



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.

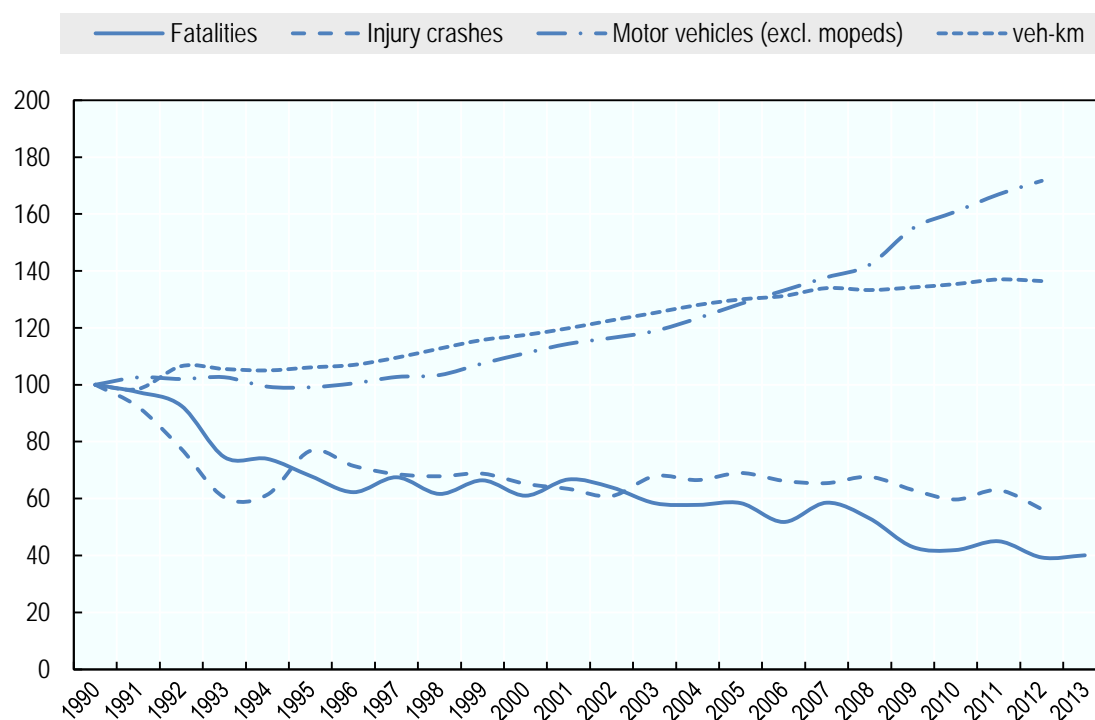
Table 1. Road safety and traffic data

	1990	2000	2010	2011	2012	2012 % change from		
						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

	1990	2000	2010	2011	2012	2012 % change from		
						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.

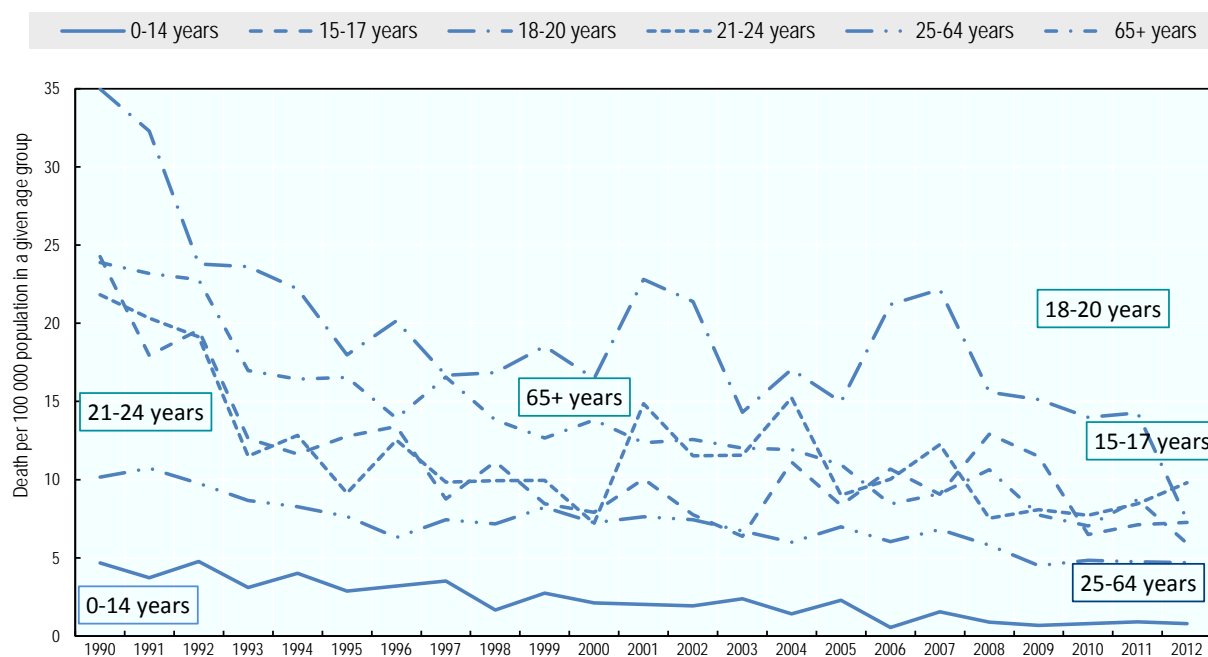
While the 18-20 age group traditionally had a mortality rate much higher than the other age groups, the significant reduction in their mortality in 2012, which was reduced by half, led to a record low in their fatality rate, i.e. three times less than in 2002. Preliminary figures for 2013 show that the 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

Age	1990	2000	2010	2011	2012	2012 % change from...		
						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%

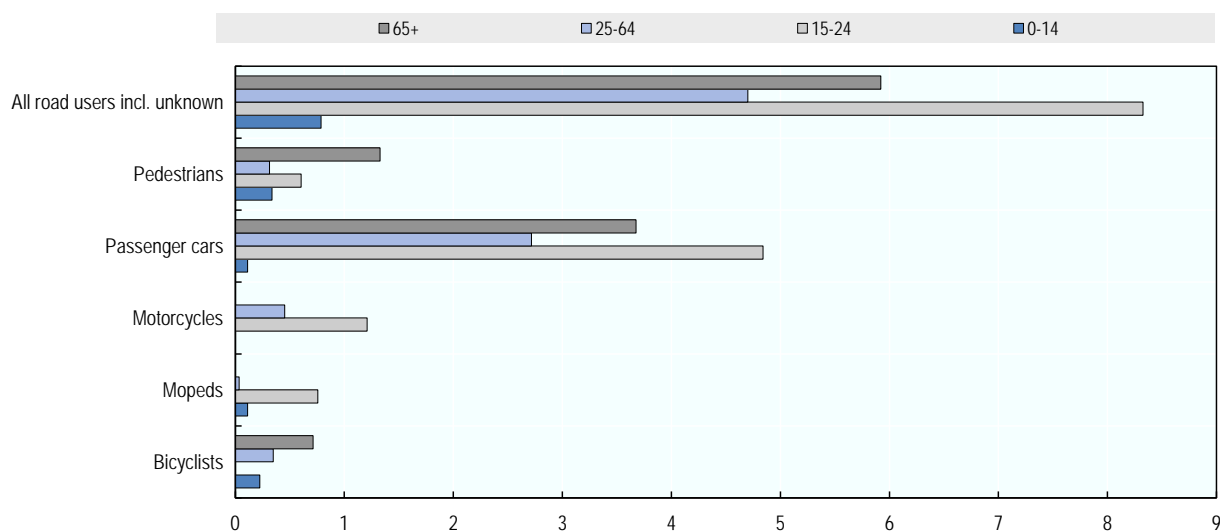
Source: IRTAD.

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



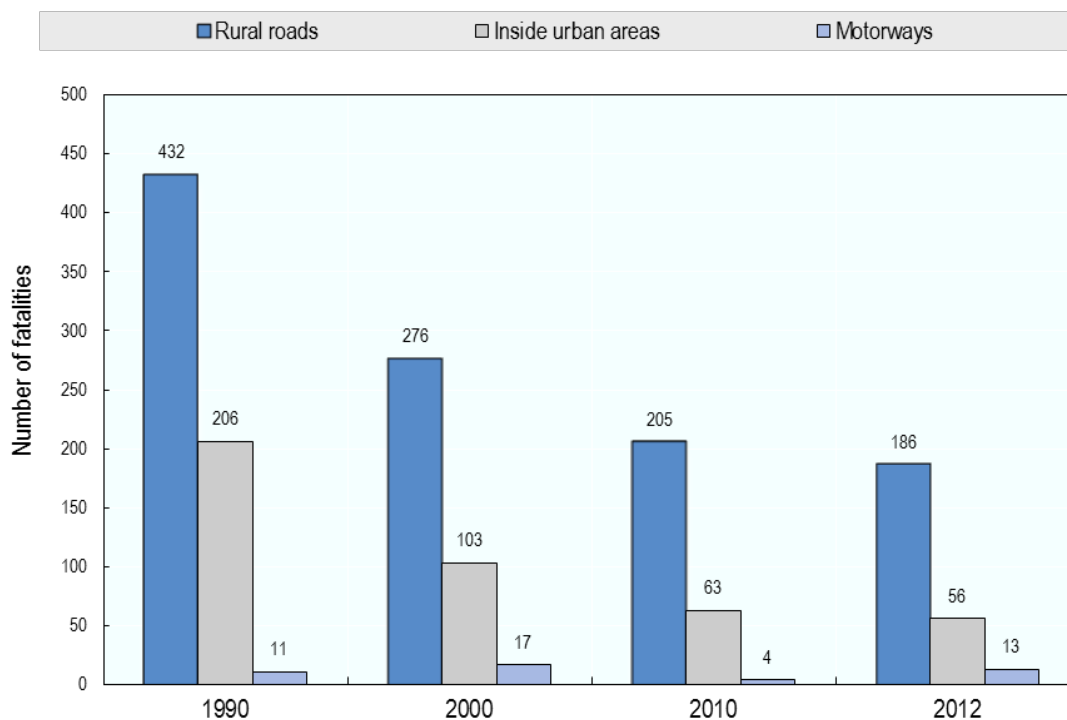
Source: IRTAD.

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 2012².

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

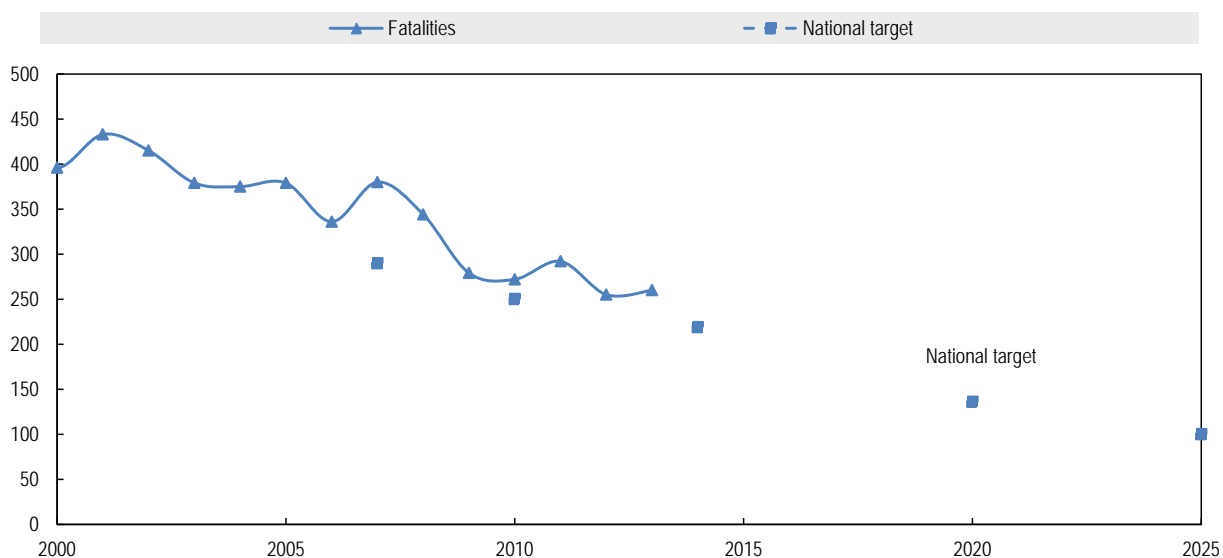
The target for 2020 is based on the target set by the European Committee for the EU.

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:

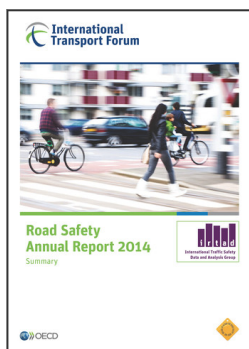
<http://www.lintu.info/TeleISA.pdf>

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.%20Tielikenteen%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

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