injury are collected by the traffic police based on information from hospitals. The hospitals are obliged to call the police for every person admitted to hospital, claiming to have been involved in a road crash.

There is no information on the level of underreporting.

2. Most recent safety data

Road crashes in 2012

In 2012, there were 688 road deaths in Serbia, a decrease of 6% in comparison with 2011.

This relatively good result is the fruit of the adoption of the Law on Road Traffic Safety at the end of 2009, which was accompanied by the implementation of a series of measures, including education and prevention measures.

Provisional data for 2013

Provisional data for 2013 show a 5.5% decrease in the number of road fatalities.

3. Trends in traffic and road safety (1990-2013)

Traffic

Between 2001 and 2012, the number of motorised vehicles increased by 18.7%.

Change in the number of fatalities and injury crashes (1990-2012)

Since 2006, when the Republic of Serbia was created, the number of fatalities decreased by 24.8%, while the number of people seriously injured decreased by 25.8%.

In 2009, Serbia adopted the New Road Traffic Safety Law, with the progressive implementation of new and important measures, including:

- Institutional capacity building (such as the establishment of the national Road Traffic Safety Co-ordination 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 seat-belt wearing for rear seats.

Rates

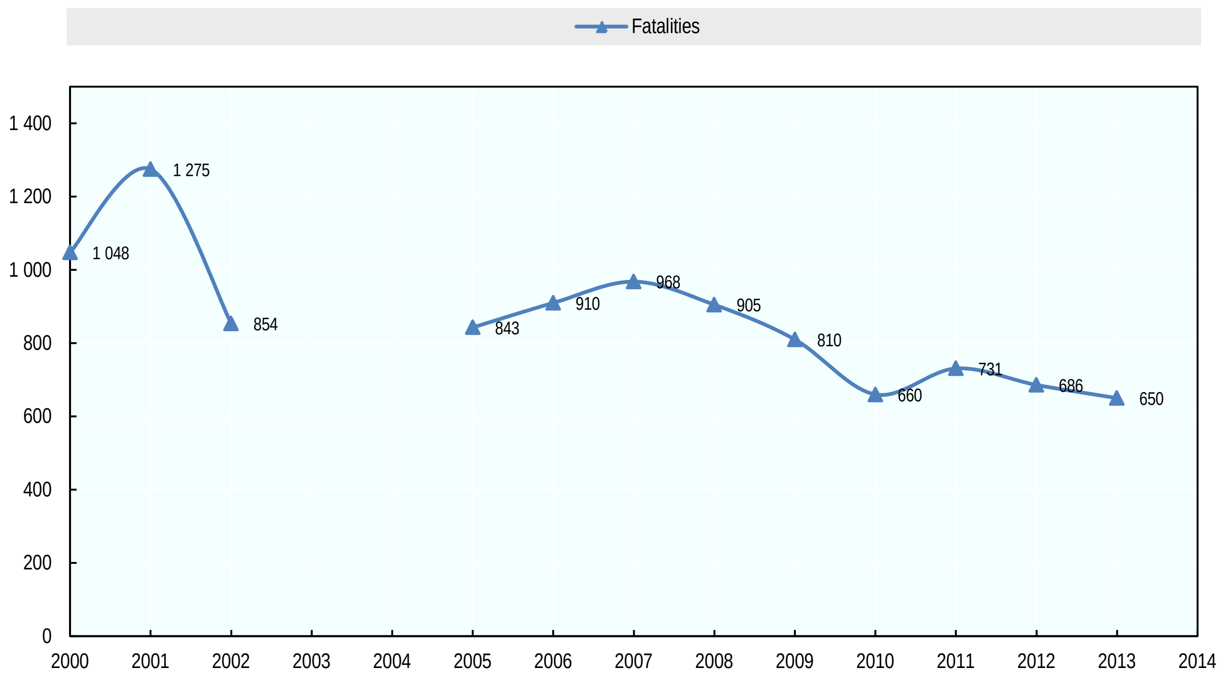
In 2012, the death rate per 100 000 population was 9.7.

Table 1. **Road safety and traffic data**

	1990	2000	2010	2011	2012	2012 % change from 2011	2012 % change from 2000	2012 % change from 1990
Reported safety data								
Fatalities	1 955	1 048	660	731	688	-5.9%	-34.3%	-64.8%
Injury crashes	N/A	11 787	13 586	13 460	12 718	-5.5%	+7.9%	N/A
Injured persons hospitalised	23 070	16 620	19 326	19 312	18 406	-4.7%	+10.7%	-20.2%
Deaths per 100 000 population	20.0	14.0	9.0	10.2	9.7	-4.9%	-30.7%	-51.5%
Deaths per 10 000 registered vehicles	9.8	6.4	3.7	3.6	3.3	-8.3%	-48.4%	-66.3%
Traffic data								
Registered vehicles[1]	/	/	1 800 778	2 013 929	1 977 253	-1.8%	/	/
Registered vehicles per 1 000 population)	/	222.2	250.6	280.2	275.3	-1.7%	+23.9%	/

Source: RTSA.

Figure 1. **Road Deaths**



Source: RTSA.

Road users

In 2012, passenger car occupants represented 43% of traffic fatalities, pedestrians 23% and motorised two-wheelers 13%.

1 Registered vehicles excluding mopeds.

Table 2. **Road fatalities by road user group**

	2010	2011	2012	2012 % change from *2011*	2012 % change from *2010*
Bicyclists	65	56	69	+23.2%	6.2%
Mopeds	20	25	29	+16.0%	45.0%
Motorcycles	48	62	62	0%	29.2%
Passenger car occupants	278	311	299	-3.9%	7.6%
Pedestrians	169	187	155	-17.1%	-8.3%
Others incl. unknown	80	90	74	-17.8%	-7.5%
Total	*660*	*731*	*688*	*-5.9%*	4.2%

Source: RTSA.

Age

Table 3. **Road fatalities by age group**

Age	2010	2011	2012	2012 % change from... *2011*	2012 % change from... *2010*
0-5	9	5	3	n.a	n.a
6-9	7	5	4	n.a	n.a
10-14	9	10	9	n.a	n.a
15-17	8	27	21	n.a	n.a
18-20	31	35	28	-20%	-9.7%
21-24	50	53	48	-9.4%	-4.0%
25-64	389	422	387	-8.3%	-0.5%
>65	157	174	188	-8%	19.7%
Total incl. unknown	*660*	*731*	*688*	*-5.9%*	4.2%

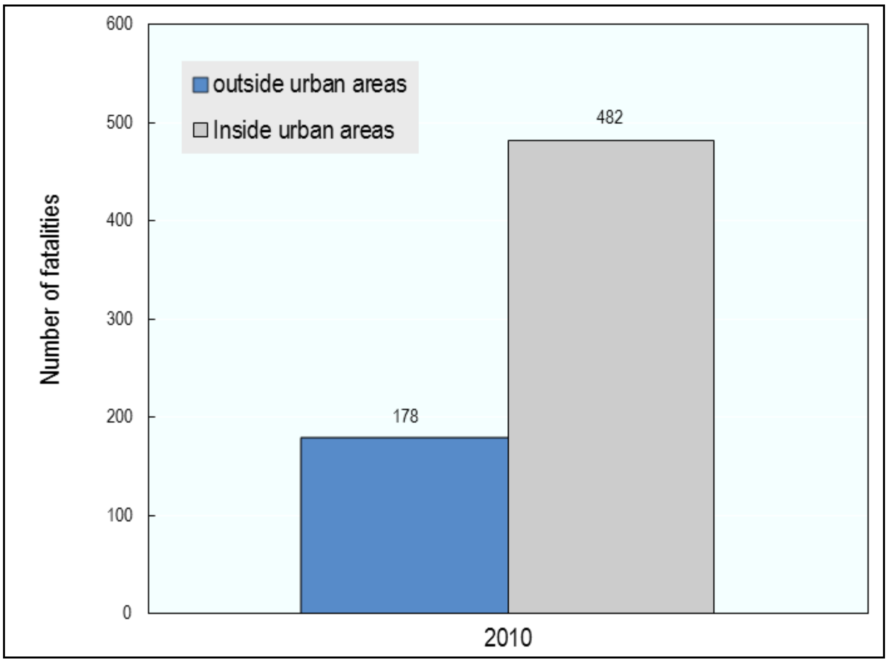
Source: RTSA.

Road type

Unlike many other countries, the great majority of fatalities (68%) occurred in urban areas. In 2010, 73% of fatalities occurred on urban roads, 21% on roads outside built-up areas and 6% on motorways. This is explained by the following factors:

- The passing of the main state roads through urban areas (settlements);
- Local roads and street networks unadapted to vulnerable road users (especially pedestrians and cyclists).

Figure 2. **Road fatalities by road type**



Source: RTSA.

4. Economic costs of traffic crashes

Based on recent research[2], in 2011, road crashes represented a total social cost of approximately EUR 640 million, equivalent to 2% of GDP.

5. Recent trends in road user behaviour

Impaired driving

Drink 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 motorcycle operators. Over the past ten years, around 5-7% of fatal crashes were attributed to drink driving.

Drugs and driving

According to the Traffic Safety Law, it is forbidden to drive under the influence of illicit drugs.

2. *Source:* Road Safety Technical Assistance; Corridors of Serbia, Project, Republic of Serbia, Belgrade, 2013.

Distraction

Distracted driving is recognised as a growing problem in country, but there are no adequate surveys in Serbia to assess the extent of the phenomenon.

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.

Fatigue

In 2012, fatigue was reported as the main contributing factor in 58 road crashes, causing the death of one person.

Speed

The table below summarises the main speed limits in Serbia. Since the adoption of the New Traffic Safety Law, the speed limit in urban areas was reduced from 60 km/h to 50 km/h.

Table 4. **Passenger car speed limits by road type, 2014**

	General speed limit Passenger cars	Comments
Urban roads	50 km/h	Lower speed limits for young drivers
Rural roads	80 km/h	
Motorways	120 km/h	

Source: RTSA.

Speeding is the most common cause of road crashes in Serbia. In 2012, excessive or inappropriate speed was responsible for 48% of road deaths.

Seat belts and helmets

Seat-belt use has been compulsory for front seats since 1982 and for rear seats since 2009.

A roadside survey undertaken in 2013 indicated a 70% seat-belt wearing rate by front-seat occupants and a 3% wearing rate by rear-seat occupants. Thirty-two per cent of children below 3 years old were using an appropriate child seat; this rate was 18% for children above 3.

Table 5. **Seat-belt wearing rate by car occupants**

	2013
Front seat	
General	70%
Rear seats	
General (adults and children)	3.1%

Source: RTSA.

All riders of motorised two-wheelers are required to wear helmets. There is no mandatory law for helmet use by cyclists. In 2013, the helmet-wearing rate by riders of mopeds was 84% and by motorcyclists riders 94%.

6. National road safety strategies and targets

Organisation of road safety

In Serbia, the leading agency for road safety is the Ministry of Transport. The national Road Traffic Safety Co-ordination Body is composed of ministers in charge of traffic issues, interior affairs, health, labour, justice, education, and trade and services, with the main aim being 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.

Road safety strategy for 2011-2020

The adoption of the first national road traffic safety strategy and a national road safety programme is expected in 2014. It will cover the period 2013-2020 and include the adoption of quantitative targets.

7. Recent safety measures (2011-2013)

Driver behaviour

Media campaigns

Several safety campaigns were launched or pursued in 2013 that focus on:

- Seatbelts;
- Summer time;
- Drink driving;
- Railway crossings;
- Child safety;
- Tractor drivers;
- Vulnerable road users.

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 the implementation of rehabilitation courses for drivers whose licence is revoked.

In 2013, Serbia began a licensing programme for driving instructors. In the first four months of 2014, about 800 driving instructors received their licence.

Infrastructure

In 2010-2012, 60 kilometres of motorway were 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 has introduced digital tachographs for monitoring heavy trucks and professional drivers.

8. Recent and on-going research

In 2013, the Road Traffic Safety Agency:

- finalised the project, "Methods for monitoring the traffic safety indicators and their importance for the strategic traffic safety management." An overview of the project is available on the RTSA website, www.abs.gov.rs;
- finalised the pilot project, "Risk mapping and Star rating of the Serbian major road IA-2, from Belgrade to Čačak, based on the iRAP/EuroRAP methodology." The overview of the pilot project is available on the RTSA website, www.abs.gov.rs;
- pursued the analysis of risk maps, based on exposure for different road users. The risk maps are available on the RTSA website, www.abs.gov.rs.

Useful websites and references

Road Traffic Safety Agency of Serbia	www.abs.gov.rs

Contact

For more information, please contact: dragoslav.kukic@abs.gov.rs or jovica.vasiljevic@abs.gov.rs.

Slovenia

Source: IRTAD, Slovenian Traffic Safety Agency

Inhabitants	Vehicles/1 000 inhabitants in 2012	Road fatalities in 2012	Fatalities /100 000 inhabitants in 2012
2.1 million	**637**	**130**	**6.3**

1. Road safety data collection

Definitions

- Road fatality: any person killed immediately or dying within 30 days as a result of a road crash.
- Seriously injured person: Any injured person from a road traffic crash who sustains injuries entailing temporary or permanent health damage or temporary or permanent reduced ability to work.
- Slightly injured: Any person injured excluding persons seriously injured.

Data collection

In Slovenia, crash data are collected by the police, which is the main source of information for road fatalities and 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. Most recent safety data

Road crashes in 2012

In 2012, there were 130 fatalities, a 7.8 % decrease in comparison with 2011. The number of people seriously injured decreased by 7.7%. The number of fatalities was below the target set for year 2012 (less than 135 fatalities).

Monthly comparison shows a reduction of fatalities particularly in April and September as well as in January (-29 %) and March. The higher increase of fatalities was recorded in the summer months and in October. In the first six months of the year 2012 there was a 32% reduction in fatalities, while fatalities increased by 17% in the second half of the year.

Data for 2013

Final data show that fatalities are down, from 130 in 2012, to 125 in 2013. Slovenia recorded an overall reduction in traffic crashes (-14 %) in 2013. The number of seriously and slightly injured was also reduced, by 17% and 3% respectively.

Monthly comparisons show an increase of fatalities, particularly in the first 5 months of 2013 (+39%). In the summer months (June-August) the number of fatalities decreased by 35%; from September to November the number of people killed decreased by 14%, but in December the number of fatalities increased by 75%.

The reduction in fatalities mainly benefited car drivers (52 fatalities in 2012 and 41 fatalities in 2013). The number of vulnerable road users killed increased by 8% (53 fatalities in 2012, and 57 fatalities in 2013).

3. Trends in traffic and road safety (1990-2013)

Traffic

Since 1990, traffic (in vehicle–kilometres) has more than doubled and the vehicle fleet has increased by 70%. During the same period the number of fatalities decreased by 75%.

Change in the number of fatalities and injury crashes (1990-2012)

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 road deaths 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), regular media campaigns promoting road safety and the Road Safety Act, which came into force in 2008.

Rates

Between 1990 and 2012, the mortality rate, expressed in terms of deaths per 100 000 population, was divided by more than 4.

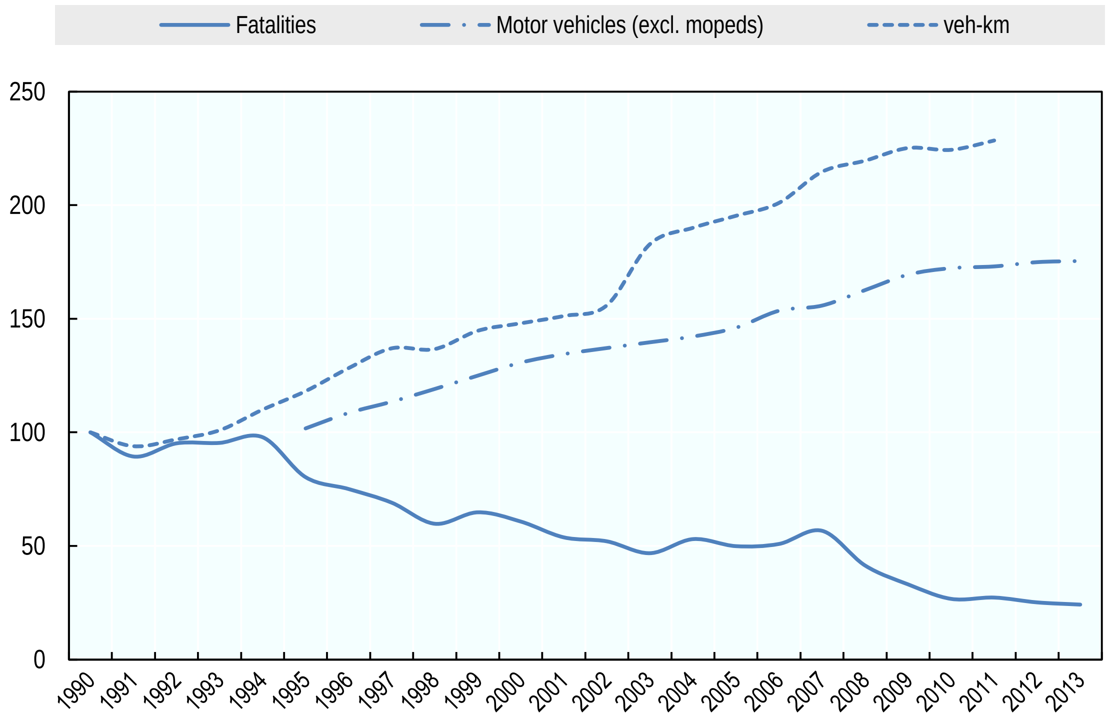
In 2012, Slovenia had a mortality rate of 6.3 deaths per 100 000 population.

Table 1. **Road safety and traffic data**

	1990	2000	2010	2011	2012	2012 % change from 2011	2012 % change from 2000	2012 % change from 1990
Reported safety data								
Fatalities	517	314	138	141	130	-7.8%	-58.6%	-74.9%
Injury crashes	6 553	8 951	7 596	7 089	6 742	-4.9%	-24.7%	
Deaths per 100,000 population	25.9	15.8	6.7	6.9	6.3	-8.0%	-60.0%	-75.6%
Deaths per 10,000 registered vehicles	6.9	3.2	1.1	1.1	1.0	-8.8%	-69.1%	-85.6%
Deaths per billion vehicle kilometres	65.1	26.7	7.7	7.8	-			
Traffic data								
Registered vehicles[1] (thousands)	749	979	1 290	1 296	1 310	1.1%	33.8%	74.9%
Vehicle kilometres (millions)	7 945	11 759	17 826	18 153				
Registered vehicles per 1 000 population)	375.2	492.5	630.4	632.2	637.4	0.8%	29.4%	69.9%

Source: IRTAD

Figure 1. **Road safety and traffic data**



Source: IRTAD

Road users

Since 2000, all user groups, especially pedestrians and passenger car occupants, have benefited from the improvement.

1. Registered vehicles excluding mopeds.

Table 2. **Road fatalities by road user group**

	1990*	2000	2010	2011	2012	2012 % change from 2011	2000	1990
Bicyclists *(cyclists and motorcycles -under 25kw)	84	26	16	14	12	-14.3%	-53.8%	-85.7%
Mopeds	17	21	6	2	4	n.a.	n.a	-76.5%
Motorcycles	17	19	17	28	18	-35.7%	-5.3%	5.9%
Passenger car occupants		179	68	69	71	2.9%	-60.3%	
Pedestrians	108	60	26	21	19	-9.5%	-68.3%	-82.4%
Others incl. unknown		9	5	7	6	-14.3%	-33.3%	
Total	*517*	*314*	*138*	*141*	*130*	*-7.8%*	*-58.6%*	*-74.9%*

Source: IRTAD

Age

Since 2000, all age groups have benefited from the improvements in road safety, with the best results for young people (15-20 age group).

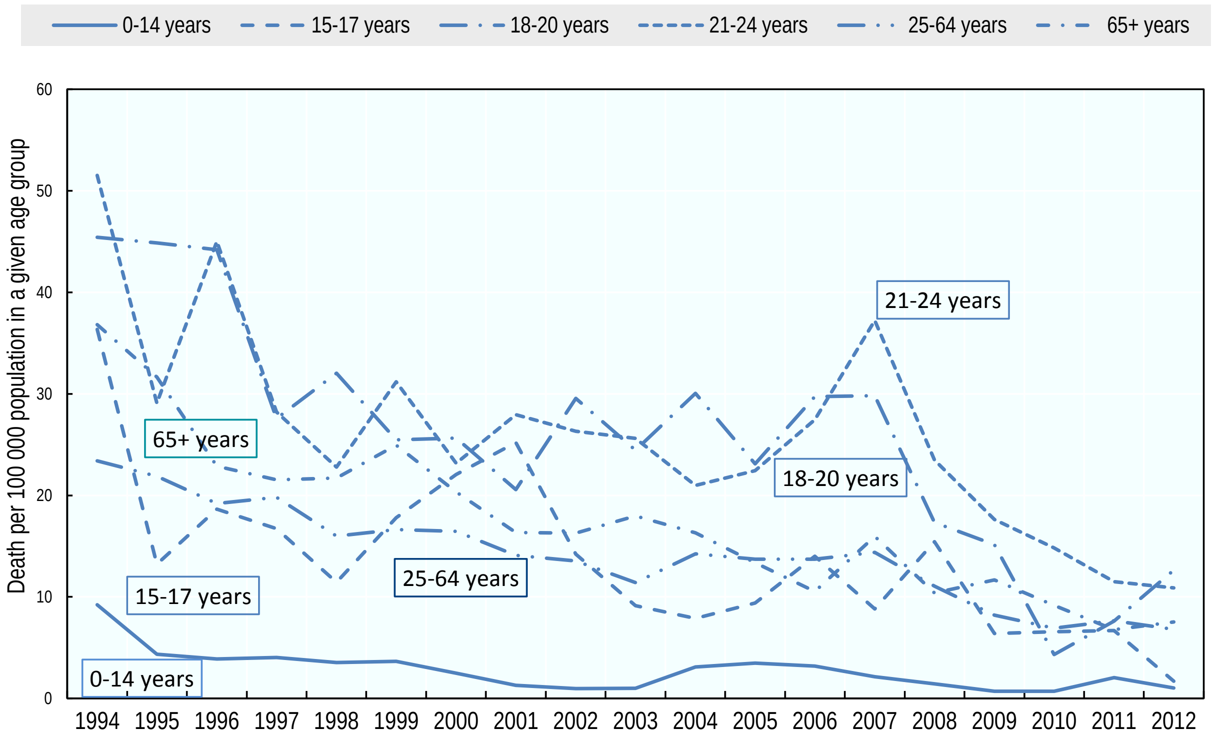
In 2011, the group aged 18-20 had the highest mortality risk, nearly twice the risk for the overall population.

Table 3. **Road fatalities by age group**

Age	1990	2000	2010	2011	2012	2012 % change from... 2011	2000	1990
0-5		2	2	5	2	n.A		
6-9		2	0	0	1			
10-14		4	0	1	0			
15-17		18	4	4	1			
18-20		23	3	5	8			
21-24		28	16	12	11			
25-64	54	181	82	91	81	-11.0%	-55.2%	
>65	40	56	31	23	26	13.0%	-53.6%	
Total incl. unknown	*517*	*314*	*138*	*141*	*130*	*-7.8%*	*-58.6%*	*-74.9%*

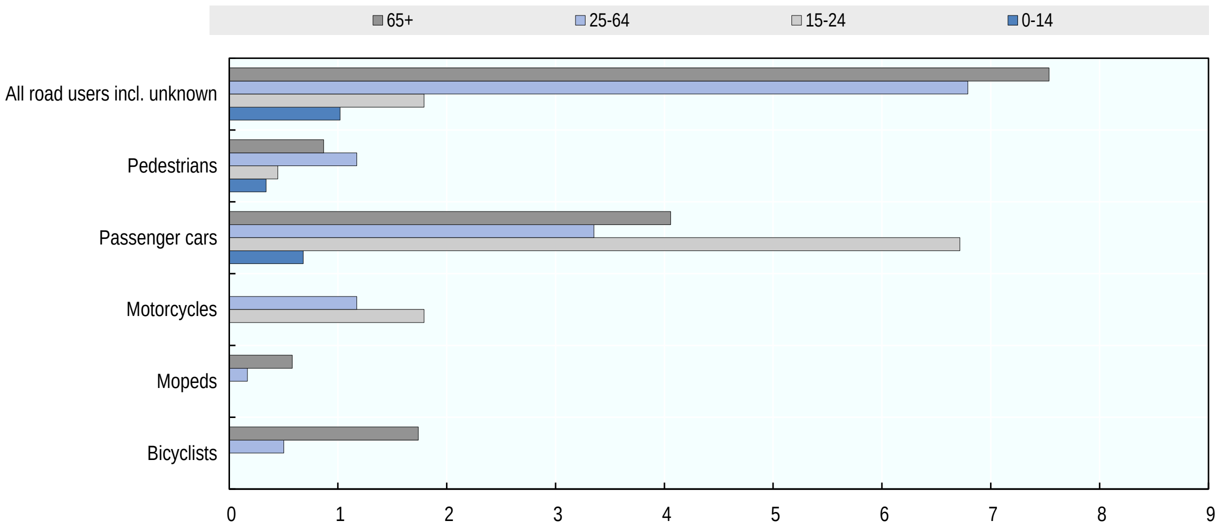
Source: IRTAD

Figure 2. **Road death rates by age group**
Fatalities per 100 000 population in a given age group, 1990-2012



Source: IRTAD

Figure 3. **Road death rate by age and road user group**
Fatalities per 100 000 population

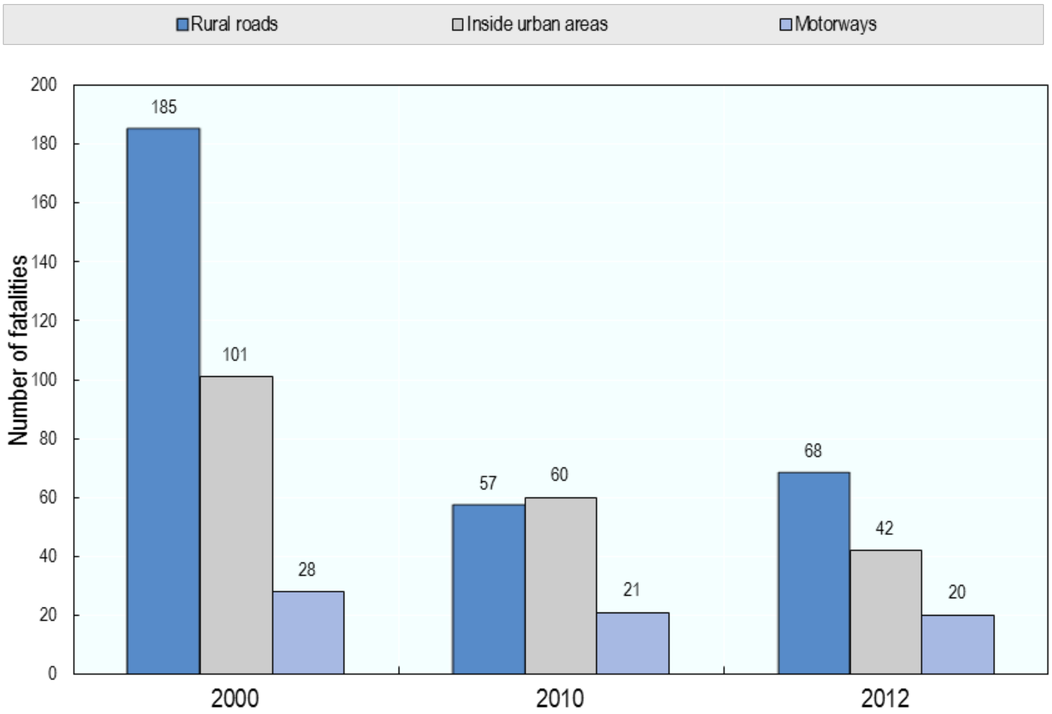


Source: IRTAD

Road Type

In 2012, 52% of road fatalities occurred on rural roads.

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



Source: IRTAD

4. Economic costs of traffic crashes

Traffic crashes represent a very significant cost for society, estimated in 2012 at around EUR 530.8 million, i.e. 1.47 % of GDP. It is based on the number of reported crashes and an estimation of non-reported crashes.

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 4. **Costs of road crashes, 2012**

Costs (EUR)	Unit Cost	Total
Fatalities	779.130	105.18 million
Several injuries	86..088	73.00 million
Slight injuries	9.680	80.34 milion
Property / damage costs		113.66 million
Total (EUR)		530.8 million *Also includes a cost estimation for non reported crashes*
Total as % of GDP		1.47 %

Source: Slovenian Traffic Safety Agency

5. Recent trends in road user behaviour

Impaired driving

Drink driving

The maximum permissible blood alcohol content is 0.5 g/l. Driving under the influence of alcohol is a major safety issue in Slovenia. Around one-third of serious crashes involve persons with blood alcohol levels higher than that allowed by law.

The number of drink driving crashes reduced by 1% in 2012, but the number of killed road users (due to drink driving) increased by 23%. The average blood alcohol content of drivers involved in a fatal crash increased to 1.55 g/kg (1.46 g/kg in 2011).

Table 5. **Share of alcohol related fatal crashes**

Year	2008	2009	2010	2011	2012	2013
Alcohol related fatal accidents in %	35%	33%	36%	23%	34%	30%

Drugs and driving

In 2012 0.4 % of traffic crashes were caused by drivers driving under the influence of drugs.

Distraction

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.

Fatigue

There is no data available on the influence of fatigue on crashes.

Speed

Speeding is one of the major causes of traffic crashes in Slovenia.

In 2012 (compared with 2011) the number of traffic crashes caused by speeding was reduced by 3 %

The average speed during daytime on highways was 122 km/h on motorways, 79 km/h on rural roads and 55 km/h on urban roads.

The table below summarises the main speed limits in Slovenia. Since 2011 the speed limit has increased on express roads from 100 km/h on 110 km/h.

Table 6. **Passenger car speed limits by road type, 2014**

	General speed limit Passenger cars
Urban roads	50 km/h
Rural roads	90 km/h
Motorways	130 km/h 110 km/h on express roads

Source: Slovenian Traffic Safety Agency

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).

In 2012, 51 car drivers were killed in traffic accidents, of which 20 were not wearing a seatbelt.

Table 7**. Seat-belt wearing rate by car occupants**

	2010	*2013*
Front seat		
General	92.3%	94%
Urban roads	87.9%	
Rural roads	92.%	
Motorways	96.5%	
Rear seats		
Adults	76.4%	66%

Source: Slovenian Traffic Safety Agency

Helmet wearing is compulsory for all motorised two-wheelers, and is compulsory for young cyclists up to 14 years of age. There is no data on the helmet wearing rate.

6. National road safety strategies and targets

Organisation of road safety

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.

Road safety strategy for 2013-2022

The Slovenian National Road Safety Programme 2013–2022 was adopted by government in March 2013. The programme is based on Vision Zero — no fatalities and no seriously injured on Slovenian roads.

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.

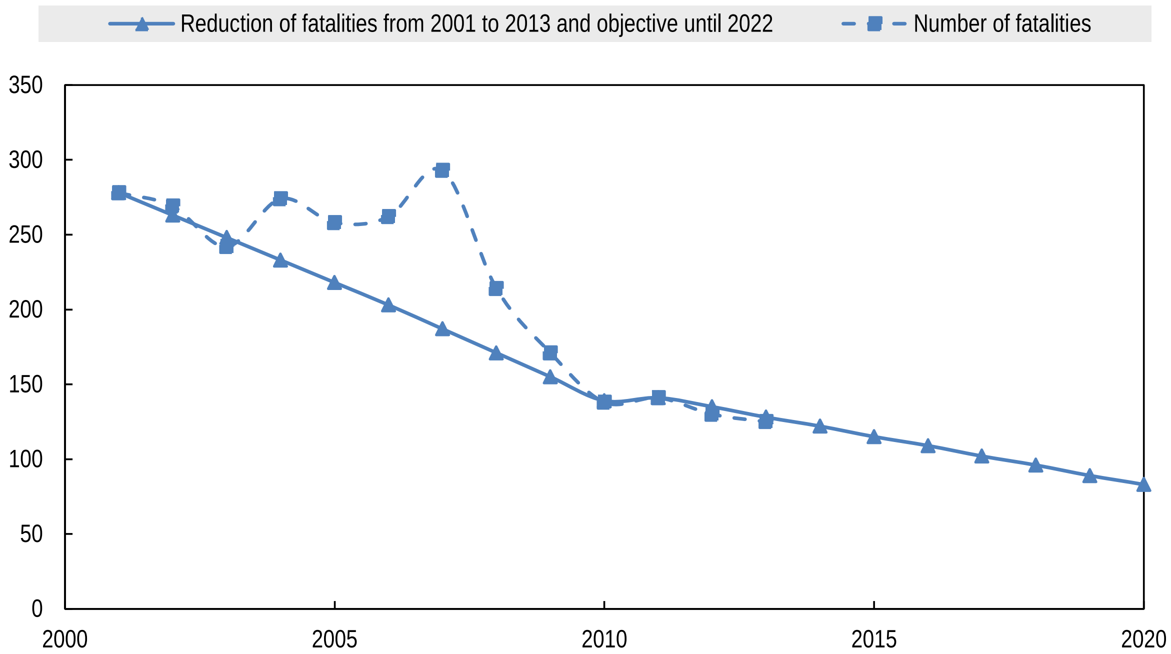
Implementation of the new national road safety programme has been established at three levels:

- 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.

Target setting

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 inhabitants and 230 seriously injured per million inhabitants by 2022.

Figure 5. **Trends in road fatalities towards national and EU[2] targets**



Source: Slovenian Traffic Safety Agency

Evaluation of past road safety strategy

The target of the past National Road Safety Programme 2007-2011 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.

7. Recent safety measures (2011-2013)

Driver behaviour

Enforcement

- In 2012 and 2013, the Act of rules in Road Transport was modified to include more severe sanctions for minor offenses.

Impaired driving

- Rehabilitation programmes for impaired drivers were introduced in 2012. Analysis is being undertaken on the effectiveness of the programme.

2. In 2010, the European Commission adopted the target of halving road deaths by 2020, compared to 2010 levels.

Education and awareness

Several awareness campaigns were undertaken in 2013, including:

- January 2013: “Be currently unavailable if you want to stay alive” – campaign to raise awareness of the dangers of mobile phone use while driving.
- February 2013: “Be careful, be seen!” – educational programme in primary schools, with children writing letters to their grand parents regarding the visibility issues in traffic and promoting the use of reflectors.
- February 2013: “Stop. The train can not.”
- February – March 2013: “40 days without alcohol”.
- March 2013: “Seat belt – fasten your life” – This campaign is aimed at increasing the seatbelt usage rate for drivers and passengers of cars, trucks and buses.
- January till April 2013: “It’s always right to buckle up".
- April 2013: “Appropriate vehicle sorting on highways” – new, preventive campaign for appropriate vehicle sorting on highways in the event of congestion.
- April 2013: “Elderly drivers”.
- April, May, September 2013: “Safe cycling exams” – cycling programme and exams in primary schools with theoretical skills and practical part of training.
- April, June and August 2013: “Speed – slower is safer”.
- September 2013: “Mobility Week” – Promoting cycling, public transport and walking in urban areas and cities.
- February and October 2013: “Pedestrian, be cautious / noticeable”.
- March, April, July and August 2013: campaigns to improve the security of two-wheeled motor vehicle drivers.
- April - June 2013: “Cyclists” – a new preventive campaign, coordinated by the Slovenian Traffic Safety Agency. Purpose of campaign was to increase responsible behaviour among cyclists.
- August – September 2013: Preventive action “Beginning of the school year".

Infrastructure

- May 2012: “Dangerous spots 2009–2011” – Annual analysis and identification of dangerous spots on the Slovenian road network.
- November 2012: “Dangerous road sections 2011” – Annual analysis and identification of dangerous state road sections.
- May 2013: “Dangerous spots 2010–2012” – Annual analysis and identification of dangerous spots on the Slovenian road network.

8. Recent and on-going research

- Since October 2012 (ongoing): European project "ROSEE – Road safety in South East European regions". The main objective of ROSEE is to improve coordination in promoting, planning and operating national and regional road networks. A major focus is on cycling safety.

- The Slovenian Traffic Safety Agency has launched a pilot project focusing on the promotion of safe cycling in the wider context of mobility, sustainable transport, health and congestion policy. Within this project, a new measure, "sharrow", has been implemented in Maribor. Sharrow is shared-lane marking − indicating a shared space for cyclists and drivers − placed in the centre of a lane to indicate that a bicyclist may use the full lane. Moreover, in Ljubljana, cyclist counters are being introduced. These give the daily, as well as yearly count, of cyclists. The cyclist counter is devoted to promote cycling and increase bicycle use. Within the pilot project the Slovenian Traffic Safety Agency is conducting before/after analysis on the two implemented measures and is also organising and leading other activities for the promotion of safe cycling.

Useful websites and references

Slovenia Traffic Safety Agency	http://www.avp-rs.si
Slovenian Road Directorate	http://www.vozimo-pametno.si
Slovenian Traffic Statistics	http://www.policija.si/eng/index.php/statistics
Project ROSEE	http://www.rosee-project.eu/sl

Contact

For more information, please contact: Andraz.Murkovic@avp-rs.si

Spain

Source: IRTAD, Dirección General de Tráfico

Inhabitants	Vehicles/1 000 inhabitants	Road fatalities in 2012	Fatalities /100 000 inhabitants in 2012
46.2 million	**675**	**1 903**	**4.1**

1. Road safety data collection

Definitions

- Road fatality: any person killed immediately or dying within 30 days as a result of a road crash.
- Seriously injured person: any injured person hospitalised longer than 24 hours as a result of a road crash.

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.

Information from hospital discharges and health sources, and information reported by the police revealed important differences in 2012:

- Figures from police records show that for each person killed there are 5 seriously injured and 55 slightly injured,
- Figures from health sources show that for each fatality there are 12 people hospitalised as a result of a road traffic crash and 276 slightly injured.

2. Most recent safety data

Road crashes in 2012

In 2012, there were 83 115 injury crashes, a similar figure to that of 2011, and 1 903 road fatalities, i.e. a decrease by 7.6% compared to 2011. Here are some highlights from the 2012 crash statistics:

- 76% of fatalities were male.
- 51% fatalities were 45 years old or older.
- 46% of fatalities were car occupants.
- 76% of fatalities occurred on interurban roads, of which 79% occurred on secondary roads.
- 35% fatalities were the result of single vehicle crashes.
- Fatalities decreased for all user groups, except cyclists, for whom fatalities increased by 47 %.
- There was an increase in the number of fatalities on motorways and urban roads.
- With regard to age, there was an increase in the number of fatalities aged 0 to 14 and over 75.

Provisional data for 2013

Provisional data for 2013 show a decrease by 9%, thus confirming the continuous downward trend in the number of road fatalities

3. Trends in traffic and road safety (1990-2013)

Traffic

Between 1990 and 2012, distance travelled increased by more than 78% on the Spanish State Road Network, which carries 50% of the national traffic volume.

Overall, between 2000 and 2012, traffic volume outside urban areas increased by 13%. However, while the traffic volume effectively increased (by 23%) between 2000 and 2007, it actually decreased by 11% between 2008 and 2012 due to the economic situation.

Vehicle fleet nearly doubled between 1990 and 2012. Between 2000 and 2012, the fleet increased by 34%, although in 2012 it slightly decreased (-0.2%).

Change in the number of fatalities and injury crashes (1990-2012)

Since 1990, the number of fatalities decreased by nearly 80%. More recently, between 2000 and 2012, the number of fatalities decreased by 67% – one of the largest reductions among IRTAD countries.

Since 2000, the number of injury crashes decreased by 18%.

Rates

In 2012, mortality rate due to road crashes was 4.1 deaths per 100 000 population and the fatality rate per 10 000 vehicles was 0.58. As compared to 2011, both rates have decreased: mortality rate by 9% and fatality rate per 10 000 vehicles by 6.5%.

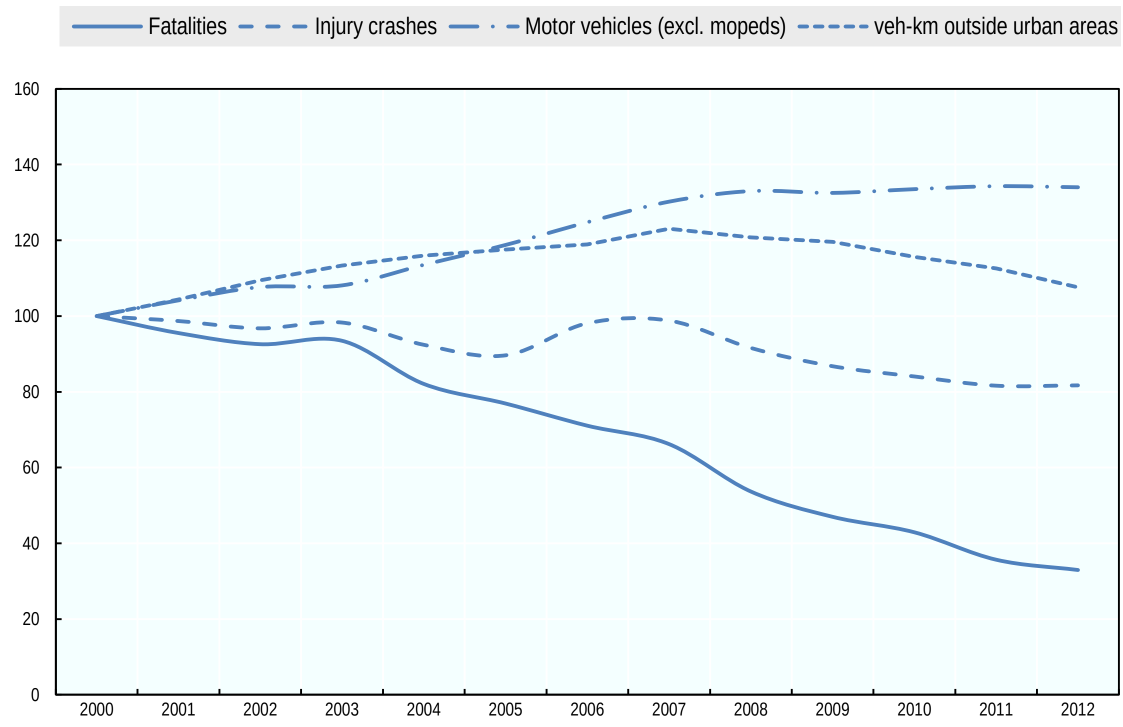
Since 1999, the risk of being killed on Spanish roads has been divided by more than 5.

Table 1. **Road safety and traffic data**

	1990	2000	2010	2011	2012	2012 % change from 2011	2000	1990
Reported safety data								
Fatalities	9 032	5 776	2 478	2 060[1]	1 903	-7.6%	-67.1%	-78.9%
Injury crashes	101 507	101 729	85 503	83 027	83 115	0.1%	-18.3%	-18.1%
Injured persons hospitalised		27 764	11 995	11 347	10 444	-8.0%	-62.4%	
Injured persons with score MAIS3+		10 017	6 046	6 044	5 539	-8.3%	-44,7%	
Deaths per 100,000 population	23.3	14.4	5.4	4.5	4.1	-7.7%	-71.4%	-82.3%
Deaths per 10,000 registered vehicles	5.8	2.5	0.8	0.7	0.6	-7.4%	-75.4%	-89.4%
Traffic data								
Registered vehicles[2] (thousands)	15 697	23 284	31 087	31 269	31 203	-0.2%	34.0%	98.8%
Registered vehicles per 1,000 population)	404.3	581.4	676.0	677.5	675.4	-0.3%	16.2%	67.1%

Source: IRTAD

Figure 1. **Road safety and traffic data**
1990 = index 100



Source: IRTAD

1. 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.

2. Registered vehicles excluding mopeds.

Road users

Since 1990, all user groups, but especially car occupants and moped riders, have benefited from improvements in road safety.

Between 2004 and 2007, there was an increase in the number of motorcyclists killed; this trend was broken in the following years with reductions by 22% in 2008; 12% in 2009 and 2010; 10% in 2011; and 13% in 2012.

In 2012 the decrease in fatalities benefited all road users, except cyclists who suffered an increase from 49 killed in 2011 to 72 killed in 2012. The largest reductions were observed for motorcyclists (-3%), car occupant (-11%) and goods vehicle occupants (-15%).

Table 2. **Road fatalities by road user group**

						2012 % change from		
	1990	2000	2010	2011[3]	2012	*2011*	*2000*	*1990*
Bicyclists	160	84	67	49	72	46.9%	-14.3%	-55.0%
Mopeds	683	474	100	74	66	-10.8%	-86.1%	-90.3%
Motorcycles	792	392	386	348	302	-13.2%	-23.0%	-61.9%
Passenger car occupants	5 034	3 289	1 197	977	872	-10.7%	-73.5%	-82.7%
Pedestrians	1 542	898	471	380	376	-1.1%	-58.1%	-75.6%
Others incl. unknown	823	639	257	232	215	-7.3%	-66.4%	-73.9%
Total	*9 032*	*5 776*	*2 478*	*2 060*	*1 903*	*-7.6%*	*-67.1%*	*-78.9%*

Source: IRTAD

Age

Since 1990, the reduction in fatalities has benefited all age groups, with the highest reduction for children and young people. Since 2000, there have been reductions in all age groups. In particular, the mortality rate among those aged 15-24 decreased by more than 80%.

In 2012 reductions in fatalities were registered for all age groups compared to 2011, except for the 0-14 year olds, for whom the number of fatalities rose from 42% to 52% and the age group 74 years and older, which increased by 10%. The largest reduction was observed for the 18-20, for which the number of fatalities was nearly halved. This significant reduction is to be analysed in light of the severe economic crisis in Spain, which particularly affects young people. In 2013, the youth employment rate was among the highest in Europe and reached 54% for those aged below 25.

In terms of mortality rate per 100 000 population, progress has been most remarkable for the young people aged 18-20, for which the rate was divided by 4 within 7 years. While it was the group most at risk until 2007; they now have a fatality rate similar to that of the general population. The risk is now highest for the elderly.

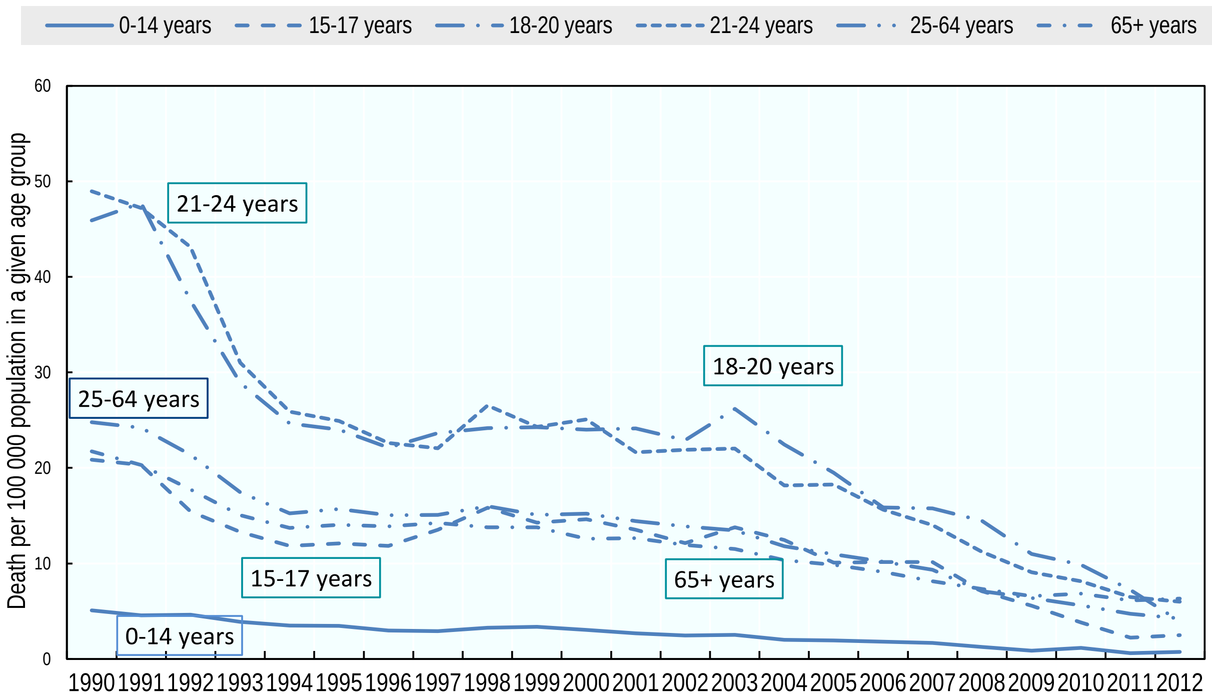
3. As of 2011, a new methodology was applied to calculate the number of road fatalities. The revised methodology explains 3.6% (on average) of the decrease between 2011 and 2010.

Table 3. **Road fatalities by age group**

Age	1990	2000	2010	2011[4]	2012	2012 % change from... 2011	2000	1990
0-5	129	46	32	17	15	-11.8%	-67.4%	-88.4%
6-9	111	40	17	4	14	250.0%	-65.0%	-87.4%
10-14	160	95	30	21	23	9.5%	-75.8%	-85.6%
15-17	417	223	50	29	32	10.3%	-85.7%	-92.3%
18-20	902	422	139	100	54	-46.0%	-87.2%	-94.0%
21-24	1 266	661	174	134	120	-10.4%	-81.8%	-90.5%
25-64	4 759	3 267	1 489	1 253	1 122	-10.5%	-65.7%	-76.4%
>65	1 134	843	529	484	507	4.8%	-39.9%	-55.3%
Total incl. unknown	*9 032*	*5 776*	*2 478*	*2 060*	*1 903*	*-7.6%*	*-67.1%*	*-78.9%*

Source: IRTAD

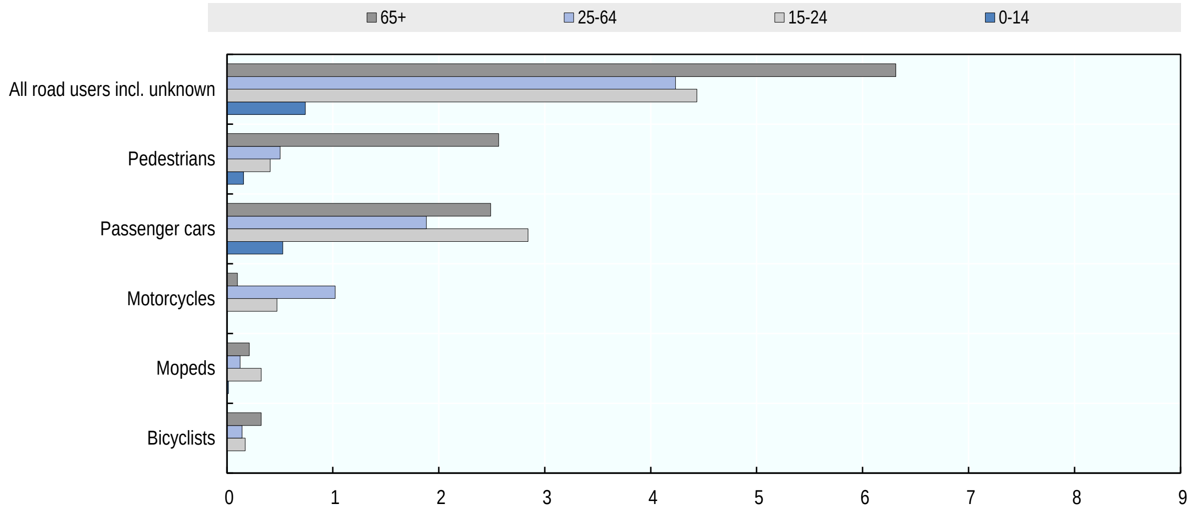
Figure 2. **Road death rates by age group**
Fatalities per 100 000 population in a given age group, 1990-2012



Source: IRTAD

4. 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 3. **Road death rate by age and road user group**



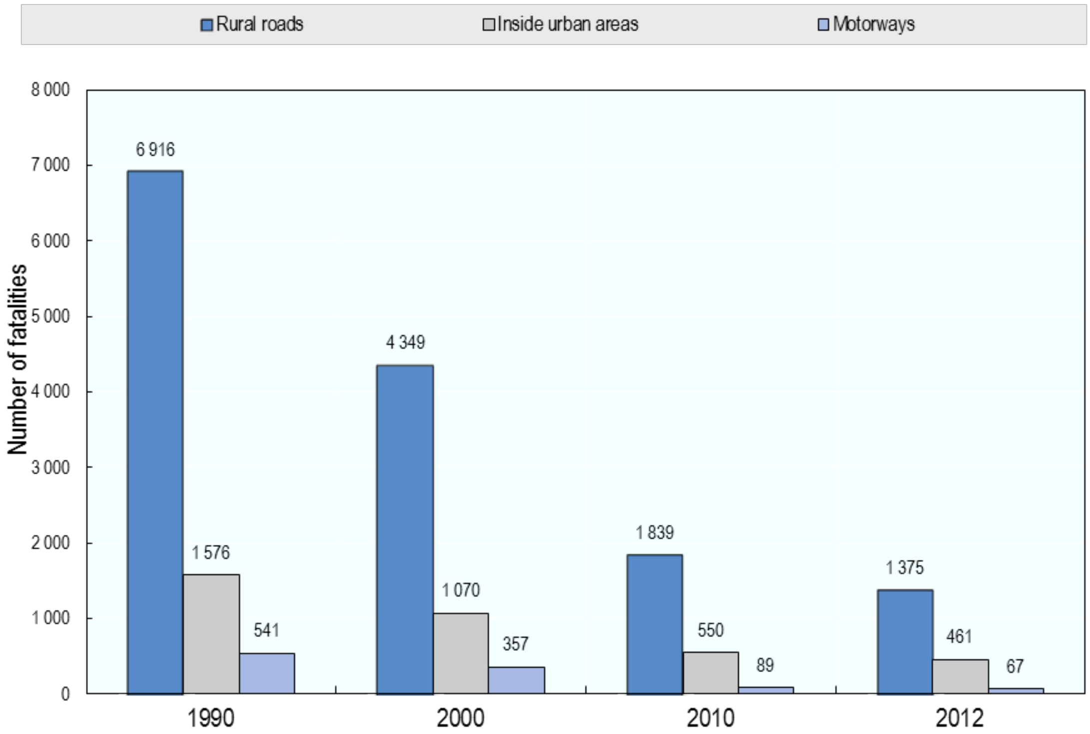
Source: IRTAD

Road Type

In 2012, 43 % of crashes and 76% of fatalities occurred on roads outside urban areas (including motorways), representing a decrease by 11% compared to 2011.

Urban roads accounted for 24% of all fatalities. The number of both crashes and fatalities increased by 1% compared to 2011, while Serious injuries decreased by 3%.

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



Source: IRTAD

4. Economic costs of traffic crashes

In 2011, in the context of road safety, the Value of a Statistical Life (VoSL) in Spain was estimated at EUR 1.3 million. After adding net output losses as well as medical and ambulance costs, a Value of Preventing a Fatality (VPF) of EUR 1.4 million is obtained[5].

The VPF of EUR 1.4 million is used to compute the social costs of fatal road crashes in Spain. Likewise, it is used to assess the benefits of road safety measures in terms of saved lives, making possible the economic evaluation of Spanish transport policies.

The estimated VPF is equivalent to USD 2 million (Purchasing Power Parity adjusted). This figure is higher than those of France and Germany, but lower than the VPFs estimated for the UK and the USA. Therefore, the Spanish VPF is within the range of the current official values used by developed countries.

The so-called Contingent Valuation/ Standard Gamble chained approach was used to estimate the VoSL. This procedure is regarded as the best available estimation method not only by the research team, but also according to the recommendations of some European Commission funded projects. Moreover, it is the current methodological foundation of the UK official value.

5. Source : http://www.msssi.gob.es/profesionales/saludPublica/prevPromocion/Lesiones/JornadaDecenioAccionSeguridadVial/docs/InformeVVEJorgeMartinez.pdf

The VPF of EUR 1.4 million is updated on an annual basis in line with the nominal GDP per head growth. In addition, since preferences and available estimation methods are likely to change as time goes by, it is highly advisable that this value is revised every ten years.

Traffic crashes represent a very significant cost for society, estimated at around EUR 5.48 billion (i.e. 0.53% of GDP) according to police-reported data. However, when the health system data is included, these economic costs rise to EUR 10.50 billion (i.e. 1% of GPD). This estimation does not include property damage costs.

Costs are based on the calculation of a monetary value of statistical life, based on a willingness-to-pay approach[6].

Table 4. **Costs of road crashes**
2012

Costs (EUR)	Unit Cost	Total based on police reported data	Total when health data are included
Fatalities	1.37 million	2.61 billion	2.61 billion
Hospitalised people	214 679	2.24 billion	4.74 billion
Slight injuries	5 980	0.63 billion	3.14 billion
Property / damage costs			
Total (EUR)		5.48 billion	10.50 billion
Total as % of GDP		0.53%	1%

Source: DGT

5. Recent trends in road user behaviour

Impaired driving

Drink driving

In Spain, the legal BAC limit is 0.5 g/l for general drivers and 0.3 g/l for novice and professional drivers.

Between 2001 and 2012 the preventive alcohol tests have been tripled and the positive tests have reduced by almost one-third. In 2001, the Traffic Division of the Civil Guard[7] carried out 1 602 648 preventive tests, of those 5% tested positive. In 2012, 5 680158 preventive tests were carried out and 1.7% tested positive. As regards the alcohol tests carried out in 2012 in the case of a road crash, 5.6% tested positive and, where an offence had been committed, the percentage of positive tests was 1.1%.

6. DGT (2011), Main figures in road safety data, Spain 2012: http://www.dgt.es/Galerias/seguridad-vial/estadisticas-e-indicadores/publicaciones/principales-cifras-siniestralidad/cifras_siniestralidad_2012.pdf

7. Their responsibility excludes the Autonomous Communities public roads in Catalonia and Basque Country, as well as those municipalities with their own local police forces.

Drugs and driving

In 2012, the Road Safety Strategy 2011-2020 was adopted with a special focus on drugs, alcohol and medicines. While the percentage of drivers tested positive for alcohol has decreased, there are still a large number of drivers who drive under the influence of alcohol or drugs.

According to the National Institute of Toxicology, the percentage of drivers and pedestrians killed analysed with the presence of drugs is about 13%.

Distraction

Distraction is reported as a contributing factor in 39% of injury crashes (45% on interurban roads, and 34% on urban roads).

One of the reasons leading to driver distraction is the use of the mobile telephone while driving. In 2012, the Traffic Division of the Civil Guard[8] filed 121 668 complaints for mobile phone use while driving, a decrease of 9% in comparison with 2011.

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.

According to the data collected through observational studies conducted by the DGT, around 3% of drivers use their mobile phone while driving.

Fatigue

There is no estimation of crashes due to fatigue

Speed

In 2012, inappropriate speed was reported as a contributing factor in 11% of injury crashes and 24% of fatal crashes.

In 2012, 32 million vehicles were controlled for speed, and 3.5% were sanctioned for driving above the limits. This is a slight increase in comparison to 2011 (when 3% were sanctioned). Since 2003, the number of controlled vehicles has doubled while the percentage of vehicles sanctioned has hardly increased.

The table below summarises the main speed limits in Spain.

[8]. Their responsibility excludes the Autonomous Communities public roads in Catalonia and Basque Country, as well as those municipalities with their own local police forces.

Table 5. **Passenger car speed limits by road type**
2014

	General speed limit Passenger cars	Comments
Urban roads	50 km/h	
Rural roads	90 / 100 km/h	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	

Source: IRTAD

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.

In 2012, the percentage of car users killed on interurban roads who did not wear a seatbelt was 24%; this percentage increased to 32% on urban roads

Table 6. **Seat-belt wearing rate by car occupants and helmet wearing by PTW riders**

Seatbelt wearing rate	2005	2010	2011	2012
General seatbelt wearing rate on front seats	74%	88%	89%	91%
Seatbelt wearing rate: car driver inside urban areas	69%	83%	83%	86%
Seatbelt wearing rate: car driver outside urban areas	81%	94%	95%	95%
General seatbelt wearing on rear seats	51%	76%	78%	81%
Helmet wearing rate				
Helmet wearing rate: moped inside urban areas	93%	95%	98%	97%
Helmet wearing rate: moped outside urban areas	88%	96%	99%	95%
Helmet wearing rate: motorcycle inside urban areas	98%	97%	99%	98%
Helmet wearing rate: motorcycle outside urban areas	99%	99%	100%	98%

Source: IRTAD

Helmet use is compulsory for riders of all motorised two-wheelers. The helmet wearing rate by riders of motorised two-wheelers is nearly 100%. Nevertheless, in 2012, 5% of motorcycle users killed on interurban roads did not wear a helmet, and this percentage is twice as much on urban roads, reaching 15%. As for moped riders, among 42 fatalities on interurban roads, 13 of them did not wear a helmet. On urban roads, 3 out of 24 fatalities did not wear a helmet.

Helmet use is also compulsory for cyclists (except in built-up areas, where the use of a helmet is 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.

6. National road safety strategies and targets

Organisation of road safety

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.

Road safety strategy for 2011-2020

The new Spanish Road Safety Plan 2011-2020 was adopted 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.
- 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 was revised, with the intention of focusing efforts on the following priorities:

- Improve the information systems.
- Assessment of model drivers and intervention programmes for recidivist drivers.
- Alcohol, drugs and medicines.
- Disabled groups.
- Safe mobility.

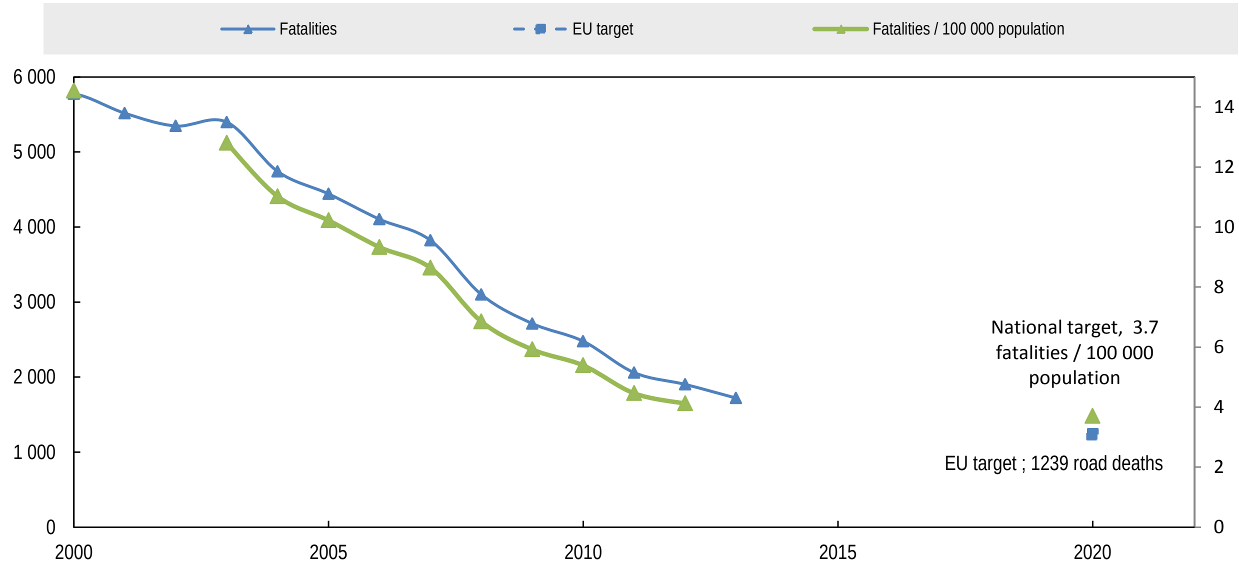
Target setting

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.

Monitoring

The target will be revised in 2015.

Figure 5. **Trends in road fatalities towards national and EU[9] targets**



Source: IRTAD

Evaluation of past road safety strategy

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.

7. Recent safety measures (2011-2013)

Road safety management

- Safe mobility. Spain is promoting the concept of Safe Mobility with the view to ensure safe mobility for all citizens in a peaceful coexistence, making a rational use of the different means of transport (public, private, motorised or non-motorised).

Licensing

- The licensing system is being reviewed and changes will be brought to both the theoretical and the practical tests with more focus on safe and responsible driving.

Safety data management

- DGT is improving its crash data information systems, with the progressive inclusion of new parameters, such as risk exposure, descriptive analysis or time trends.

[9]. In 2010, the European Commission adopted the target of halving road deaths by 2020, compared to 2010 levels.

Driver behaviour

Education and awareness

- Important measures carried out regularly are week-long specific campaigns with the cooperation of the Traffic Division of the Civil Guard on interurban roads and local police forces in built-up area.

Infrastructure

- Accessibility of disabled people. DGT will implement measures to improve the safety conditions and the accessibility of persons with disabilities.

8. Recent and on-going research

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Useful websites and references

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/was6/portal/contenidos/documentos/seguridad_vial/planes_seg_vial/estrategico_seg_vial/estrategico_2020_006.pd
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

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Sweden

Source: IRTAD. Swedish Transport Agency, Swedish Transport Administration, VTI

Inhabitants	Vehicles/1 000 inhabitants	Road fatalities in 2013	Fatalities /100 000 inhabitants in 2013
9.6 million	**590**	**260**	**2.7**

1. 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 reports by the police, which includes detailed information on crashes.
- 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 provides 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. But of course slightly injured persons known by the police are reported into 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 decided by 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 3+ 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. Most recent safety data

Road crashes in 2012

In 2012, 285 persons were killed in road crashes, a decrease of 11% compared to 2011. The number of fatalities decreased for all road users except for cyclists. The relative decline was most marked for the deceased motorcyclists. The number of killed has increased for adults (25-64 years) by 3% but decreased for all other age groups.

This positive development can to some degree be explained by the trend towards a safer vehicle fleet, better infrastructure and a lower average speed.

Data for 2013

Final data show that the downward trend continued in 2013, during which the number of fatalities decreased by 9%, from 285 to 260.

As in 2012, this can to some degree be explained by a safer vehicle fleet, better infrastructure and a lower average speed.

3. Trends in traffic and road safety (1990-2013)

Traffic

Between 1990 and 2012, the number of motorised vehicles increased by 29% and the overall vehicle kilometres driven by 29%. 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 for heavy lorries +2.3%.

Provisional figures for 2013 indicate that the overall traffic volume has increased by 1.1% compared with 2012. The traffic volume among passenger cars has increased by 1.1% and heavy vehicles by 0.8%. Passenger cars are still accountable for 81% of traffic volumes. The number of motorcycles has also increased, with 3 000 vehicles since 2012, from 307 000 to 310 000.

Change in the number of fatalities and injury crashes (1990-2012)

Between 1990 and 2012, the number of road fatalities decreased by more than 60%, while the number of injury crashes was reduced by only 3%. This 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 on the municipal road network has also long been developing towards greater safety. These positive developments 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.

Sweden has experienced a substantial drop in injured occupants of passenger cars (both in-patients and fatalities) since 2003. For in-patients the drop is so radical that since the year 2008 there have been 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 decreased during recent years, mainly due to the fact that a driving licence is now required for moped riders.

Rates

Since 1990, the death rate per 100 000 population has decreased by 67%, while the number of vehicles per 1 000 population has increased by 16%. In 2013, the rate reached a record low of 2.7.

Table 1. **Road safety and traffic data**

						2012 % change from		
	1990	2000	2010	2011	2012	*2011*	*2000*	*1990*
Reported safety data								
Fatalities	772	591	266	319	285	-10.7%	-51.8%	-63.1%
Injury crashes	16 975	15 770	16 255	16 251	16 466	1.3%	4.4%	-3.0%
Injured persons hospitalised	17 180	10 897	7 701					
Injured persons with score MAIS3+			1 208	1 096	1 027	1.6%		
Deaths per 100 000 population	9.1	6.7	2.8	3.4	3.0	-11.5%	-55.0%	-66.9%
Deaths per 10 000 registered vehicles	1.8	1.2	0.5	0.6	0.5	-12.1%	-59.2%	-71.5%
Deaths per billion vehicle kilometres	12.0	8.5	3.2	4.1	3.6	-12.2%	-57.5%	-70.0%
Traffic data								
Registered vehicles[3] (thousands)	4 322	4 735	5 453	5 501	5 592	1.7%	18.1%	29.4%
Vehicle kilometres (millions)	64 430	68 736	76 786	77 196				
Registered vehicles per 1 000 population)	506.9	534.3	583.8	584.2	589.7	0.9%	10.4%	16.3%

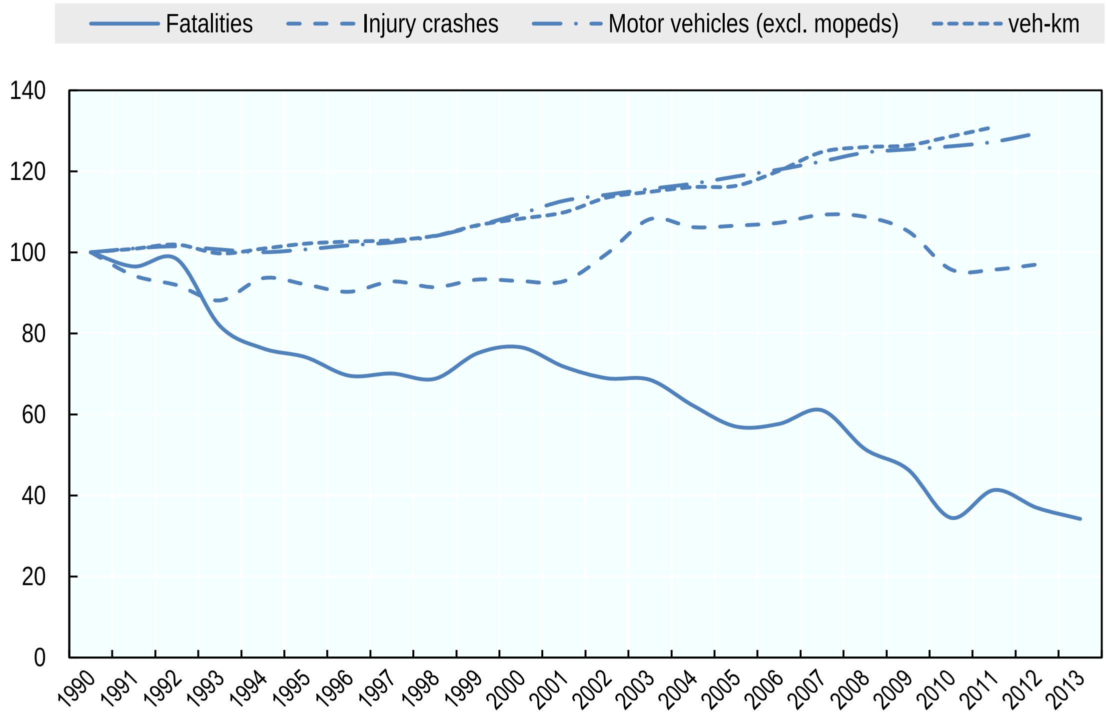
Source: IRTAD.

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%. 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).

3. Registered vehicles excluding mopeds.

Figure 1. **Road safety and traffic data**
Index 100 = 1990



Source: IRTAD.

Road users

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 2012. 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 and increased speed compliance for motorcyclists and proper helmet use for moped riders.

Table 2. **Road fatalities by road user group**

	1990	2000	2010	2011	2012	2012 % change from 2011	2000	1990
Bicyclists	68	47	21	21	28	33.3%	-40.4%	-58.8%
Mopeds	22	10	8	11	8	-27.3%	-20.0%	-63.6%
Motorcycles	46	39	37	46	31	-32.6%	-20.5%	-32.6%
Passenger car occupants	468	393	151	159	142	-10.7%	-63.9%	-69.7%
Pedestrians	134	73	31	53	50	-5.7%	-31.5%	-62.7%
Others incl. unknown	34	29	18	29	26	-10.3%	-10.3%	-23.5%
Total	*772*	*591*	*266*	*319*	*285*	*-10.7%*	*-51.8%*	*-63.1%*

Source: IRTAD.

Age

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.

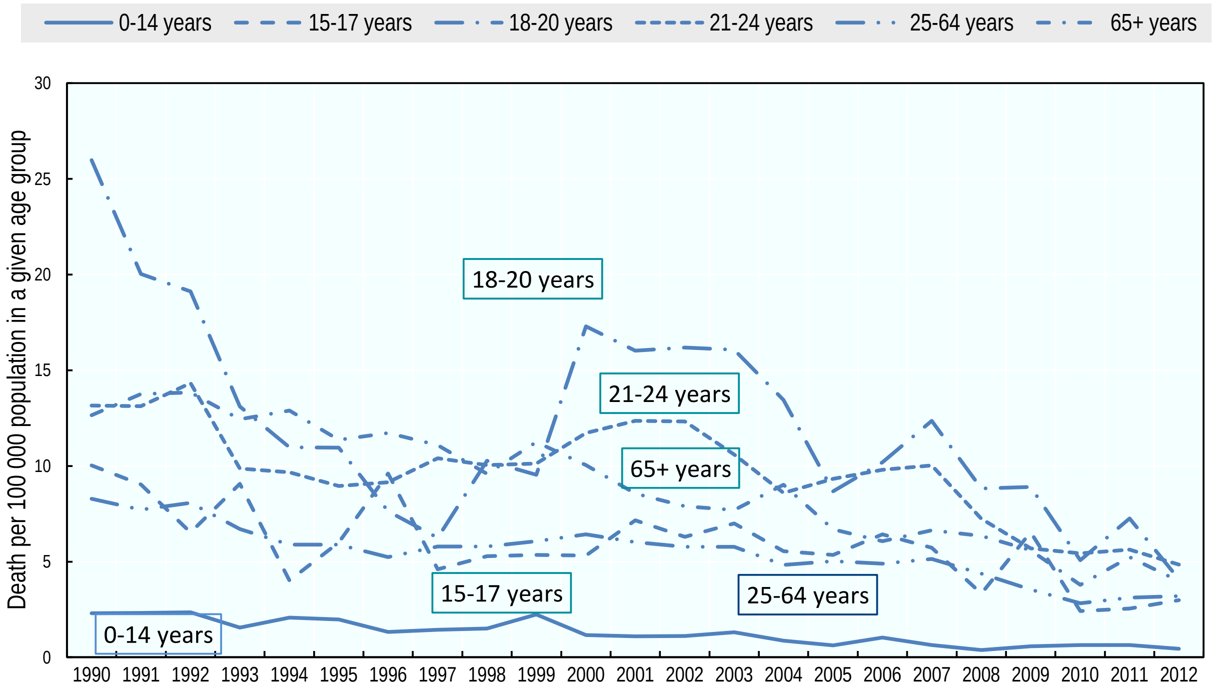
Young people (18-20) constitute a high-risk group, with a mortality rate twice as high as the older age groups. On the other hand, the mortality rate of the 21-24 age group reduced considerably in 2008-2009, perhaps due to the economic downturn and its impact on the mobility patterns of this age band.

Table 3. **Road fatalities by age group**

Age	1990	2000	2010	2011	2012	2012 % change from... 2011	2000	1990
0-5	12	2	3	5	1	n.a	n.a	n.a
6-9	10	3	3	1	0	n.a	n.a	n.a
10-14	13	14	4	4	6	50.0%	-57.1%	-53.8%
15-17	34	16	9	9	10	11.1%	-37.5%	-70.6%
18-20	88	53	20	29	16	-44.8%	-69.8%	-81.8%
21-24	66	49	26	28	25	-10.7%	-49.0%	-62.1%
25-64	357	300	137	152	156	2.6%	-48.0%	-56.3%
>65	192	154	64	91	71	-22.0%	-53.9%	-63.0%
Total incl. unknown	*772*	*591*	*266*	*319*	*285*	*-10.7%*	*-51.8%*	*-63.1%*

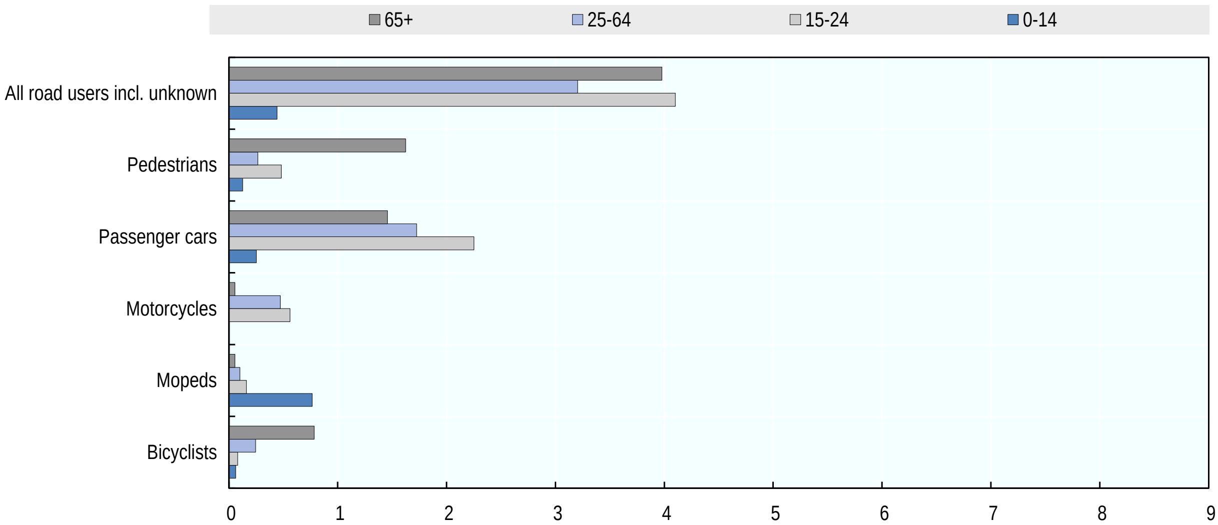
Source: IRTAD.

Figure 2. **Road death rates by age group**
Fatalities per 100 000 population in a given age group, 1990-2012



Source: IRTAD.

Figure 3. **Road death rate by age and road user group**
Fatalities per 100 000 population



Source: IRTAD.

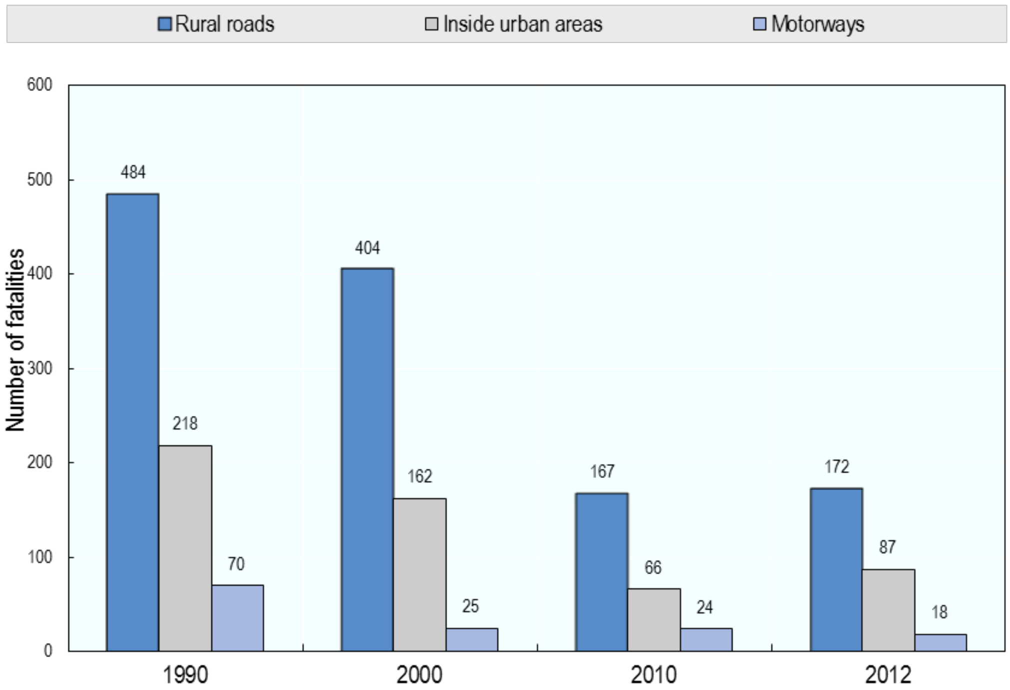
Road type

In 2012, 60% of fatal crashes occurred on rural roads, 31% on urban roads and 6% on motorways.

Over the past twenty years, there has been a major improvement over the whole network, but the decrease in fatalities, 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 infrastructure countermeasures.

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[4], which has been very cost effective in reducing head-on collisions on rural roads. In 2013, 130 kilometres of roads with median barriers were added, leading to a total of 2 720 km of 2+1 roads. The consistent trend towards safer vehicles and an increased focus on injury prevention has also added a higher level of safety.

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



Source: IRTAD.

4. 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 was first evaluated in 1990 by the ASEK Group, on the basis of a willingness-to-pay approach[5] 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)[6].

4. 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.

5. http://www.trafikverket.se/Foretag/Planera-och-utreda/Planerings--och-analysmetoder/Samhallsekonomisk-analys-och-trafikanalys/ASEK---arbetsgruppen-for-samhallsekonomiska-kalkyl--och-analysmetoder-inom-transportomradet/

6. http://www.scb.se/Pages/Product 33783.aspx

Table 4. **Costs of road crashes, 2011**

Costs (EUR billion)	Unit Cost	Total
Fatalities		0.9
Hospitalised people		2.7
Slight injuries		0.8
Property damage and other costs		0.8
Total (EUR)		5.2
Total as % of GDP		1.3%

5. Recent trends in road user behaviour

Impaired driving

Drink driving

In Sweden, the legal BAC limit is 0.2 g/l. A crash is defined as alcohol-related if a BAC level of above 0.02 can be proven in the driver, rider, pedestrian or bicyclist involved. In 2012, 24% of car drivers killed in crashes were under the influence of alcohol.

The goal for Sweden is that, by 2020, 99.9% of traffic should consist of drivers under the legal BAC limit of 0.02%. In 2013, it is estimated, from random breath testing by the police, that 99.77% of the traffic volume involved drivers under a BAC of 0.02%. Even if only 0.23% of all drivers are above the legal limit, approximately 49 out of 260 fatalities (or 19%) in 2013 were due to an intoxicated driver, rider, pedestrian or bicyclist.

Drugs and driving

It is not allowed to drive a motor vehicle under the influence of illegal drugs. Driver under prescription medication is permitted as long as this does not make the driver unfit to drive. A driver who is under suspicion of driving after an intake of illegal drugs must leave a sample of blood or saliva to be analysed. It is also up to the driver to decide whether to drive when using medication. If the medication is influencing the driving in a negative manner, the driver is not allowed to drive. For the period 2005-2010, 7% of deceased drivers of motor vehicles were estimated to be driving under the influence of illegal drugs.

Distraction

The Swedish Road Traffic Ordinance requires drivers to pay sufficient attention to driving. To avoid crashes, road users shall “observe the care and attention that the circumstances demand”. However, from 2013, the Government has strengthened this by-law, forbidding the use of communications devices when driving if “the use influences the driving in an unfavourable way”. Sweden has not evaluated the problem but it is estimated to cause about 1% of all fatal accidents.

Fatigue

Fatigue may be a stronger cause of road crashes than alcohol and the two factors, alcohol and drugs, interact in a dramatic way. Sweden has no clear facts on the magnitude of the problem but it is estimated that 10-20% of all crashes are caused by fatigue. The most common fatigue crash is the single-car accident.

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-compliance has accordingly doubled to 400 000. In 2013, the Swedish Transport Administration measured the average speed and compared the results with the average speed in 2004; this showed a decrease of 3.4 km/h. The trend is therefore positive from a road safety perspective.

Sweden has also adopted tighter speed limits and introduced new 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.

The table below summarises the main speed limits in Sweden.

Table 5. **Passenger car speed limits by road type, 2014**

	General speed limit Passenger cars
Urban roads	30-50 km/h
Rural roads	60-100km/h,
Motorways	110 km/h or 120/km/h

Source: IRTAD.

Seat belts and helmets

Seat-belt use has been compulsory for front seats since 1975, rear seats since 1986 and compulsory for children to use child restraint systems since 1988.

The use of seat belts increased from 97% to 98% in the front of passenger cars during 2013. The proportion of car drivers killed who were unrestrained has decreased since 2001 and was 39% in 2013.

There has been a long-term upward trend in the use of seat belts. This trend will probably continue, thanks to the fact that the percentage of the volume of traffic in cars with seat-belt reminders will increase.

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

	2000	*2011*	*2013*
Front + rear seats	90%	96%	97%
Front seat	90%	97%	98%
Rear seats			
Adults	72%	84%	84%
Children	89%	96%	96%

Source: IRTAD.

All riders of motorised two-wheelers are required to wear a helmet. The helmet-wearing rate by riders of motorised two-wheelers is high, at 96-99%.

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 30%, but it varies much by cities.

6. National road safety strategies and targets

Organisation of road safety

There are several agencies in Sweden supporting the Government in the field of road safety. The authorities co-operate with each other, but have specific tasks within the road transport system. The three main governmental agencies are:

- Transportstyrelsen, the Swedish Transport Agency, whose goal 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, which 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, which 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.

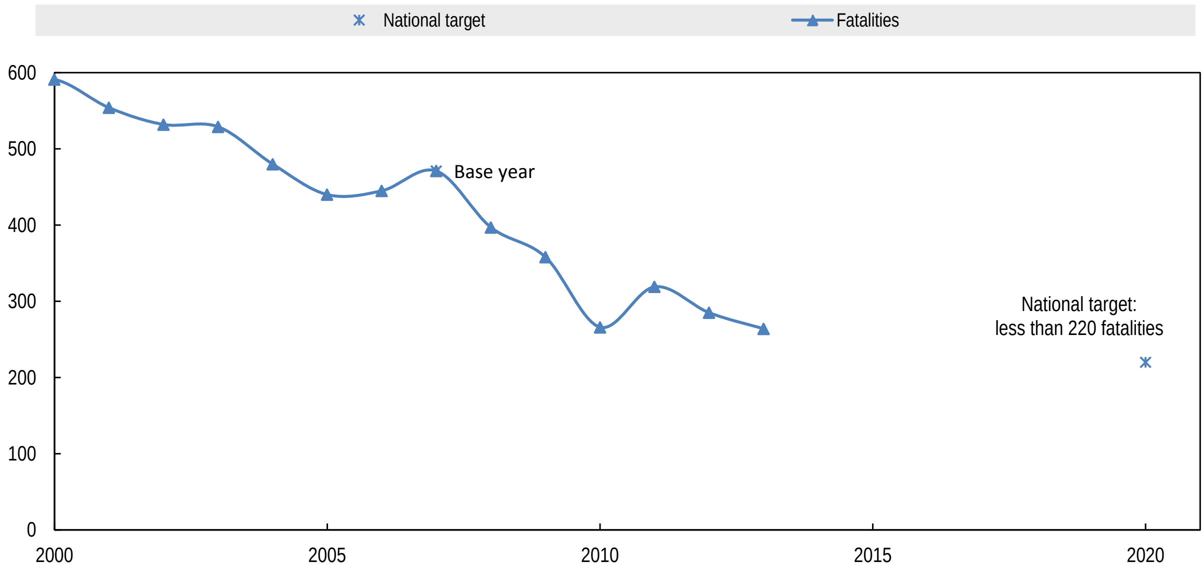
Road safety strategy for 2011-2020

The basis of Swedish road safety work is *Vision Zero*, a strategic approach towards a safe system, whereby no-one is at risk of being fatally or severely injured while using road transport. There is no safety plan in a traditional sense.

Target setting and monitoring

Sweden has an interim target for the year 2020, which initially stated a reduction in fatalities by 50% between 2007 and 2020. 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 took into consideration a sharpening of the interim goal, due to the new EU targets. However, as of April 2014, there is no decision from the Government to review the current target (no more than 220 fatalities by 2020).

Figure 5. **Trends in road fatalities towards national target**



Source: IRTAD.

Evaluation of past road safety strategy

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 conditions on the road transport system, and that are necessary to achieve targets for the number of fatalities and seriously injured.

7. Recent safety measures (2011-2013)

Road safety management

Sweden uses a system of management of objectives in road safety work that is based on co-operation when drawing up interim targets, more measure-related interim targets, and annual result conferences where road safety developments and target achievements are evaluated and discussed. The aim is to create long-term and systematic road safety efforts. Participants at these conferences are only parties who can implement powerful road safety measures, such as the Swedish Transport Agency, The Swedish Transport Administration, the police, the automotive industry and municipalities. In addition, players who strongly influence traffic should take part, such as representatives from the taxi, bus, goods vehicles and insurance sectors. This also ensures a professional handling of strategic decisions in the field of road safety.

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

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[8]

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 the local economy, transport and commuting have 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

There are around 1 100 speed cameras on the rural roads in Sweden. During 2013, only a few new cameras were introduced, but for 2014 about 200 new cameras are planned on the 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 check-ups, with sampling and inspections, and servicing of Interlock and its log.

The police have 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.

8. 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.

Seatbelt and helmet use

No major safety measures have been carried out in recent years.

Education and awareness

No major safety measures have been carried out in recent years.

Vehicles

Penetration of five-star vehicles

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 scores in Euro NCAP and in 2013 the percentage was 87. This trend among new cars results in an increase in traffic volume with safe cars by approximately 5% per year. The trend is thereby moving in line with the required trend to achieve the target of 80% by 2020. In 2013, the percentage of traffic volume with the highest Euro NCAP score was 51%.

Motorcycle safety

The development of ABS brakes as standard equipment on motorcycles has moved quickly over the last three years. From being standard with only one manufacturer and an expensive option with the others, ABS has become a natural piece of standard equipment on the majority of the major motorcycle models. The percentage of traffic volume of motorcycles fitted with antilock brakes (ABS) has increased from 9% in 2007 to 34% in 2013. The goal for 2020 is 70%.

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.

Post-crash care

Post-crash care is constantly improving but no major efforts have been carried out in this respect in recent years.

8. Recent and on-going research

- Literature review on the use of communications devices while driving (VTI, 2011 and 2012)

  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. At the demand of the Swedish Government, VTI released another report in 2012 to investigate options for a ban on the use of mobile communications while driving. The suggested countermeasures cover several areas and are intended to function as alternatives to banning device usage.

- 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 Report 34-2012.

Following the review of speed limits on the national road network, which started in 2008, the study analyses the traffic safety and environmental impacts of increased as well as reduced speed limits.

- Hjort, M. and H. Andersson (2012), Road safety effects associated with tyres, rims and wheels, VTI Report 29-2012.
- Vadeby, A. and M.-R. Yahya (2012), Speed of motorcyclists – levels and changes on roads with new speed limits, VTI Report 760-2012.
- Joelsson, J. (2012), Why does a sleepy driver continue to drive?, VTI Report 32A.
- Carlsson, A., U. Björketun, A. Vadeby (2012), Traffic safety effects of milled rumble strips in the middle of the road, VTI Report 28-2012.
- Vadeby, A., A. Anund, U. Björketun, A. Carlsson (2013), Safe accessibility, summarized results, VTI Report 790-2013. (Summary in English).
- Anund, A., I. Forsberg and J. Igelström (2014), Future system for prevention of drunk driving. Discussions within focus groups, VTI Report 810 (Summary in English).
- Howard, C. and A. Linder (2014), Review of Swedish experiences concerning analysis of people injured in traffic accidents, VTI Report 7A-2014.
- Niska, A. and J. Eriksson (2014), Cycling accident statistics. Background information to the common policy strategy for safe cycling, VTI Report 801 (Summary in English).

Useful websites and references

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/en/
Transport Analysis	http://www.trafa.se/In-English/English-Start/
Chalmers University	http://www.chalmers.se/en/Pages/default.aspx

Contact

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Switzerland

Source: IRTAD, Federal Road Office, bfu

Inhabitants	Vehicles/1 000 inhabitants	Road fatalities in 2012	Fatalities /100 000 inhabitants in 2012
8.0 million	**705**	**339**	**4.3**

1. Road safety data collection

Definitions

- Road fatality: death which occurred within 30 days of the road crash.
- Serious injury: Hospitalised for at least 24 hours or if the injury prevented the person from doing his/her daily activity for 24 hours. Police records.
- Slight injury: Minor injuries such as superficial skin injuries. The casualty can leave the accident site on his/her own. An outpatient treatment in a hospital or by physicians may still be required.
- Injury crash: crash resulting in at least one injured or killed person.

In Switzerland, injury severity is still assessed by means of a simple definition by the police force present at the scene. Nothing is known of the type and long-term outcome of injuries. International comparison of non-fatal crashes is not feasible.

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.

To estimate the real extent of road traffic injuries, police-reported data is compared to insurance data. Factors are then calculated to correct the number of unreported cases by road use and age group.

In order to have a better understanding of the consequences of road crashes, the Swiss Federal Roads Office will start, in 2014, 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. Following completion of a research project, a data linkage procedure is now being implemented.

2. Most recent safety data

Road crashes in 2012

In 2012, a total of 18 148 injury crashes occurred on Switzerland's roads – a 4.4% decrease in comparison to 2011. The downward trend in the number of serious and minor injuries continued. However, there were 339 persons killed, i.e. 19 more fatalities than in 2011. This increase is partly due to the dramatic coach crash which occurred in a tunnel in March 2012 and resulted in 28 fatalities.

Provisional data for 2013

Figures for the year 2013 indicate a decrease of 20% in the number of road fatalities, with 269 persons killed. The decrease was observed mainly for motorcyclists and cyclists. A preliminary hypothesis states that the cold and rainy weather in the first half of 2013 caused less traffic, resulting in this decrease. The reduction of fatalities in 2013 is also explained by the high number of fatalities in 2012, due to the coach crash (referred to above) which killed 28 persons.

3. Trends in traffic and road safety (1990-2013)

Traffic

Since 1990, distance travelled (vehicle-kilometres) increased by more than 20% and the number of motorised vehicles increased by almost 50%.

Total vehicle-kilometres travelled in 2012 showed a small increase (1.2%) compared with the previous year. Provisional figures for 2013 indicate that the overall traffic volume rose again by 2.5%.

The constant population growth and the ever-increasing trend of mobility lead to increasing traffic volume for both individual and public transport. An important characteristic of the traffic in Switzerland is the transport of freight through the Alps. In recent years there has been stagnation in transalpine freight traffic. However, the proportion of foreign vehicles is still above 70%.

Change in the number of fatalities and injury crashes (1990-2013)

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 2013, 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.

In the last 15 years several important safety measures have been implemented in Switzerland, including:

- In 2005 the legal alcohol limit was lowered to 0.5 g/l. At the same time police was allowed to control for alcohol without suspicion.
- Also in 2005, jurisdiction for licence withdrawal was strengthened and a new, two-stage drivers' training was introduced.

- Beginning in 2014, the first measures of the road safety programme "Via Sicura" came into force: Mandatory daytime running lights and 0.0 per mill legal blood alcohol limit for novice, bus and truck drivers.

Rates

In 2012, the mortality rate expressed in terms of deaths per 100 000 population was 4.3, a 50% decrease since 2000. Similarly, the mortality risks, expressed in terms of deaths per distance travelled, have also halved since 2000.

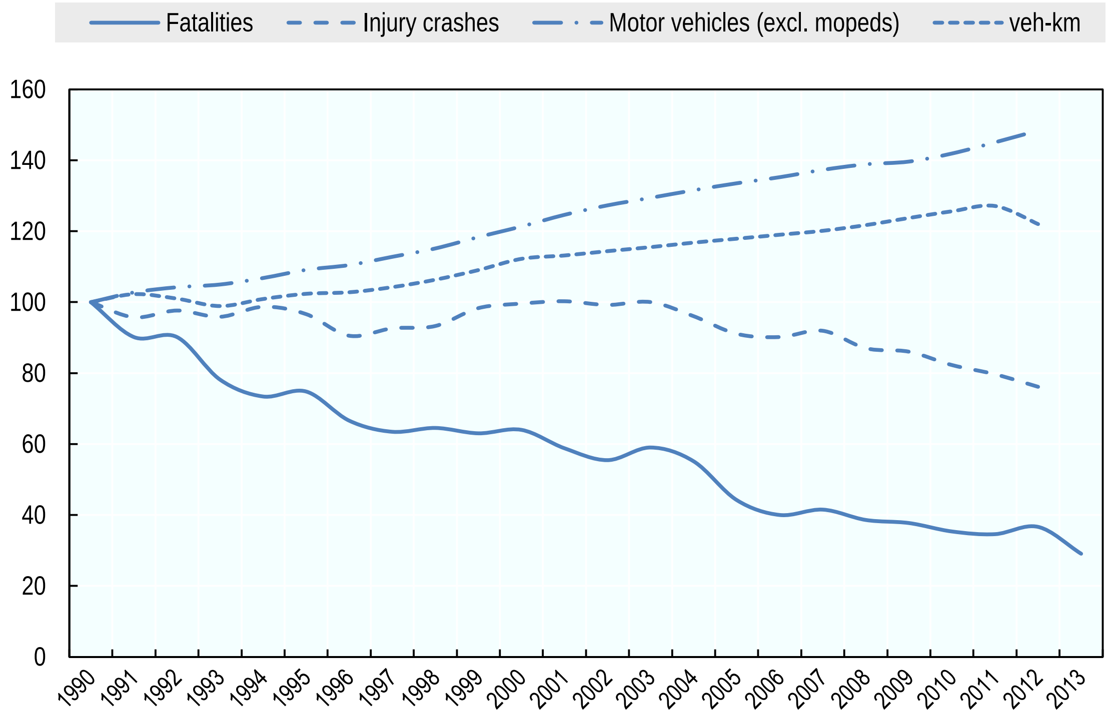
Table 1. **Road safety and traffic data**

						2012 % change from		
	1990	2000	2010	2011	2012	*2011*	*2000*	*1990*
Reported safety data								
Fatalities	925	592	327	320	339	5.9%	-42.7%	-63.4%
Injury crashes	23 834	23 737	19 609	18 990	18 148	-4.4%	-23.5%	-23.9%
Deaths per 100 000 population	13.9	8.3	4.2	4.1	4.3	4.8%	-48.4%	-69.3%
Deaths per 10 000 registered vehicles	2.4	1.3	0.6	0.6	0.6	3.6%	-53.2%	-75.3%
Deaths per billion vehicle kilometres	18.6	10.6	5.2	5.1	5.6	10.4%	-47.3%	-70.0%
Traffic data								
Registered vehicles[1] (thousands)	3 777	4 583	5 360	5 479	5 605	2.3%	22.3%	48.4%
Vehicle kilometres (millions)	49 624	55 686	62 339	63 078	60 548	-4.0%	8.7%	22.0%
Registered vehicles per 1 000 population)	565.9	639.7	688.4	696.2	704.6	1.2%	10.2%	24.5%

Source: IRTAD

1. Registered vehicles excluding mopeds.

Figure 1. **Road safety and traffic data**
1990= index 100



Source: IRTAD

Road users

All user groups have benefited from the improvement in road safety since 1990. Very good results were achieved for mopeds (-94%), mainly due to a large reduction in kilometrage in recent years.

In the last decade, motorcyclists are the user group with the smallest improvements, followed by cyclists.

Since 2011, electric bikes constitute a new category of vehicles in police records. In 2001 and 2012, there was a net increase in injury crashes involving these vehicles.

Table 2. **Road fatalities by road user group**

	1990	2000	2010	2011	2012	2012 % change from 2011	2012 % change from 2000	2012 % change from 1990
Bicyclists	58	48	34	39	36	-7.7%	-25.0%	-37.9%
Mopeds	49	19	4	4	3	n.a.	n.a.	-93.9%
Motorcycles	155	92	67	69	74	7.2%	-19.6%	-52.3%
Passenger car occupants	455	273	129	119	104	-12.6%	-61.9%	-77.1%
Pedestrians	167	130	75	69	75	8.7%	-42.3%	-55.1%
Others incl. unknown	41	30	18	20	47	135.0%	56.7%	14.6%
Total	*925*	*592*	*327*	*320*	*339*	*5.9%*	*-42.7%*	*-63.4%*

Source: IRTAD

Age

Since 1990, a reduction in fatalities has been observed in all age groups. The number of young people (21-24) killed in a car crash decreased by 86%.

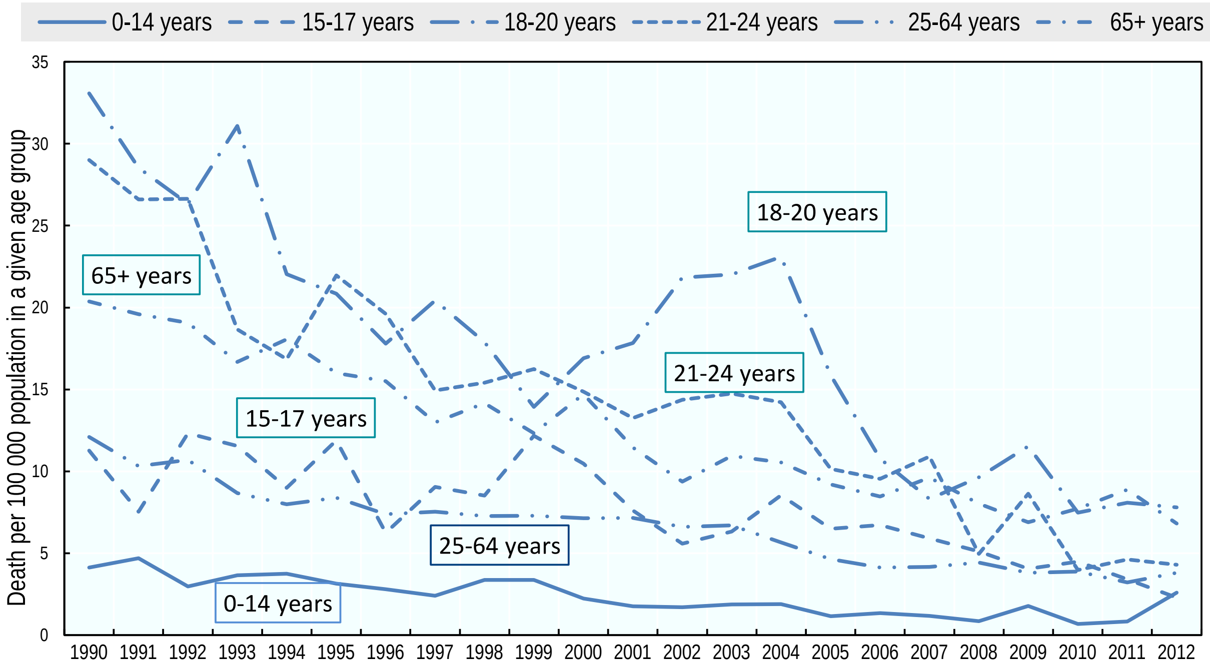
The very high number of killed among the 10-14 age group in 2012 is related to the March 2012 coach crash, in which 22 children and 8 adults died.

Table 3. **Road fatalities by age group**

Age	1990	2000	2010	2011	2012	2012 % change from... 2011	2012 % change from... 2000	2012 % change from... 1990
0-5	15	10	4	3	5			
6-9	12	11	0	5	1			
10-14	20	7	4	2	25			
15-17	28	26	12	9	6			
18-20	93	42	21	23	22	-4.3%	-47.6%	-76.3%
21-24	121	49	15	18	17	-5.6%	-65.3%	-86.0%
25-64	438	285	170	142	170	19.7%	-40.4%	-61.2%
>65	198	161	101	118	93	-21.2%	-42.2%	-53.0%
Total incl. unknown	*925*	*592*	*327*	*320*	*339*	*5.9%*	*-42.7%*	*-63.4%*

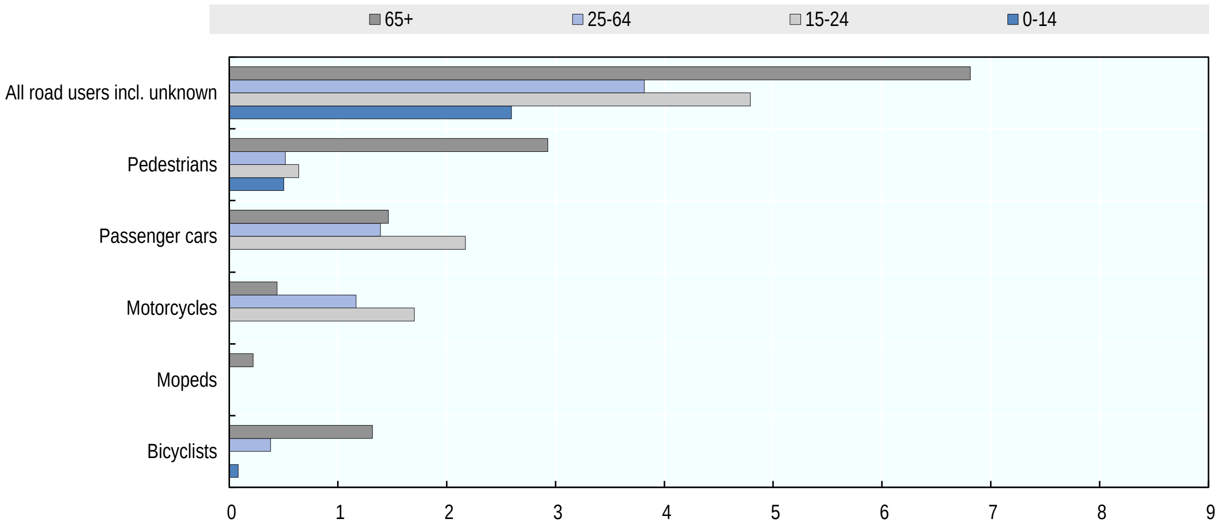
Source: IRTAD

Figure 2. **Road death rates by age group**
Fatalities per 100 000 population in a given age group, 1990-2012



Source: IRTAD

Figure 3. **Road death rate by age and road user group**
Fatalities per 100 000 population

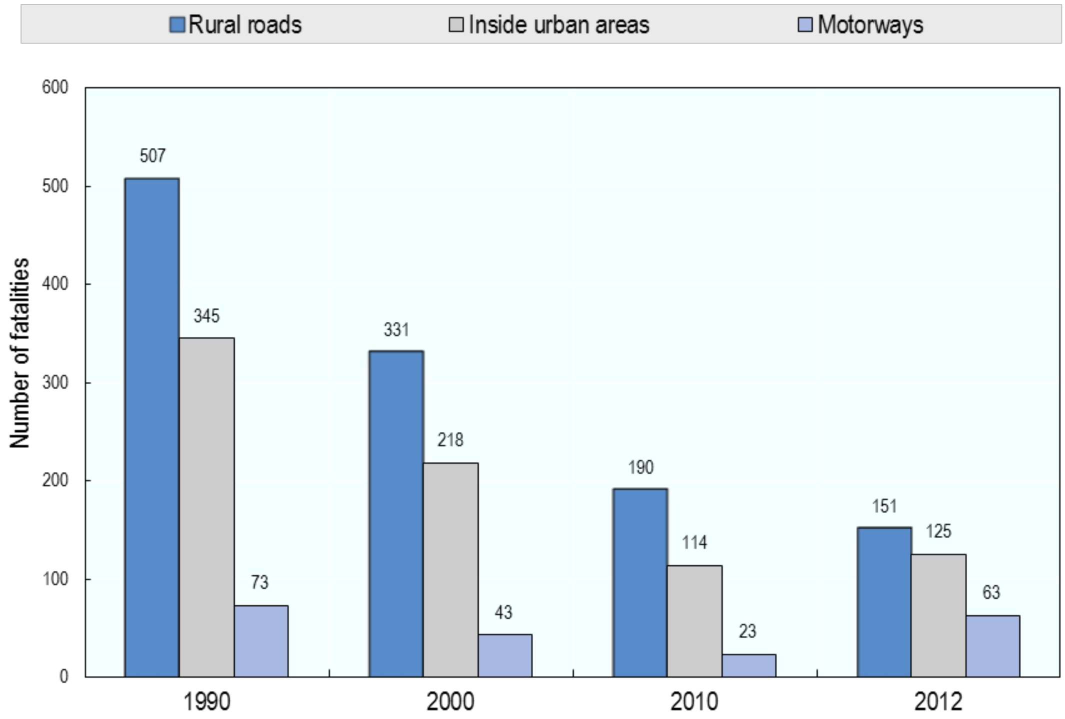


Source: IRTAD

Road Type

In 2012, there was a significant increase in the number of fatalities on motorways (due to the, afore-mentioned, tragic coach crash).

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



Source: IRTAD

4. Economic costs of traffic crashes

In 2009, the cost of road crashes was CHF 12.7 billion (around EUR 10.4 billion). This estimation of the total economic burden is based on a willingness-to-pay approach[2].

Table 4. **Costs of road crashes**
2009

Costs (EUR)	Unit Cost	Total
Fatalities	2.75 million	0.9 billion
Hospitalised people	0.37 million	4.8 billion
Slight injuries	0.03 million	2.3 billion
Property and damage costs	-	2.4 billion
Total (EUR)		10.4 billion

Source: *Bfu*

2. 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.

5. Recent trends in road user behaviour

Impaired driving

Drink driving

In 2005, the maximum legal BAC was reduced from 0.8 g/l to 0.5 g/l and random breath-testing was introduced. As of 1 January 2014, novice drivers are subject to a zero alcohol limit for their first three years behind the wheel. The same restriction applies to all professional drivers.

In 2013, 10% of injury crashes involved a driver with a BAC above 0.5 g/l.

Drugs and driving

In 2013, 22 (6%) road fatalities were explicitly due to a road user impaired by drugs, legal or not. However, in official statistics, the consumption of drugs is probably underreported.

In Switzerland the limit for drugs is set at zero ("zero tolerance"). The road traffic law specifies that driving ability must be ensured. The use of any drugs which reduce driving ability is prohibited. In the case of some drugs, like THC or amphetamine, a positive test is proof of reduced driving ability and considered an offence. In the case of other drugs or medical substances a "three pillar system" is used: Driving impairment is judged by police, physicians and blood tests.

Distraction

“Distraction or lack of attention” is cited in 28% of injury crashes.

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, in several cases the Swiss Federal Court qualified mobile phone use as a situation which leads to impaired driving.

Fatigue

According to police reporting, 2% of all injury crashes in 2013 were due to fatigue. The real number is supposed to be much higher.

Speed

In 2013, speed was a contributing factor in around 28% of fatal crashes. In most cases, inappropriate speed is to blame rather than excessive speed.

In 2010, the proportion of drivers above the speed limit was 23% on urban roads, 31% on rural roads and 18% on motorways. The survey on actual speeds was stopped in 2010.

The table below summarises the main speed limits in Switzerland.

Table 5. **Passenger car speed limits by road type**
2014

	General speed limit
Urban roads	50 km/h
Rural roads	80 km/h
Motorways	120 km/h

Source: IRTAD

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.

In 2013, seatbelt-wearing rates among car drivers and front-seat passengers remained stable, with figures of 92% and 91% respectively compared with the previous year. In contrast, the figure has fallen to 72% among back-seat passengers and is thus well below that of front-seat occupants. Significant differences were again revealed by location and language region: the wearing-rate was highest (97%) on motorways. On rural roads, it was lower at 93% and, on urban roads, it was only 88%.

56% of the killed car occupants in the last three years did not wear a seatbelt. Considering the actual wearing rate and a 50% protective effect of the seatbelt on front seats and 25% on rear seats, it is estimated a 100% wearing rate in front and rear seats would have saved 8 lives in 2013.

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

	2000	*2012*	*2013*
Front seat			
General	77% (driver)	92% (driver) 92% (passenger)	92% (driver) 91% (passenger)
Urban roads	66%	90%	88%
Rural roads	74%	93%	93%
Motorways	89%	95%	97%
Rear seats			
Adults	32%	77%	72%
Children	85 (2002)	94 (2007)	93 (2012)

Source: IRTAD

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 a compliance rate of almost 100%.

A helmet is not compulsory on bicycles or electric bicycles with a pedal assistance up to 25 km/h. In 2013, the estimated wearing rate was around 46% for adults and 63% for children for bicycles and 74% for electric bicycles.

A helmet is compulsory for e-bikes with pedal assistance above 25 km/h, but the helmet-wearing rate is relatively low at 88%.

6. National road safety strategies and targets

Organisation of road safety

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".

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.

Evaluation of past road safety strategy

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.

7. Recent safety measures (2011-2014)

On January 2014, a number of measures of the Swiss road safety programme “Via Sicura” came into force.

Driver behaviour

Impaired driving

- As of 1 January 2014, novice drivers are subject to a zero alcohol limit for their first three years behind the wheel. The same restriction applies to all professional drivers.

Seatbelt and helmet use

- Since 2012 helmet use (bicycle helmets) is mandatory on electrical bicycles above 25 km/h pedal assistance

Vehicles

- As of January 2014, daytime running lights are mandatory for all motorised vehicles.

8. Recent and on-going research

- The SINUS-Report 2013 on safety and road accidents was published in October 2013 (d/f/i): http://www.bfu.ch/de/bestellen/alles?k=2.116.
- The second edition of the bfu report on safety of pedestrians was published (abstract also in French and Italian): http://www.bfu.ch/de/bestellen/alles?k=2.109
- bfu regularly publishes monitoring on safety performance indicators, including:
    - daytime running lights: http://bit.ly/Daytime_2013
    - Seat belt use: http://bit.ly/seatbelt_2013
    - Bicycle helmet use: http://bit.ly/helmet_wearing_2013http://www.bfu.ch/sites/assets/Shop/bfu_2.999.08_bfu-survey%202013%20–%20Seat%20belt%20use%20in%20Switzerland.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 2013 on Road Safety	http://www.bfu.ch/de/bestellen/alles?k=2.116
bfu report on Safety of Pedestrians	http://www.bfu.ch/de/bestellen/alles?k=2.109

Contact

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United Kingdom

Source: IRTAD, Department for Transport

Inhabitants	Vehicles/1 000 inhabitants	Road fatalities in 2012	Fatalities /100 000 inhabitants in 2012
63.7 million	**557**	**1 802**	**2.8**

Information and data presented in this report concern the United Kingdom (i.e. Great Britain + Northern Ireland). Data are provided by Great Britain only (96% of UK fatalities) where comparable information is not available for Northern Ireland.

1. Road safety data collection

Definitions

- Road fatality: human casualty who sustained injuries which caused death less than 30 days after the accident. Confirmed suicides are excluded.
- Serious injury: 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. An injured casualty is recorded as seriously or slightly injured by the police on the basis of information available within a short time of the accident. This generally will not reflect the results of a medical examination, but may be influenced according to whether the casualty is hospitalised or not. Hospitalisation procedures will vary regionally.
- Slight injury: An injury of a minor character such as a sprain (including neck whiplash injury), bruise or cut which are not judged to be severe, or slight shock requiring roadside attention. This definition includes injuries not requiring medical treatment.
- Injury accident: accident in which at least one person is injured or killed.

Crash data collection

There are two main sources of safety information in the United Kingdom:

- 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 630 000 to 790 000 with a central estimate of 710 000. This is based on data for five year period 2008 to 2012.

Results from the National Travel Survey (NTS) suggest that around 10 per cent of the accidents reported by the respondents were outside the scope of STATS19 accidents. Adjustments were made to exclude these casualties from the estimates. 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. Most recent safety data

Road crashes in 2012

In 2012 there were 1 802 fatalities in the UK, 8% lower than the 2011 figure of 1 960 and 5% lower than in 2010. The 2012 figure is the lowest on record.

Although part of this reduction is related to the long-term downward trend, it would also have been influenced by contrasting weather patterns between the years. 2012 had the second highest annual rainfall on record, behind 2000.The likely result would have been to reduce the number of pedestrians, pedal cyclists and motorcyclists on roads, especially during the spring and summer months. A reduction in exposure in this way may have had the effect of reducing the number of accidents and casualties from these user groups. Other road users, such as car occupants, are less likely to have been affected by the heavy rainfall.

Provisional data for 2013 in Great Britain

For the year ending September 2013, 1 730 people were killed in Great Britain, 2% lower than the year ending September 2012. There were reductions in the number of accidents on all road types in the year ending September 2013.

Motor vehicle traffic levels rose by 1.1 per cent compared with the 12 month period ending September 2012. In comparison, the death rate per billion vehicle miles decreased by 2 per cent for the same period.

Weather effects, notably much colder mean temperatures in first quarter of 2013 in comparison with the first quarter of 2012, are likely to have contributed to the falls in the numbers of pedal cyclist casualties (down 23%) and motorcyclist casualties (down 27%) during the first quarter of 2013. Also, during the same period car occupant casualties were down 12%.

3. Trends in traffic and road safety (1990- 2013)

Traffic

Motor vehicle traffic peaked at 314.1 billion vehicle miles in 2007 following which it fell for three consecutive years; the first consecutive annual falls since traffic records began. In contrast, between 2010 and 2012 traffic volumes were broadly stable and, as a result, in 2012 overall motor vehicle traffic volume levels were similar to levels seen in 2003. Motor vehicle traffic fell by 0.4% between 2011 and 2012. Annual traffic across all motor vehicle classes increased by 1.3%, according to provisional estimates for 2013. GDP increased over the course of 2013, which suggests that economic growth may have contributed to the upward trend in traffic volume.

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. Figures suggest that HGV traffic fell by 15% between 2007 and 2012, although provisional annual figures for 2013 show a very slight increase compared to 2012.

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 2013 annual LGV traffic figures are 2% higher than 2007.

Pedal cycle traffic has increased in recent years, showing a rise of over 12% compared to the 2005-09 average to 3.1 billion vehicle miles in 2012. It is likely, due to the way road traffic is recorded, that pedal cycling traffic has increased more than the road traffic estimates suggest. The DfT National Travel Survey suggests that the growth over this period is actually closer to 23% and the 2011 Census results, for instance, show that the number of people commuting by bicycle doubled between 2001 and 2011 in London.

Change in the number of fatalities and injury crashes (1990-2012)

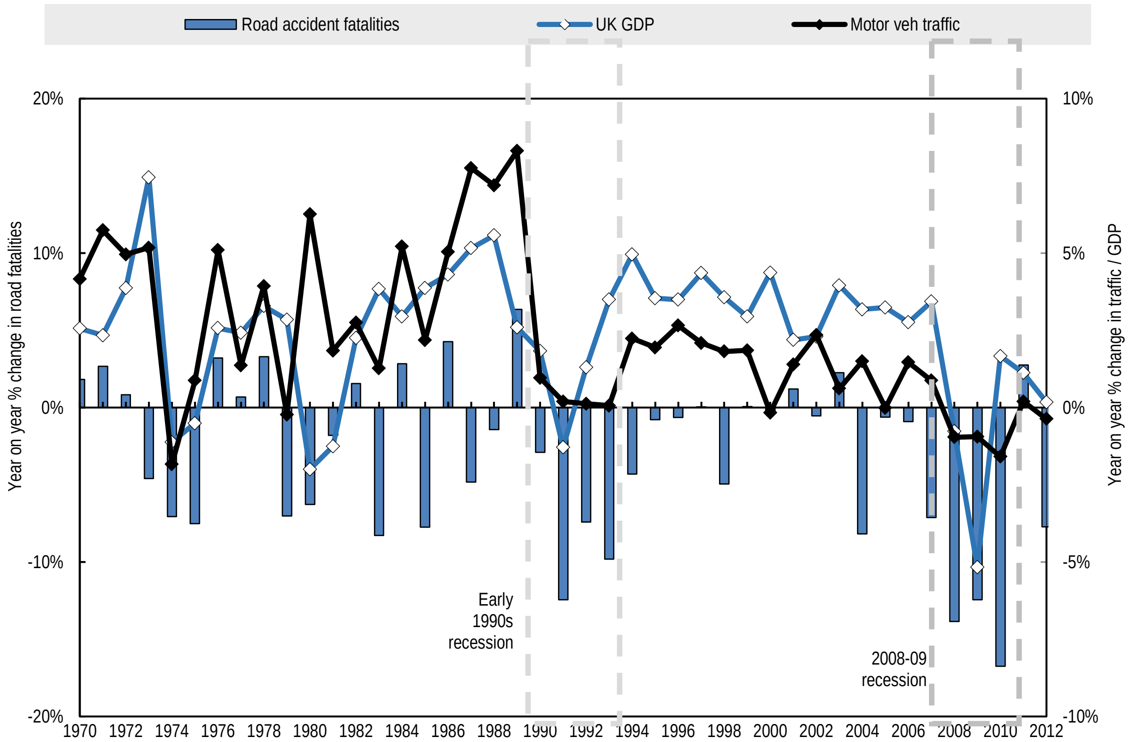
Between 1990 and 2012, the number of fatalities decreased by 67% and more recently (2000-2012) by 50%.

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 economic downturn, falling traffic levels for three consecutive years and continued reduction in free flow speeds have a 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 far more slowly and carefully than usual.

It is notable, as shown in the chart below, that the two periods with strong falls in the number of deaths coincided with recessions (1990-92 and 2008-09). Although they are not always directly linked, there is a relationship between the performance of the economy in Great Britain and the level of traffic on the roads, especially for commercial vehicles. Furthermore, there is a relationship (albeit, again, not direct) between volumes of traffic and the number of road traffic accidents. However, as the number of fatalities has been falling even during periods when both GDP and traffic were growing, the relationship between the economy and road accident fatalities is neither simple nor linear. What can be concluded, though, is that although there are other reasons for the large drop in fatalities over the last forty years, economic recessions have seemingly accelerated decreases in road accident deaths.

Figure 1. **Annual percentage change in number of reported road accident fatalities,** GB motor vehicle traffic and UK GDP: 1970 to 2012



Source: DfT

Rates

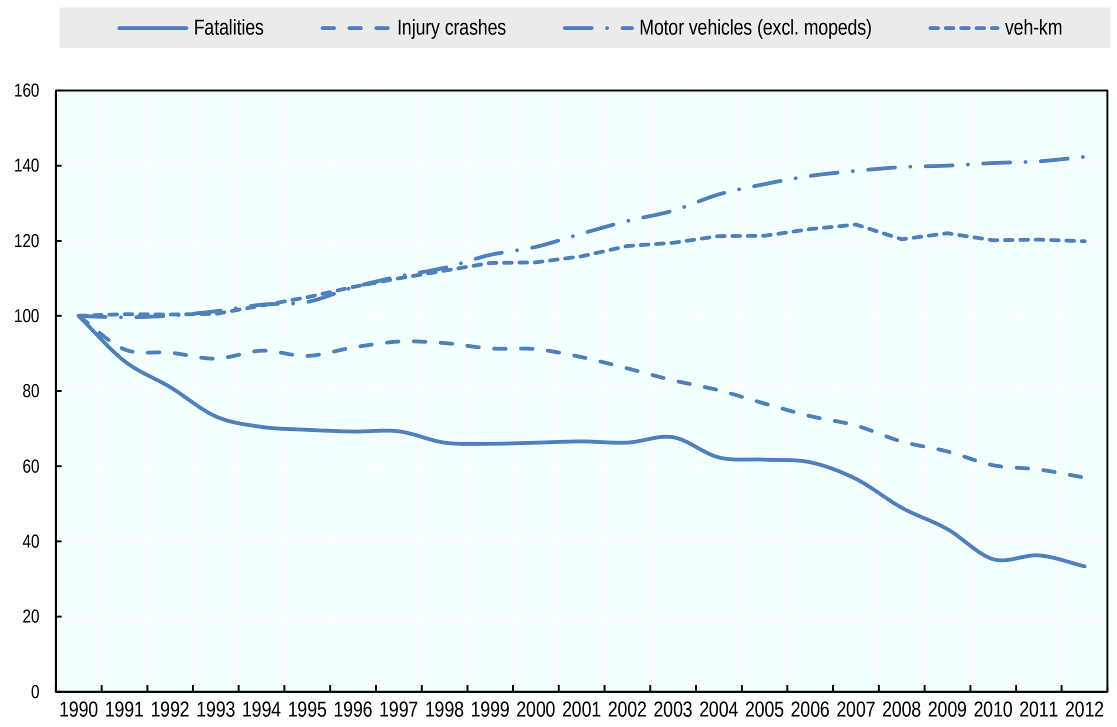
Fatality rates have generally been on a downward trend since 1973, with some intermittent periods where small increases in fatalities were observed before continuing with the downward trend. While fatality rates have generally decreased, motor vehicle traffic has continued on an upward trend (see chart above). In 2012, the UK had a fatality rate of 2.8 deaths per 100 000 population, the lowest rate among OECD countries.

Table 1. **Road safety and traffic data**

	1990	2000	2010	2011	2012	2012 % change from 2011	2012 % change from 2000	2012 % change from 1990
Reported safety data								
Fatalities	5 402	3 580	1 905	1 960	1 802	-8.1%	-49.7%	-66.6%
Injury crashes	265 600	242 117	160 080	157 068	151 346	-3.6%	-37.5%	-43.0%
Deaths per 100 000 population	9.4	6.1	3.0	3.1	2.8	-8.7%	-53.5%	-70.0%
Deaths per 10 000 registered vehicles	2.2	1.2	0.5	0.6	0.5	-8.8%	-58.1%	-76.6%
Deaths per billion vehicle kilometres	12.7*	7.4	3.8	3.9	3.6*	-6.6%	-51.4%	-71.7%
Traffic data								
Registered vehicles[1] (thousands)	24 941	29 523	35 087	35 199	35 501	0.9%	20.2%	42.3%
Vehicle kilometres (millions)	422 840	482 951	507 814	508 707	506 877	-0.4%	5.0%	19.9%
Registered vehicles per 1 000 population)	435.7	501.4	559.1	556.2	557.3	0.2%	11.2%	27.9%

Source: IRTAD

Figure 2. **Road safety and traffic data**
1990 = index 100



Source: IRTAD

1. Registered vehicles excluding mopeds.

Road users

Since 1990, the important reduction in mortality has benefited all road users, with the greatest reduction achieved for pedestrians.

In 2012; fatalities fell by 9% for both car occupants and motorcycle users, and 7% for pedestrians. However, fatalities rose by 10% for pedal cyclists.

The number of pedal cyclists seriously injured rose for the eighth consecutive year. This is probably related to an increase in cycling throughout Britain, especially in urban areas.

Table 2. **Road fatalities by road user group**

						2012 % change from		
	1990	2000	2010	2011	2012	*2011*	*2000*	*1990*
Bicyclists	267	131	111	109	120	10.1%	-8.4%	-55.1%
Mopeds	37	15	10	10	12	20.0%	-20.0%	-67.6%
Motorcycles	634	597	403	359	320	-10.9%	-46.4%	-49.5%
Passenger car occupants	2 462	1 784	867	917	831	-9.4%	-53.4%	-66.2%
Pedestrians	1 754	889	415	466	429	-7.9%	-51.7%	-75.5%
Others incl. unknown	248	164	99	99	90	-9.1%	-45.1%	-63.7%
Total	*5 402*	*3 580*	*1 05*	*1 960*	*1 802*	*-8.1%*	*-49.7%*	*-66.6%*

Source: IRTAD

Age

Since 1990, the reduction in fatalities has benefited all age groups, with the highest reduction for the youngest group (0-14), for which fatalities decreased from 394 in 1990, to 56 in 2012.

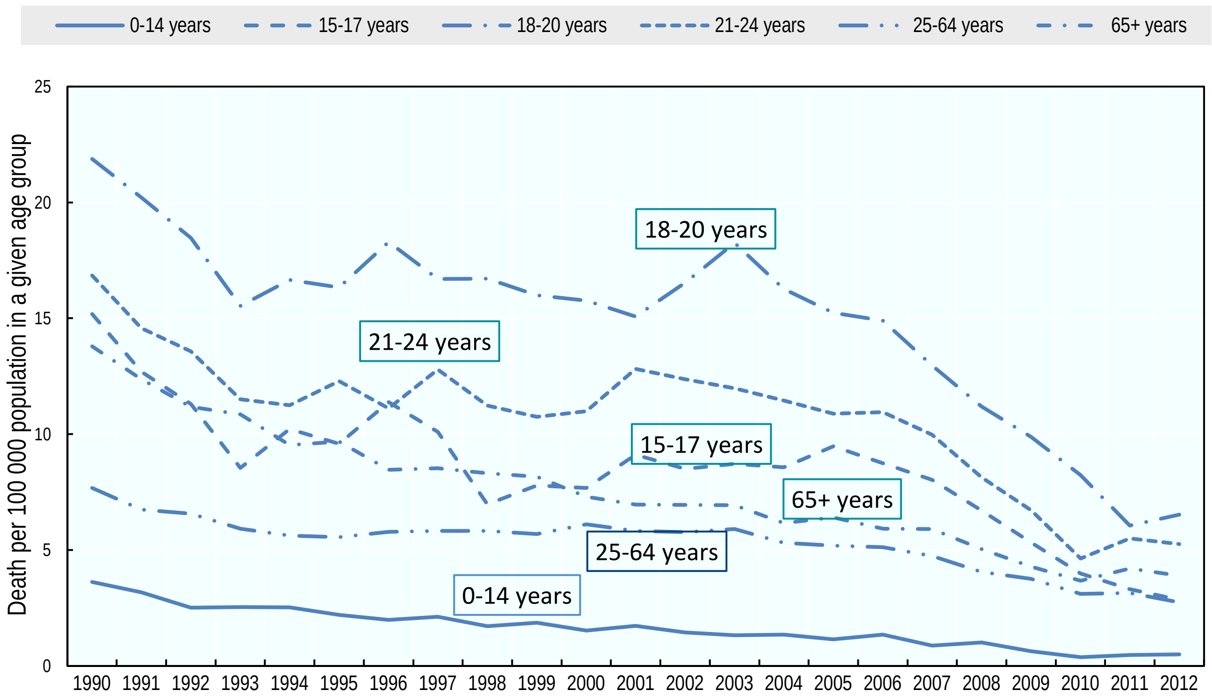
The total number of deaths in accidents involving car drivers aged 17-24 reduced by 15 per cent, from 412 in 2011 to 350 in 2012.

Table 3. **Road fatalities by age group**

Age	1990	2000	2010	2011	2012	2012 % change from... 2011	2000	1990
0-5	123	41	16	13	21	61.5%	-48.8%	-82.9%
6-9	108	41	14	10	10	0.0%	-75.6%	-90.7%
10-14	163	89	12	29	25	-13.8%	-71.9%	-84.7%
15-17	335	169	93	77	66	-14.3%	-60.9%	-80.3%
18-20	558	342	206	152	161	5.9%	-52.9%	-71.1%
21-24	616	304	156	189	183	-3.2%	-39.8%	-70.3%
25-64	2 223	1 908	1 031	1 051	914	-13.0%	-52.1%	-58.9%
>65	1 241	679	377	439	422	-3.9%	-37.8%	-66.0%
Total incl. unknown	*5 402*	*3 580*	*1 905*	*1 960*	*1 802*	*-8.1%*	*-49.7%*	*-66.6%*

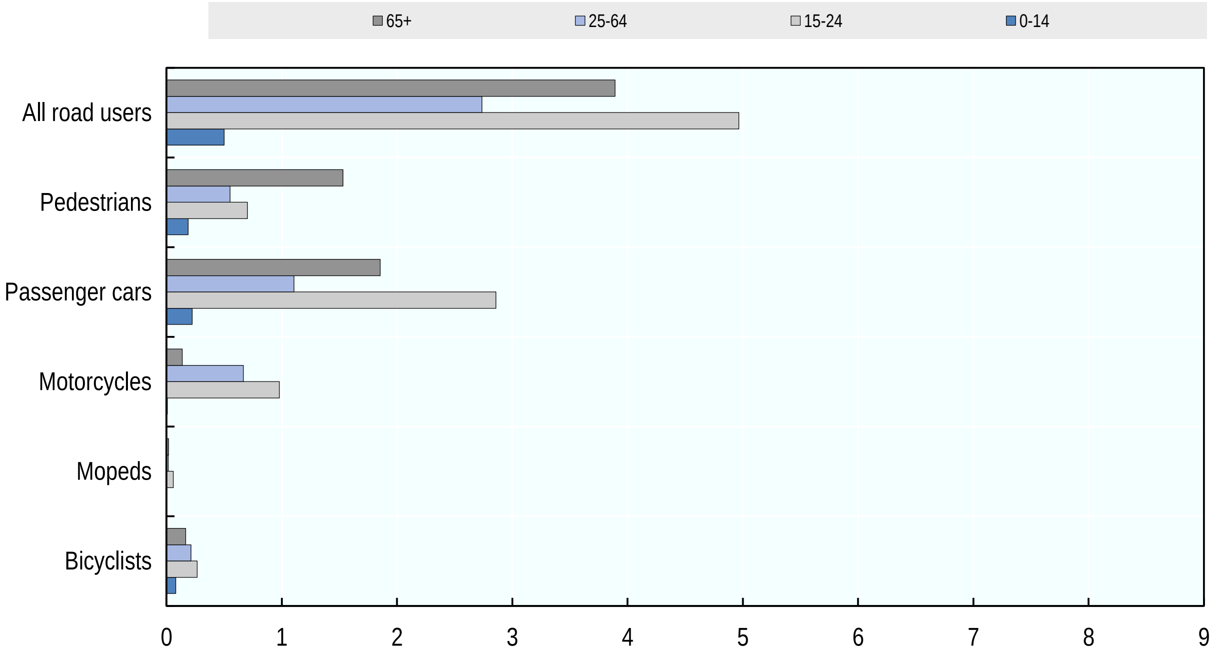
Source: IRTAD

Figure 3. **Road death rates by age group**
Fatalities per 100 000 population in a given age group, 1990-2012



Source: IRTAD

Figure 4. **Road death rate by age and road user group**
Fatalities per 100 000 population

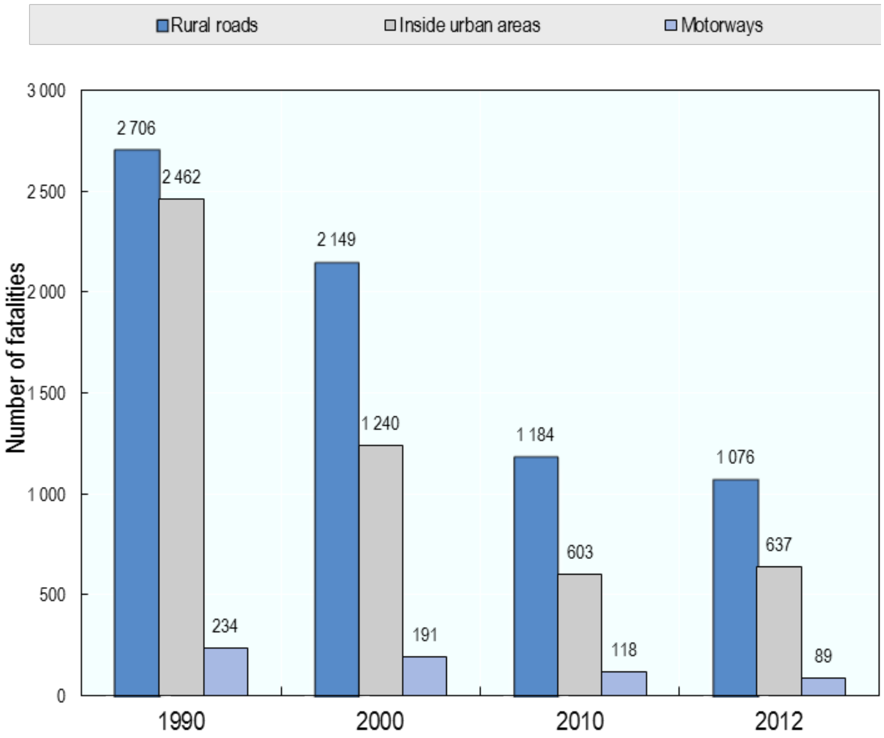


Source: IRTAD

Road Type

In 2012, most fatalities (almost 60 %) occurred on rural roads. This is considerably higher than the 42 per cent of traffic which is found on these roads. Since 1990, the largest improvement was made on urban roads.

Figure 5. **Road fatalities by road type**



Source: IRTAD

4. Economic costs of traffic crashes

The total value of prevention of reported road accidents in 2012 for Great Britain was estimated to be GBP 15.1 billion — this includes an estimate of the cost of damage-only accidents but does not allow for unreported injury accidents. This represents a decrease of GBP 0.5 billion compared with the same estimate made in 2011. This is proportional to the 4 per cent decrease in the number of accidents reported in 2011 compared with 2012.

A number of assumptions have been made to produce a broad illustrative figure which suggests that allowing for accidents not reported to the police could increase the total value of prevention of road accidents to around GBP 34.3 billion.

Table 4. **Costs of *reported* road crashes in Great Britain**
2012

Costs (GBP)	Unit Cost	Total
Fatal accidents	1,917,766	3.139 billion
Serious injury accidents	219,043	4.578 billion
Slight injury accidents	23,336	2.871 billion
Property damage only accidents	2 048	4.533 billion
Total (GBP)		15.122 billion

Source: Department for Transport (2013)[2]

5. Recent trends in road user behaviour

Impaired driving

Drink driving

In Great Britain, the maximum authorised blood alcohol content is 0.8 g/l.

For statistics purpose, a drink drive accident is defined as being an incident on a public road in which someone is killed or injured and where at least one of the motor vehicle drivers or riders involved either refused to give a breath test specimen when requested to do so by the police (other than when incapable of doing so for medical reasons), or one of the following:

- failed a roadside breath test by registering over 35 micrograms of alcohol per 100 millilitres of breath, or
- died and was subsequently found to have more than 80 milligrams of alcohol per 100 millilitres of blood.

Drink drive casualties are defined as all road users killed or injured in a drink drive accident.

In 2012, provisional estimates indicate that in 15% of fatal crashes one of the drivers had a BAC above 0.8 g/l.

In 2012, the provisional figure for the number of people killed in drink-drive accidents is 280 (15 per cent of all road deaths), an increase of 40 fatalities (17 per cent) compared to the 2011 final estimate.

A survey on self-reported drink and drug driving in England and Wales undertaken in 2012-13 (Apr 12 – Mar 13) revealed that 6% of adult drivers reported driving at least once or twice within the last 12 months whilst they thought they were over the legal alcohol limit (Dft, 2014).

Drugs and driving

In 2012-13 in England and Wales, 0.5 % of drivers said they had driven under the influence of illegal drugs at least once in the last year. This is a fall from 2010-11, when the corresponding figure was 1.3% of drivers.

2. Department for Transport (2013), *A valuation of road accidents and casualties in Great Britain*

In 2012-13, drivers in their 20s had the highest rates of both drink and drug driving. 10% of drivers in their 20s reported drink driving at least once in the last year and 1% reported drug driving. Amongst older drivers, the prevalence was around half that, for both drink and drug driving.

More detailed 2012/2013 survey results on self-reported drink and drug drinking are published at: https://www.gov.uk/government/publications/reported-road-casualties-great-britain-annual-report-2012

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 driving was impaired by drugs in order to prosecute.

Distraction

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[3].

It is illegal to use a hand-held mobile phone or similar device while driving. There is an automatic fixed penalty notice if caught using a hand-held phone while driving or riding. Three penalty points on the licence and a fine of GBP 100 can be imposed. If the case goes to court, a maximum fine of GBP 1 000 (GBP 2 500 if driving a bus, coach or heavy goods vehicle), discretionary disqualification and three points are imposed. For new drivers the penalty is harsher, losing their licence if 6 or more points are accumulated in first 6 months.

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[4] in England showed the proportion of drivers observed using hand-held mobile phones whilst driving was 1.4% for car drivers and 2.6% for van and lorry drivers. The number of drivers who appeared to be using hands-free mobile phones was1.4% for car drivers and 2.4% for van and lorry drivers.

Fatigue

Research suggests that almost 20% of accidents on major roads are sleep-related. Sleep-related accidents are more likely than others to result in a fatality or serious injury. Peak times for accidents are in the early hours and after lunch. About 40% of sleep-related accidents involve commercial vehicles. Men under 30 have the highest risk of falling asleep at the wheel. See Road Safety Observatory for detailed reports at: http://www.roadsafetyobservatory.com/KeyFacts/drivers/fatigue

In Great Britain "Fatigue" was assigned as a contributory factor in four per cent of fatal injury accidents in 2012. Further information on contributory factors is available at: https://www.gov.uk/government/statistical-data-sets/ras50-contributory-factors.

3. 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.

4. http://webarchive.nationalarchives.gov.uk/20110503151558; www.dft.gov.uk/adobepdf/162469/221412/221549/564852/mobileusedrivers.pdf

Speed

Exceeding the speed limit was reported as a factor in 4% of all crashes in 2012. These accidents accounted for 12% of fatalities. At least one case of exceeding the speed limit and travelling too fast for the conditions was reported in 11% of all accidents and these accidents accounted for 20% of all fatalities.

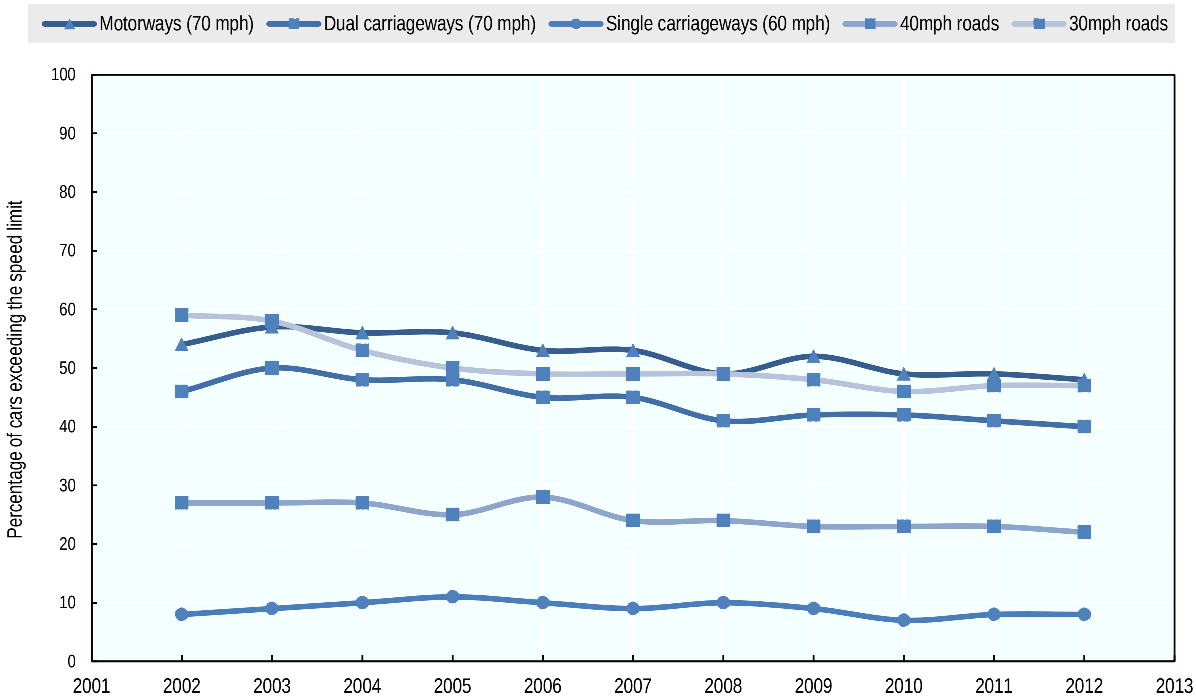
The table below summarises the main speed limits in the United Kingdom.

Table 5. **Passenger car speed limits by road type**
2014

	General speed limit Passenger cars
Urban roads	30 mph
Rural roads	60 mph (single carriageway)
Motorways	70 mph

Source: IRTAD

Figure 5. **Percentage of cars exceeding the speed limit by road category in Great Britain**
2002 - 2012



Source: Dft

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.

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.

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.

6. 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.

A 5-year road safety strategy for 2011-2015

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.

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 6. **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.*

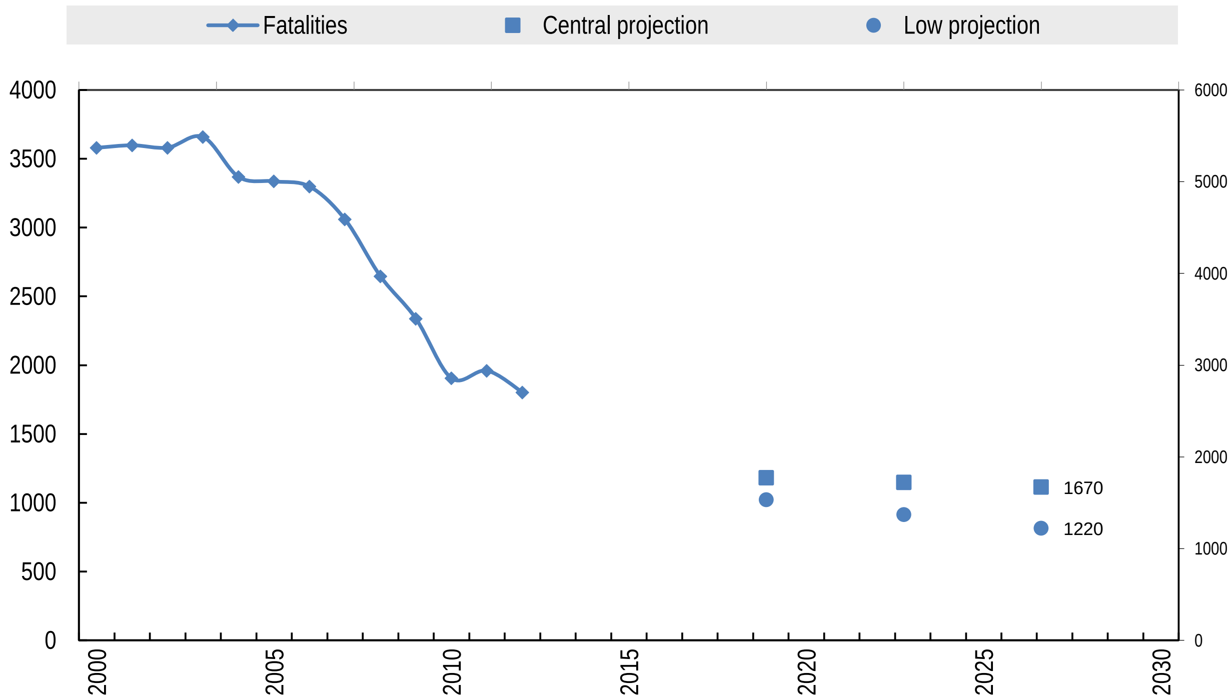
Monitoring

The average over the five-year period from 2005 to 2009 is used as a basis for comparison when considering road safety trends over a longer period and used as a baseline for the Outcomes Framework for the Strategic Framework for Road Safety5.

Compared with the 2005-2009 average:

- The total number of fatalities in 2012 was 38 per cent lower than the 2005-09 average. The number of people killed or seriously injured was down by 17 per cent and the total number of casualties across all severities was down by 20 per cent.
- A total of 61 children (aged under 15 years old) were killed in reported road traffic accidents in 2012, up slightly from 60 in 2010, but down 52 per cent from the 2005-09 average.

Figure 6. **Trends in road fatalities and projection for 2030**



Source: IRTAD

Evaluation of past road safety strategy

The Department has not conducted an evaluation of its road safety strategy in its entirety. However, it is currently conducting evaluations on a number of topics, including recent changes to drug driving law and the introduction of 20mph speed limits.

5. https://www.gov.uk/government/publications/strategic-framework-for-road-safety

7. Recent safety measures (2011-2013)

Road safety management

- In March 2013, the Department launched two web-based tools to enhance the delivery of road safety, a local highways authority road safety performance comparison tool and a road safety observatory of road safety research.
    - The Local Road Safety Performance Comparison resource has been developed so that local residents and communities can find out how well their local authority is performing on the road safety.
    - The Road Safety Observatory provides key facts and summaries from relevant road safety research and evidence to inform a wide range of professionals working in road safety.

Driver behaviour

Speed management

- In January 2013 the Department published revised guidance to local authorities on setting local speed limits. This revision will help local authorities implement more consistent speed limits on local roads and incorporates recent changes that create more flexibility for authorities to implement 20mph limits and zones.
- The Department is commissioning research into the effectiveness of 20mph speed limits (see section on research).

Impaired driving

- The Department is currently in the process of introducing a new offence of driving with a specified controlled drug in the body in excess of a specified limit. It is expected that this will come into force early in 2015. The new law will be supported by new roadside drug screening devices, which are currently being type approved.
- The Scottish Government is currently in the process of reducing the drink driving limit from 80mg alcohol per 100ml blood to 50mg alcohol per 100ml blood. The change is expected to come into force in Autumn 2014. Northern Ireland has also been exploring reducing its drink drive limit.

Seatbelt and helmet use

- Penalty levels for most motoring offences, including using a mobile phone at the wheel and not wearing a seatbelt, rose to GBP 100, bringing them into line with penalties for similar non-motoring fixed penalties.

Education and awareness

- The Department is considering several options to ensure that newly qualified drivers are properly prepared and drive safely. A summary of the latest young driver statistics can be *downloaded at: https://www.gov.uk/government/publications/road-safety-factsheets-and-ad-hoc-statistics*

Other

- Careless drivers who put other road users at risk face on-the-spot penalties under new measures brought into force in July 2013. The changes will give the police powers to issue fixed penalty notices for careless driving, giving them greater flexibility in dealing with less serious careless driving offences - such as tailgating or middle lane hogging - and freeing them from resource-intensive court processes. The fixed penalty will also enable the police to offer educational training as an alternative to endorsement.

8. Recent and on-going research

- The Department is commissioning research into the effectiveness of 20mph speed limits, in terms of a range of outcomes including speed, collisions, injury severity, mode shift, quality of life, community, economic public health benefits and air quality. It will also examine drivers', riders' and residents' perceptions of 20mph speed limits and assess the relative cost/benefits to specific vulnerable road user groups.
- Recently published research reports can be found at: https://www.gov.uk/government/publications/road-safety-research-and-statistical-reports

Useful websites and references

UK Department for Transport – Road Safety Unit	https://www.gov.uk/government/policies/making-roads-safer
Reported Road Casualties Great Britain 2012: Annual Report	https://www.gov.uk/government/publications/reported-road-casualties-great-britain-annual-report-2012.
UK Road safety observatory : key facts and summaries of research on road safety topics	http://www.roadsafetyobservatory.com/

Contact

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United States

Source: IRTAD, NHTSA

Inhabitants	Vehicles/1 000 inhabitants	Road fatalities in 2012	Fatalities /100 000 inhabitants in 2012
311.6 million	**846**	**33 561**	**10.7**

1. 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. Most recent safety data

Road crashes in 2012

Motor vehicle crashes and fatalities in 2012 increased after six consecutive years of declining fatalities on the US nation's highways. The nation lost 33 561 people in crashes on roadways during 2012, compared to 32 479 in 2011. The increase in crashes, and the resulting fatalities and injuries, can be seen across many crash characteristics – vehicle type, alcohol impairment, location of crash, etc. – and does not seem to be associated with any one particular issue. In fact, crashes associated with some traditional risk factors, fell in 2012. For example, young drivers involved in fatal crashes continued to decline, as they have since 2005. Despite the general downward trend in overall fatalities in recent years, pedestrian and motorcycle fatalities have shown an upward trend. This was again the case in 2012, as motorcycle and pedestrian fatalities increased by six percent each.

Provisional data for 2013

A statistical projection of traffic fatalities for the first nine months of 2013 shows that an estimated 24 270 people died in motor vehicle traffic crashes. This represents a decrease of about 3.7 per cent as compared to the 25 214 fatalities that were reported to have occurred in the first nine months of 2012.

Preliminary data reported by the Federal Highway Administration (FHWA) shows that vehicle miles travelled (VMT) in the first nine months of 2013 increased by about 9.8 billion miles, an increase of approximately 0.4 per cent.

The National Highway Traffic Safety Administration is continuing to gather data on crash fatalities for 2012 and 2013 using information from police accident reports and other sources. While it is too soon to speculate on the contributing factors or potential implications of any changes in deaths on our roadways, it should be noted that the historic downward trend in traffic fatalities in the past several years means any comparison will be to an unprecedented low baseline figure.

3. Trends in traffic and road safety (1990-2013)

Traffic

In 1990, there were approximately 184 million registered motor vehicles in the U.S. and vehicle ownership rate was close to 0.74 vehicles per capita. Since then, except for the year 1992, the number of registered vehicles had grown steadily to over 259 million in 2008, with an ownership rate exceeding 0.85 vehicles per capita. Even though the number of registered vehicles was down for years 2009 and 2010, the latest 265.6 million registered vehicles for 2012 indicates the total number of vehicle registered is on the rise again and has surpassed the high reached in 2008.

Travel as measured by vehicle mile travelled (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 2012 VMT data, which was 2 954 394 million miles, is still below the 2007 peak.

Change in the number of fatalities and injury crashes (1990-2012)

In the first decade of the 21st century, the United States experienced more than 40 000 deaths and more than 2 500 000 injuries on the Nation’s roadways. Roadway crashes generally are the leading cause of death for Americans for every age, from 3 through 34.

Between 1990 and 2012, the number of fatalities decreased by 25%; 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. In 2012, the US experienced the first increase in fatalities since 2005, and from 2011 to 2012 there was a 3.3 per cent increase.

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. The increase in 2012 cannot be attributed to a single factor. However, one note of interest is that of the increase of 1 082 fatalities in 2012, with 72% of the increase occurring in the first quarter of the year. That quarter also happened to be the warmest first quarter on record in the US.

Rates

The fatality rate per 100 million vehicle miles traveled (VMT) fell to a historic low of 1.10 in 2011. In 2012 the rate was 1.13.

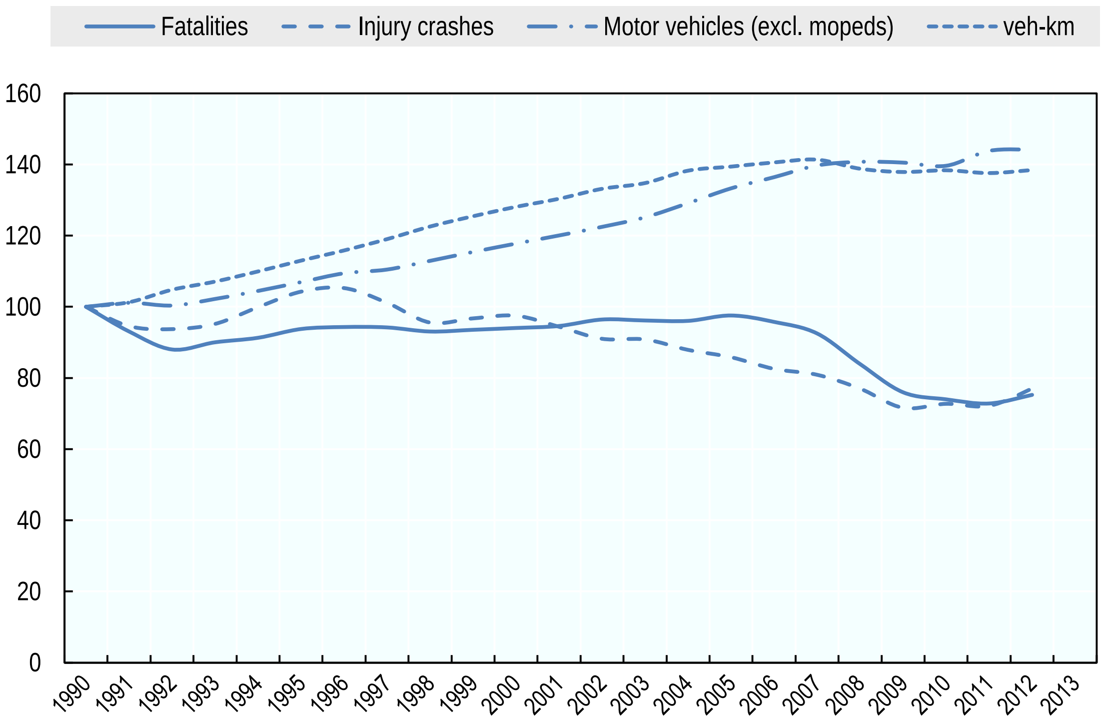
In 2012, the death rate expressed in terms of deaths per 100 000 population, was 10.69 – a 2.6% increase from 2011.

Between 1990 and 2012, the death rate, expressed in terms of deaths per 100 000 population, decreased by 40%; while the risks (in terms of deaths per billion veh-km) declined by 45%.

Table 1. **Road safety and traffic data**
1990-2012

	1990	2000	2010	2011	2012	2012 % change from 2011	2000	1990
Reported safety data								
Fatalities	44 599	4 945	3 999	3 479	3 561	3.3%	-20.0%	-24.7%
Injury crashes[1]	2 162 000	2 108 000	1 572 000	1 56 000	1 665 000	6.7%	-21.0%	-23.0%
Deaths per 100 000 population	17.9	14.9	10.7	10.4	10.7	2.6%	-28.1%	-40.2%
Deaths per 10 000 registered vehicles	2.4	1.9	1.3	1.3	1.3	2.8%	-32.9%	-46.4%
Deaths per billion vehicle kilometres	12.9	9.5	6.9	6.9	7.1	3.1%	-25.6%	-45.4%
Traffic data								
Registered vehicles[2] (thousands)	184 275	217 028	257 312	265 043	265 647	0.2%	22.4%	44.2%
Vehicle kilometres (millions)	3 451 016	4 420 747	4 775 352	4 748 212	4 777 845	0.3%	7.5%	37.8%
Registered vehicles per 1,000 population)	738.7	769.2	831.8	850.6	846.2	-0.5%	10.0%	12.7%

Figure 1. **Road safety and traffic data**
1990 = index 100



Source: IRTAD, NHTSA

Road users

1. Rounded Injury accidents, including fatal crashes
2. Registered vehicles, excluding mopeds.

Since 1990, all road users except motorcycle riders have benefited from the improvement in road safety. Motorcycle rider fatalities (incl. mopeds) increased by more than 50% between 1990 and 2012.

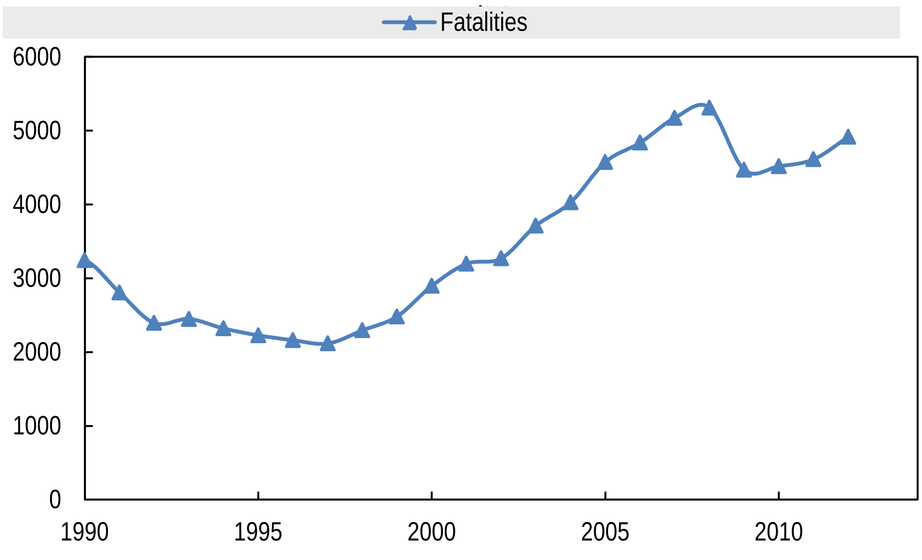
Between 1990 and 2012, the United States experienced a marked reduction of almost 50% in passenger car occupant fatalities. A further reduction in passenger car occupant fatalities is expected with increased availability of front and side airbags, electronic stability control, safety-belt use, use of 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 27% and 16% respectively.

Over the past ten years, data show that the composition of fatalities among road users has shifted. The primary change occurred because of the decrease in passenger car occupant fatalities from 2000 to 2012 — from 20 699 fatalities in 2000, to 12 271 in 2012. However, there has been a marked change in composition of road user fatalities for motorcyclists and pedestrians. Fatalities for these two groups combined increased from 2000 to 2012 — from 7 660 to 9 660 — and they now make up 29% of fatalities compared to 18% of fatalities ten years ago.

As noted, motorcyclist fatalities have been increasing over the previous years. Fatalities fell sharply in 2009, along with a sharp decrease in roadway fatalities overall. However, since that drop, the number of people killed on motorcycles (including mopeds) has resumed the increase that had been occurring since the late 1990s.

Figure 2. **Motorcyclists killed on US roadways**



Source: NHTSA, IRTAD

Table 2. **Road fatalities by road user group**

	1990	2000	2010	2011	2012	2012 % change from 2011	2000	1990
Bicyclists	859	693	623	682	726	6.5%	4.8%	-15.5%
Motorised two-wheelers	3 244	2 897	4 518	4 630	4,917	6.2%	69.7%	51.6%
Passenger car occupants	24 092	20 699	12 491	12 041	12 271	1.9%	-40.7%	-49.1%
Pedestrians	6 482	4 763	4 302	4 457	4 743	6.4%	-0.4%	-26.8%
Others incl. unknown	9 922	12 893	11 065	10 669	10 904	2.2%	-15.4%	9.9%
Total	*44 599*	*41 945*	*32 999*	*32 479*	*33 561*	*3.3%*	*-20.0%*	*-24.7%*

Source: NHTSA, IRTAD,

Age

Looking at the age of the individuals killed during motor vehicle crashes, all fatality rates have dropped since 1990. Young people aged 18 to 20 had long maintained the highest fatality rate per population, but for the first time in 2010, this age group fell to the second highest fatality rate, replaced by 21 to 24 year olds. Another decline in fatality rates can be seen (in the chart) for 15 to 17 year olds – once the third highest rate is now the fifth highest rate.

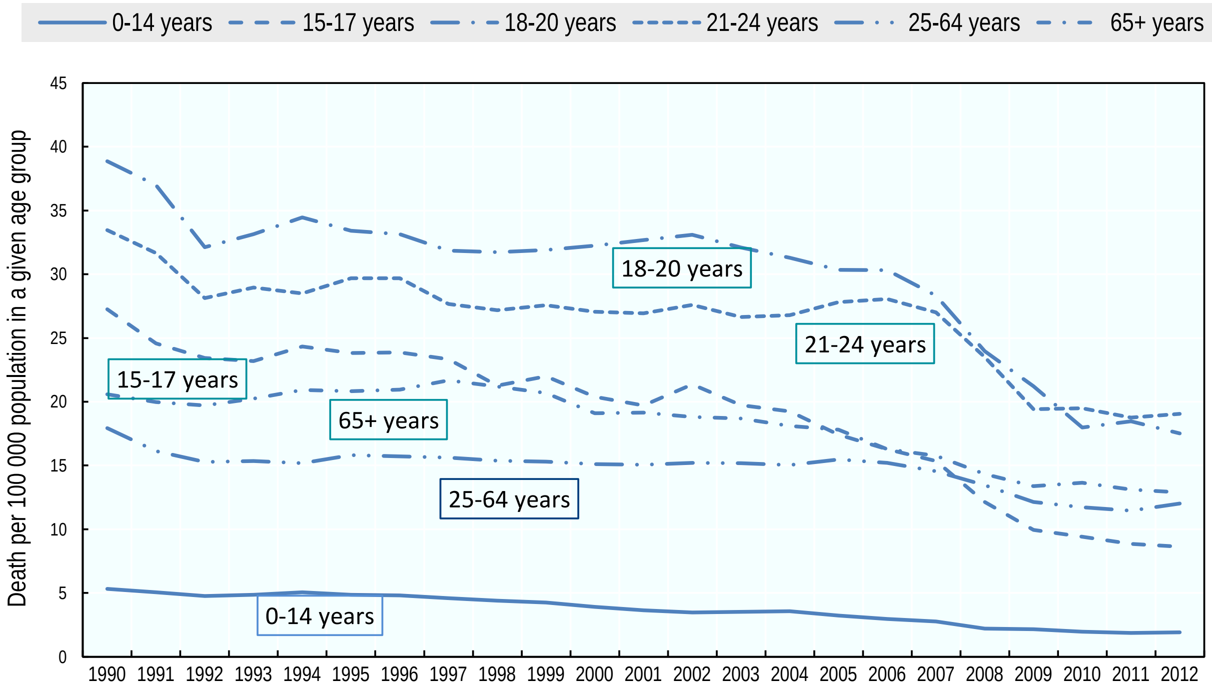
The Department has been working diligently to address the safety risk of young drivers. This group, lacking the experience acquired over time, often pose a greater safety risk on the road. However, over the years, with the attention to young drivers and the introduction of graduated driver licensing, the fatalities associated with young drivers has decreased, as can be seen below. In 2003, there were 8 514 fatalities associated with young driver (16-20 years old) crashes as compared to 4 565 fatalities in young driver crashes in 2012.

Table 3. **Road fatalities by age group**

Age	1990	2000	2010	2011	2012	2012 % change from... 2011	2000	1990
0-5	1 101	858	471	419	476	13.6%	-44.5%	-56.8%
6-9	752	579	285	283	274	-3.2%	-52.7%	-63.6%
10-14	1 025	926	455	437	418	-4.3%	-54.9%	-59.2%
15-17	2 744	2 467	1 216	1 128	1 086	-3.7%	-56.0%	-60.4%
18-20	4 564	3 967	2 449	2 493	2 333	-6.4%	-41.2%	-48.9%
21-24	5 049	4 061	3 340	3 296	3 436	4.2%	-15.4%	-31.9%
25-64	22 812	22 267	19 213	18 948	19 917	5.1%	-10.6%	-12.7%
>65	6 427	6 701	5 524	5 423	5 560	2.5%	-17.0%	-13.5%
Total incl. unknown	*44 599*	*41 945*	*32 999*	*32 479*	*33 561*	*3.3%*	*-20.0%*	*-24.7%*

Source: NHTSA, IRTAD

Figure 3. **Road death rates by age group**
Fatalities per 100 000 population in a given age group, 1990-2012

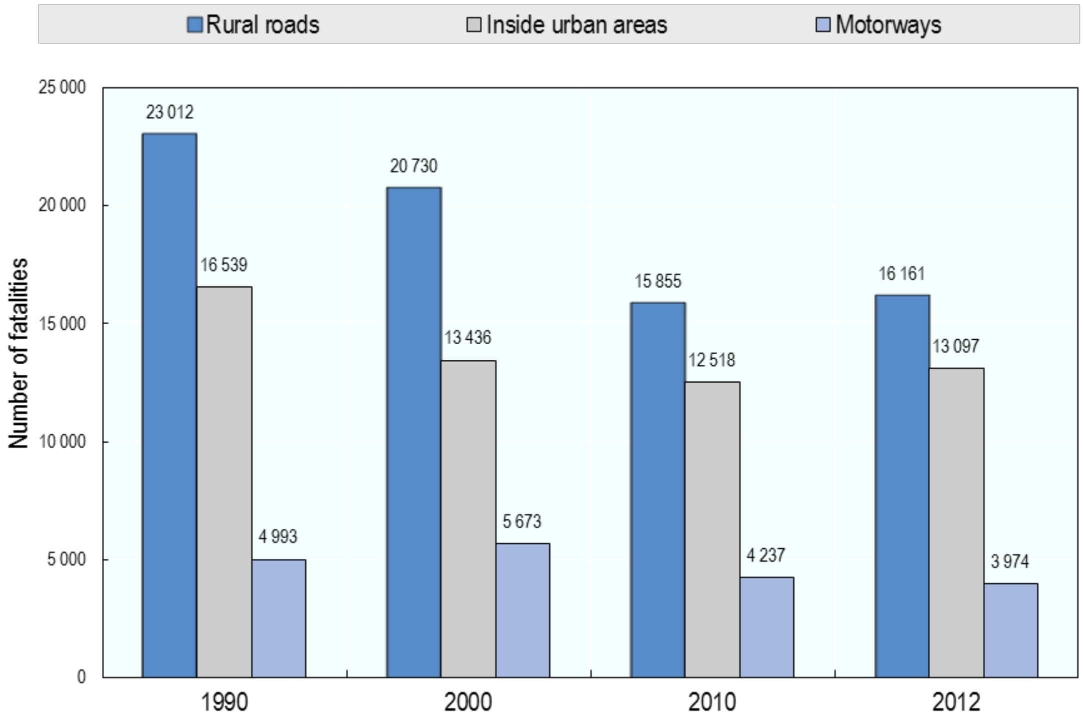


Source: NTHSA, IRTAD

Road Type

Whereas there was an increase in most areas from 2011 to 2012, data show a decrease in the number of fatalities occurring on motorways in 2012.

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



Source: NTHSA, IRTAD

4. Economic costs of traffic crashes

The latest estimation of the economic costs of traffic crashes was done in 2000[3]. 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 per cent 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.

3. 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.

Table 4. **Costs of road crashes,** 2000

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%

Source: Department of Transportation

5. 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.

Fatalities in crashes involving alcohol-impaired drivers have remained around 31% of all fatalities. In the U.S., the blood alcohol limit for driving is .08 g/dL and crashes with drivers testing at this level BAC or higher are considered alcohol-impaired crashes. In 2012, fatalities in alcohol-impaired crashes increased by 4.6% over 2011. Perhaps more alarming is that fatalities in alcohol-impaired crashes in which a driver had a BAC of .15 or higher (twice the legal limit) increased by 7.3% over 2011.

Table 5. **Fatalities in alcohol-impaired driving crashes for different BAC level**

	2011	2012	% Change
Fatalities in 0.08 (dg/l)+ crashes	9 865 (30%)	10 322 (31%)	+4.6%
Fatalities in 0.08-.14 (dg/l) crashes	3 107 (10%)	3 071 (9%)	-1.1%
Fatalities in 0.15 (dg/l) + crashes	6 758 (21%)	7 251 (22%)	+7.3%

Source: NHTSA

Drugs and driving

There is no federal per se law regarding driving under the influence of drugs. Drug per se laws are stated more so that it is illegal to drive with certain drugs in the system. However, not all states in the US have drug per se laws.

Given the differences in state collection and reporting of drug data, and the large amounts of missing data for the influence of drugs in crash scenarios, NHTSA's data on drugs and crashes should be interpreted within the constraints of a vast array of limitations. Of those drivers involved in fatal crashes in 2012 (45 337 drivers), 40% (18 120) of them were tested for drugs. Thirty-two percent (5 765) of those tested for drugs were reported as having drugs in their system at the time of the fatal crash.

Distraction

Distracted driving laws focus on the use of mobile electronic devices while driving. Each state in the US sets its own laws regarding distracted driving. As of April 2014, 12 States and the District of Columbia (DC) prohibit all drivers from using hand-held cell phones while driving. Thirty-seven States and DC ban all cell phone use by novice drivers. Forty-three States and DC ban text messaging for all drivers.

In 2012, 3 328 people were killed on U.S. roadways, and an estimated additional 421 000 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, 415 involved reports of a cell phone as a distraction (12% of fatalities in distraction-related crashes). Of those injured in distracted-driving-related crashes, 28 000 involved reports of a cell phone as a distraction (7% of injured people in distraction-related crashes). Ten percent of fatal crashes and 17 percent of the injury crashes in 2012 involved reports of distracted driving.

Speed

NHTSA considers a crash to be speeding-related if the driver was charged with a speeding-related offense, or if an officer indicated that racing, driving too fast for conditions, or exceeding the posted speed limit was a contributing factor in the crash.

Speeding is one of the most prevalent factors contributing to traffic crashes. In 2012, speed was a contributing factor in 30 per cent of all fatal crashes, and 10 219 lives were lost in speeding-related crashes. Speeding-related fatalities increased by 2 per cent from 10 001 in 2011, to 10 219 in 2012.

Table 6. **All motor vehicle crash fatalities and speed-related fatalities**

Year	Total Fatalities	Speeding-Related Fatalities	% Speeding-Related
2003	42 884	13 499	31
2004	42 836	13 291	31
2005	43 510	13 583	31
2006	42 708	13 609	32
2007	41 259	13 140	32
2008	37 423	11 767	31
2009	33 883	10 664	31
2010	32 999	10 508	32
2011	32 479	10 001	31
2012	33 561	10 219	30

Speed limits in the United States are set by each state. The table below summarises speed limit ranges in the United States.

Table 7. **Passenger car speed limits by road type**
2014

	General speed limit	Comments
Urban roads	25 mph +	Set by each state
Rural roads	25 mph +	Set by each state
Motorways	55-80 mph	Set by each state

Source: NHTSA

** These speeds are general information and speed limits depend on the use of the road and the size of the road as well as State discretion.

Seatbelts and helmets

Primary belt laws (PBLs) allow law enforcement to stop a driver solely for not wearing a seatbelt. As of January 2014, 33 States, the District of Columbia and Puerto Rico have primary seatbelt laws for front seat occupants. In 16 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. This state does, however, have a primary child passenger safety law that covers all drivers and passengers under 18.

In 2012, among fatally injured passenger vehicle occupants, more than half (52%) of those killed 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 seatbelt rate is at an all-time high in the U.S. as reported through the National Occupant Protection Use Survey (NOPUS). In 2013, seatbelt use reached 87%. Seatbelt use has shown an increasing trend since 1995, accompanied by a steady decline in the percentage of unrestrained passenger vehicle (PV) occupant fatalities during daytime.

Table 8**. Seat-belt wearing rate by car occupants**

	2000	*2010*	*2011*	*2012*	*2013*
Front seat (all)	71%	85%	84%	86%	87%
Rear seats		74%	74%		

Source: NHTSA

Motorcycle helmet laws are issued and enforced by the individual states; there is no national law requiring motorcycle helmet use. As of January 2014, 19 states, 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. The following table shows the changes in motorcycle helmet usage since 1998.

Table 9. **Changes in motorcycle helmet usage, 1998-2012**

	1998	2000	2002	2004	2006	2008	2010	2012
Usage rate	67%	71%	58%	58%	51%	63%	54%	60%

Source: NHTSA

6. National road safety strategies and targets

Organisation of road safety

The United States 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 others. At the national level, Congress passes the laws and assigns 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 seatbelt use law.

Congress can influence the States by providing incentive grants 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 the 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.

In FY 2010, the Department of Transportation designated reducing roadway fatalities as one of its high-priority performance goals. Three agencies, the National Highway Traffic Safety Administration (NHTSA), the Federal Highway Administration (FHWA), and the Federal Motor Carrier Safety Administration (FMCSA), are working together to address multiple dimensions of roadway safety.

Road safety strategy for 2011-2020

The number one priority of the Department of Transportation (USDOT) remains safety.

To align the programme and policy actions needed to meet key challenges most effectively, USDOT has established four fatality sub measures – 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 sub measure trends.

Target setting

While the USDOT has developed sub measures 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. The overall fatality rate goal for 2012 had a target of 1.05.

With respect to measurement of the performance of the Department's Safety Priority, the targets for the USDOT include, in addition to an overall fatality rate measure, four sub measures 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:

- non-occupant fatality rates
- passenger vehicle fatality rate (fatalities / veh-miles traveled)
- large truck fatality rate (fatalities / veh-miles traveled)
- motorcycle fatality rate (fatalities / number of registered vehicles)

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.

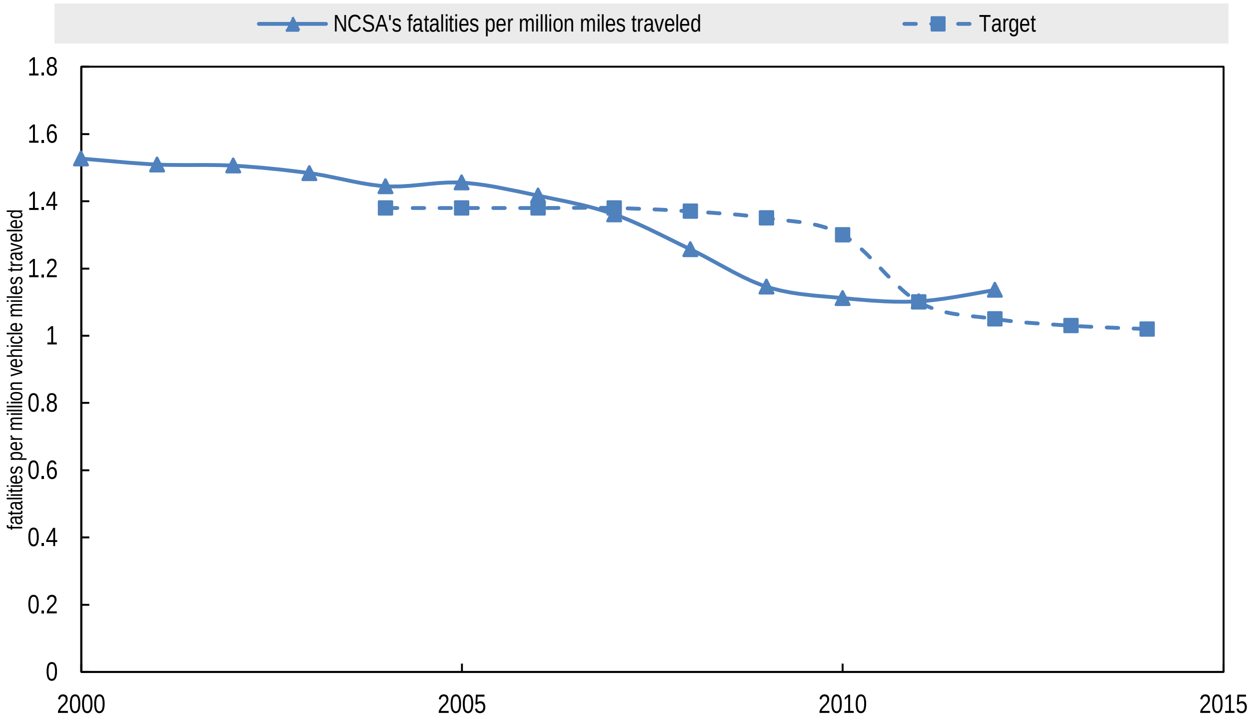
Each year, the USDOT calculates the actual fatality rates for the overall target and each sub measure. This is compared to the target set in previous years to determine whether the Department met its goal. USDOT programmes are then reviewed in concert with the economic conditions, the environment, and other factors to better understand the rates and the status of road safety.

The DOT currently has performance targets set through 2014 for the overall fatality rate and NHTSA and FMCSA have performance targets for each of the four sub measures. For year 2014, DOT's overall motor vehicle crash fatality rate target is 1.02 fatalities per 100 million vehicle miles travelled. The sub measure targets for 2014 are 0.16 fatalities per 100 million vehicle miles travelled for the non-occupant fatality rate, 63 fatalities per 100 000 registrations for the motorcyclist fatality rate, 0.82 fatalities per 100 million vehicle miles travelled for the passenger vehicle fatality rate, and the large truck and bus fatality rate for 2014 is 0.114 fatalities per 100 million vehicle miles travelled.

Monitoring

With the recent increase in the number of motor vehicle crash fatalities, the fatality rate for 2012 was 1.14 and the target was not reached.

Figure 5. **Trends towards national targets**



Source: NHTSA

7. Recent safety measures (2011-2013)

Driver behaviour

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 programmes 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. NHTSA provides a variety of technical resources to help States develop and expand the use of these special courts and ignition interlock programmes.
- Driver Alcohol Detection System for Safety (DADSS). This technology could prevent a vehicle from being driven by a drunk driver. NHTSA and the automotive industry have partnered to advance the long-term research in this advanced technology and will now begin working on the legal, public policy and consumer acceptance issues to ensure that when the technology is ready for commercialisation, manufacturers that choose to offer the system as an option will find a marketplace with few or no impediments to consumer adoption. The goal is to develop a

system that can accurately and reliably detect when a driver is above the legal alcohol limit. The automatic system would be enabled every time the car is started, but unobtrusive so it would not pose an inconvenience to the non-intoxicated driver.

Older driver

- NHTSA released a new strategic plan that will serve as a roadmap to ensure the safety of the nation's growing population of older drivers and passengers. Data show a 3 percent increase in the number of people age 65 and older who died in motor vehicle crashes and a 16 percent increase in the number of people age 65 and older injured from the previous year. The data also show that older adults are at greater risk of dying or sustaining serious injuries, even in low-severity crashes. To address these concerns, NHTSA is focusing on vehicle safety, improved data collection and driver behaviour.

Pedestrian

- The Department of Transportation released a set of tools to help communities combat the rising number of pedestrian deaths that have occurred over the last two years. As part of the campaign, NHTSA is making USD 2 million in pedestrian safety grants available to cities with the highest rate of pedestrian deaths and, along with the Federal Highway Administration (FHWA), is launching a one-stop shop website www.nhtsa.gov/everyoneisapedestrian with safety tips and resources for local leaders, city planners, parents and others involved in improving pedestrian safety.

Distracted driving

- The Department and NHTSA continue to focus on distracted driving and its deadly consequences. There are several resources available to the public, communities, States and safety organisations, including a redesigned www.distraction.gov. In April 2014, the DOT announced the Department’s first-ever, national advertising campaign and law enforcement crackdown to combat distracted driving. The effort includes television, radio and digital advertisements using the phrase U Drive. U Text. U Pay. and coincides with a nationwide law enforcement crackdown in states with distracted driving bans. In addition, a 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.

Vehicles

Passenger cars

- NHTSA announced the Significant and Seamless Initiative in November 2013 which included a top priority of forward collision avoidance and mitigation. The agency is reviewing dynamic brake systems and crash-imminent brake systems that coexist with forward collision warning systems. Forward collision systems utilise vehicle technologies to detect a crash threat and warn the driver to take action. These braking systems add automatic braking, dependent upon the driver’s reaction to the warning, and either apply additional braking or full braking as necessary to avoid or lessen the severity of a crash. NHTSA is developing objective test procedures and surrogate test vehicles for this effort, as well as analysing the effectiveness of the systems and the impact on crashes.

- NHTSA has been conducting research through cooperative agreements with automotive manufacturers in order to assess the feasibility of developing effective crash avoidance systems that utilise V2V communications. This research is funded by the Intelligent Transportation Systems (ITS) programme, which is administered by the Research and Innovative Technologies Administration (RITA). FHWA, FTA and FMCSA also participate in the programme. A key aspect of the V2V programme is the Safety Pilot model Deployment, designed to support estimation of the effectiveness of V2V safety applications at reducing crashes and to show how real-world drivers will respond to these safety applications in their vehicles.
- NHTSA issued a final rule in April 2014, requiring rear visibility technology in all new vehicles under 10 000 pounds by May 2018. This new rule enhances the safety of these vehicles by significantly reducing the risk of fatalities and serious injuries caused by backover accidents.

Coaches

- NHTSA issued a final rule requiring lap and shoulder seatbelts for each passenger and driver seat on new motor coaches and other large buses. This new rule enhances the safety of these vehicles by significantly reducing the risk of fatalities and serious injuries in frontal crashes and the risk of occupant ejection in rollovers.

Collision avoidance

- Pedestrians - As part of NHTSA's Significant and Seamless Initiative, one of the agency's top priorities is forward collision avoidance and mitigation. This effort includes research into pedestrian collision avoidance and mitigation (PCAM) to include identification of pedestrian crash scenarios, assessment of technologies and development of objective test procedures for avoidance technologies. Additionally, NHTSA proposed that hybrid and electric vehicles meet minimum sound standards in order to help make all pedestrians more aware of the approaching vehicles.

Infrastructure

- In January 2012, FHWA issued a "Guidance Memorandum on Promoting the Implementation of Proven Safety Countermeasures". This guidance takes into consideration the latest safety research to advance a group of countermeasures that have shown great effectiveness in improving safety. Safety practitioners are encouraged to consider this set of countermeasures that are research-proven, but not widely applied on a national basis. Countermeasures are discussed in detail and fact sheets are provided for each to furnish detailed descriptions, related research studies, and evaluations of each countermeasure. Countermeasures include: roundabouts, corridor access management, backplates with retroreflective borders, longitudinal rumble strips and stripes on two-lane roads, enhanced delineation and friction for horizontal curves, safety edges, medians and pedestrian crossing islands in urban and suburban areas, pedestrian hybrid beacons, and road diet.
- The Highway Safety Improvement Plan (HSIP) includes a data-driven, strategic approach to improving highway safety and encourages the States to establish or improve their roadway safety data programme. Another major programme feature is a state-wide, coordinated strategic highway safety plan in each State that provides a comprehensive framework for establishing state-wide goals, objectives, and performance targets; and that integrates the four "E's" - engineering, education, enforcement, and emergency medical services. The States will be guided by the plan and their data systems in using the HSIP and oth*er funds to produce a program of projects and strategies to solve relevant safety challenges.*

- The Moving Ahead for Progress in the 21st Century Act (MAP-21) is a funding and authorisation bill to govern United States federal surface transportation spending. MAP-21 doubled the funds for FHWA safety programmes, provided a concentrated effort to maintain a data-driven decision making process to target available resources on the most pressing concerns, and improved collaboration and integration on multiple fronts – engineering, education, enforcement, and emergency medical services – to reduce highway fatalities and serious injuries. MAP-21 indicates a multi-billion dollar funding level for HSIP to strengthen the programme and provide states with better opportunity to focus and ultimately improve the highway safety programmes in their states.

8. Recent and on-going research

- Through the Significant and Seamless Initiative, NHTSA is actively involved in the development of safety systems for forward collision avoidance monitoring and mitigation, the improvement of seatbelt use through interlock systems, and ways to stop drunk driving through alcohol interlock systems.
- Additional vehicle research efforts are focusing on vehicle communications technologies to address a number of common crash scenarios. Current testing and pilot programs are currently underway.
- NHTSA continues to conduct research activities to understand driver behaviour through surveys, observation studies, simulation work in order to affect driver behaviour through vehicle changes and human behaviour changes. Such activities include but are not limited to distracted driving, speeding, belt usage, child safety seat usage, and helmet usage. The agency also conducts evaluations of campaigns and high visibility law enforcement activities to determine the effectiveness of such efforts.

Useful websites and references

NHTSA	http://www.nhtsa.gov
2012 Crash Overview	http://www-nrd.nhtsa.dot.gov/Pubs/811856.pdf
NHTSA Office of Vehicle Safety Research	http://www.nhtsa.gov/Research
NHTSA Behavioral Safety Programs	http://www.nhtsa.gov/Driving+Safety

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Slovenia	Slovenian Traffic Safety Agency	Mr Andraz MURKOVIC
Spain	Dirección General de Tráfico RACC Automóvil Club	Mr. Gerard AZOR Ms. Rosa RAMÍREZ FERNÁNDEZ Mr Miquel NADAL
Sweden	Swedish Transport Agency Swedish Transport Administration VTI	Mr Hans-Yngve BERG Ms Ylva BERG Ms Anna VADEBY
Switzerland	Federal Roads Office (ASTRA) Swiss Council for Accident Prevention (bfu)	Mr Philippe BAPST Mr Steffen NIEMANN
United Kingdom	Department for Transport Transport Research Laboratory (TRL)	Mr Anil BHAGAT Ms Fay GRAVES Mr John FLETCHER

United States	National Highway Traffic Safety Administration (NHTSA)	Ms Terry SHELTON Mr Umesh SHANKAR Ms. Debbie ASCONE
	University of Michigan	Mr Charles COMPTON Ms. Carol FLANNAGAN
	Harvard University	Ms Alison SCOTT
European Commission	DG MOVE	Ms Maria Teresa SANZ VILLEGAS
The World Bank	Global Road Safety Facility	Ms Véronica RAFFO Mr Marc SHOTTEN

Industry – Non governmental organisations

ACEA - European Automobile Manufacturers Association	Ms. Quynh-Nhu HUYNH
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	Ms Rita CUYPERS
Ford	Mr Paul FAY
IMMA - International Motorcycle Manufacturer's Association	Mr Edwin BASTIAENSEN, Ms Vinciane LEFEBVRE
Korea Expressway Corporation	Mr. Sun Woong MIN
Nissan Motor Manufacturing	Ms Leoni BARTH
Renault	Mr Yves PAGE
Robert Bosch Gmbh	Mr Walter GROTE
Volkswagen AG	Mr. Michael STANZEL Ms. Stefanie ACHMUS

The following national institutes also provide information and data to IRTAD:

Finland	Statistics Finland	Ms Marie NIEMI
Greece	EL.STAT.	Ms Nektaria TSILIGAKI
Iceland	Icelandic Transport Authority (ICETRA)	Mr. Gunnar Geir GUNNARSSON
Italy	ISTAT	Ms. Silvia BRUZZONE

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International Transport Forum

Road Safety Annual Report 2014

Summary

The IRTAD Annual Report 2014 provides an overview for road safety indicators for 2012 in 37 countries, with preliminary data for 2013, 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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