



## ROAD SAFETY ANNUAL REPORT 2019

# NORWAY

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*In 2018, Norway recorded 108 road fatalities – an increase of two fatalities on the figure recorded in 2017. With a mortality rate of 2.0 per 100 000 persons, Norway is the best performing country amongst IRTAD members for this indicator. The National Road Safety Action Plan 2018-2021 lists 13 priority areas and 136 action measures designed to reduce the number of road crash fatalities and serious injuries to fewer than 500 by 2024. The long term target is to reach fewer than 350 by 2030. This target is achievable if planned measures are implemented to the greatest possible extent.*

## Trends

Norway registered a small **increase in the number of road deaths in 2018**. According to latest data, 108 persons lost their lives in traffic crashes in Norway in 2018. This represents an increase of 2 fatalities on 2017. In 2017, a record-low 106 road deaths were reported - a 21.5% decline on the 135 road fatalities recorded in 2016.

The **longer-term trend for road deaths** in Norway has been downwards trending. Between 2000 and 2018, the number of annual road fatalities fell by 68%.

The number of **traffic deaths per 100 000 inhabitants** in Norway has fallen by 73% between 2000 and 2018. In 2018, 2.0 traffic deaths per 100 000 inhabitants were recorded, compared to 7.6 in 2000. Norway has the lowest mortality rate among IRTAD countries. By way of comparison, the average in the European Union is 4.9 deaths per 100 000 inhabitants in 2018.

Measured as **traffic deaths per billion vehicle-kilometres (vkm)** driven, the road safety performance of Norway showed strong progress in the longer-term. In 2018, this metric stood at 2.3, 78% lower than in 2000.

Norway recorded 0.3 **road fatalities per 10 000 registered vehicles** in 2018. This represents a decrease of 78% compared to the year 2000, when the rate of deaths to registered vehicles stood at 1.2.

### Country Profile

**Population** in 2018: 5.3 million

**GDP per capita** in 2018: 82 096 USD

**Cost of road crashes:** 0.5% of GDP (2016)

**Road network** in 2013: 93 815 kilometres

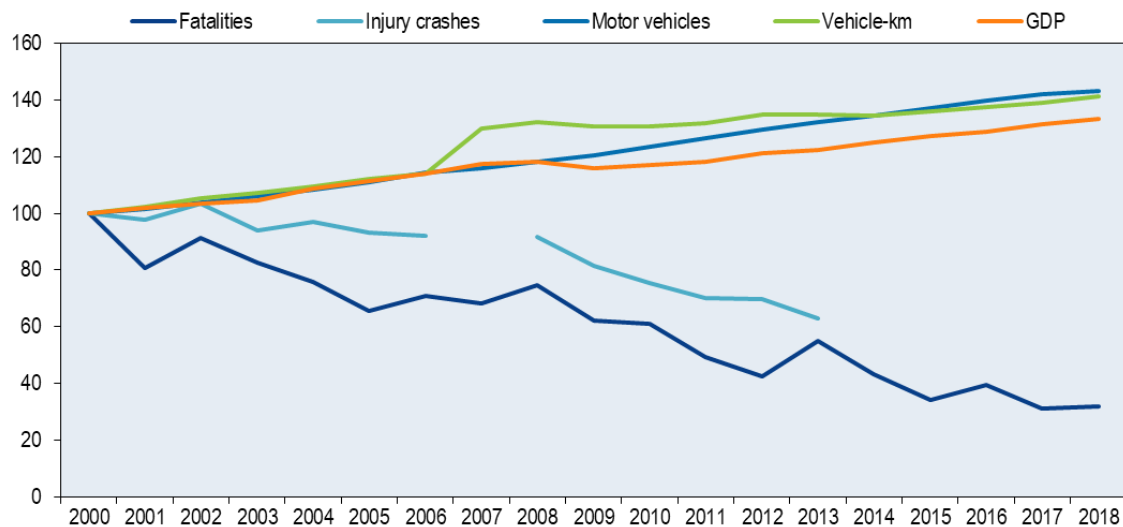
**Registered motor vehicles** in 2017: 4 million  
(cars 69%; goods vehicles 14%; motorcycles 5%)

**Volume of traffic** : +41% between 2000 and 2018

**Speed limits:** 50 km/h on urban roads (30 km/h on residential streets); 80 km/h on rural roads; 90-110 km/h on motorways

**Limits on Blood Alcohol Content:** 0.2 g/l

**Figure 1. Road safety, vehicle stock, traffic and GDP trends**  
Index 2000 = 100

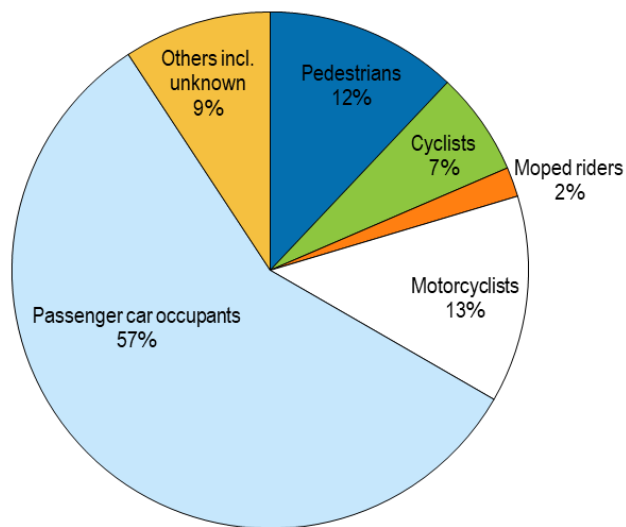


The picture for **fatalities by road user groups** shows that passenger car occupants continue to be the group the most affected by road crashes. In 2018, passenger car occupants accounted for the largest share of road deaths with 57% of the total. They were followed by motorcyclists (13%), pedestrians (12%) and cyclists (9%).

The largest decrease in 2018 was registered among motorcyclists with 6 fewer deaths compared to 2017, according to the preliminary 2018 data. Passenger car occupants felt an opposite effect in 2018 with 6 more deaths than in 2017.

The long-term trend shows that traffic in Norway has become safer for all road user groups. The strongest declines were registered among passenger car occupants and pedestrians, who each registered reductions of 72% compared to 2000. Likewise, moped riders and motorcyclists saw reductions of about 66% each. The user group that has benefitted least are cyclists, who saw the number of crash deaths fall by 46% since 2000.

More recently, since 2010, the number of fatalities decreased for all users save for cyclists.

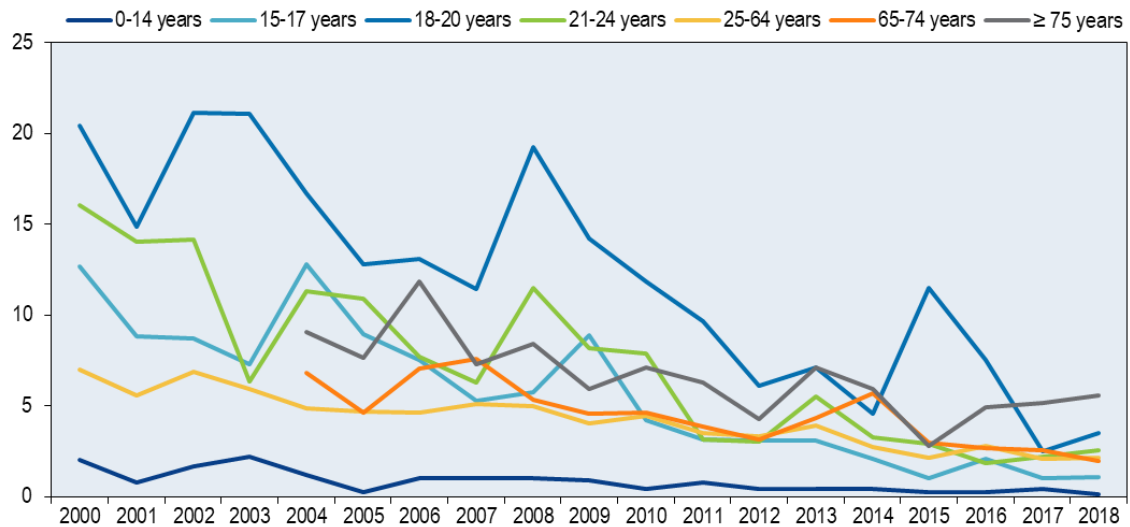
**Figure 2. Road fatalities by road user group in percentage of total, 2018**

**Road deaths by age group** in 2018 showed continuity compared to 2017. All age groups showed only marginal changes in the number of road fatalities.

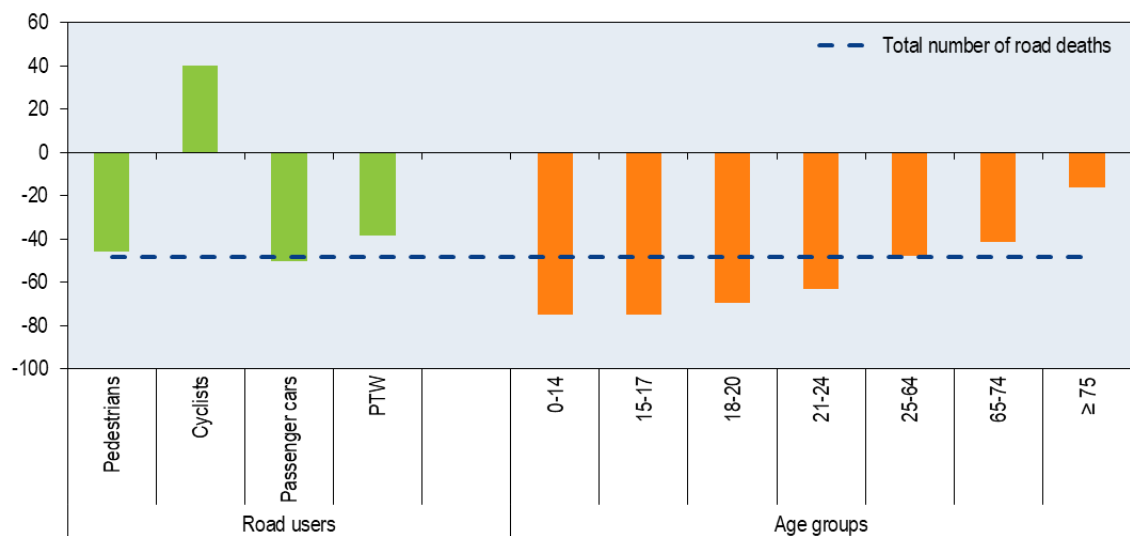
Looking at the longer-term trend, since 2000, the number of road deaths decreased for all groups. The strongest reduction in fatalities over this period occurred among young people with all age groups under 25 counting reductions of about 80% or greater. Children aged 0-14 and 15-17 saw the number of annual road fatalities drop by 95% and 90%, respectively.

Elderly people above 75 now bear a higher mortality rate than young people. The high elderly suffer road fatalities at a rate of 5.6 per 100 000 persons – nearly 3 times the national average of 2.0 per 100 000.

**Figure 3. Road fatality rates by age group, 2000-2018**  
Deaths per 100 000 population in a given age group



**Figure 4. Evolution of road deaths by user category, age group and road type, 2010-2018**



Fatality data are essential to understand road safety issues but hardly sufficient. Information on **serious injuries from crashes** is also critically important. Yet, injury data are much more difficult to obtain, validate and, where available, compare. In Norway, the official number of those seriously injured, from police registered crashes, increased by 9, from 656 in 2016 to 665 in 2017. In 2018, 565 persons were severely injured, a decrease of 100.

As part of the research programme of the Norwegian Public Roads Administration (BEST), two studies were conducted by the emergency unit at Oslo University Hospital in 2014 (bicycles crashes) and 2016 (crashes with pedestrians). In 2019, NPRA pursued this investigation from the registration of bicycle crashes at Oslo University Hospital. This includes accidents with electrical scooters, being defined (per definition) as bicycles. Between May and July 2019, four to five persons were injured every day on these e-scooters according to the study's preliminary findings.

## Economic costs of road crashes

Traffic crashes represent a significant cost for Norwegian society, estimated in 2016 at around EUR 1.65 billion (excluding property damage costs), representing 0.5% of GDP. Costs are calculated on a willingness-to-pay approach.

## Behaviour

The behaviour of road users is an important determinant of a country's road safety performance. In 2017, **excessive and inappropriate speed** was one of the main causes of road crashes. One recent major report from the research programme Better Safety in Traffic (BEST), based on detailed crash investigations of 577 speed-related fatal crashes involving passenger cars between 2005 and 2015, concluded that typical characteristics of crashes with excessive speed were: single vehicle crashes, weekend and night-time crashes, older cars, side impacts, roof crush, young male drivers and low rates of seat belt use. In a large proportion of crashes, road characteristics may have contributed to the driver misjudging safe speed.

Typical characteristics of crashes with inappropriate speed were: older cars, cars without stability control, inappropriate tyres, loss of control and young male drivers. A large proportion of crashes with inappropriate speed occurred on wet or slippery roads and/or at difficult curves. Proposed safety measures include increasing the pace of replacement of old vehicles, the implementation of intelligent speed adaption, a more consistent and predictable road design and improved curve warning.

The average speed on Norwegian roads with an 80 km/h speed limit has decreased by about 1 km/h during the last five years. This is partly due to an increase in the share of older drivers and the fact that older drivers drive more slowly than younger drivers. Even though the changed age composition of the driver population explains part of the speed decrease, the decrease is also due to other factors, including higher traffic volume and decreased prevalence of large speeding violations. It is thought that this in part explains the sustained decrease in road casualties in the recent years.

The table below summarises the main speed limits in Norway.

**Table 1. Passenger car speed limits by road type, 2019**

	General speed limit	Comments
Urban roads	50 km/h	Residential streets often limited to 30 km/h
Rural roads	80 km/h	
Motorways	90,100,110 km/h	

The legal maximum blood alcohol content (BAC) is 0.2 g/l. The number of drivers impaired due to **alcohol** seems to be fairly stable or slightly reduced. In 2018, 15% of fatal crashes were due to the use of alcohol, whereas 19% were due to drugs or the combination of alcohol and drugs. The share of fatal crashes due to impaired driving increased in 2018. However, 2018 was the year with the lowest number of fatal crashes.

In Norway, the law stipulates that **mobile phones** must be correctly attached to the instrument panel in the vehicle, as close as possible to the driver. Hands-free devices can be used. In 2018, 12 fatal crashes listed distraction as a contributing factor, two fewer than in 2017. Two of the fatal crashes were due to the use of mobile phones.

In-depth studies show that **fatigue and sleepiness** were the cause of 13% of all fatal crashes in Norway in 2018. Some of these crashes are also associated with illness or the consumption of alcohol or drugs.

**Seat belt use** has been compulsory in front seats of light vehicles since 1975 and in rear seats since 1985. Child restraints are compulsory for children under 135 cm in height. For children over 135 cm a child restraint should be used if available. In Norway, it is recommended that children under the age of four should be seated facing backward.

The use of seat belts by drivers of light vehicles increased sharply between 2006 and 2013 as a result of enforcement and awareness campaigns. The seat belt wearing rate among drivers is now stable at around 96-97%. There is no monitoring of seat belt use in rear seats, but it is estimated to be 7-8 percentage points lower. For children aged 1-3, the use of dedicated rear facing child restraints increased from 20% in 2010 to 49% in 2015, with a further increase to 57% in 2018. The use of seat belts by heavy vehicle drivers (excluding bus drivers) increased from 76% in 2014 to 87% in 2018.

An analysis of crashes in 2018 estimates that 33% of car occupants killed were not wearing a seat belt or did not wear the belts properly.

**Table 2. Seat belt wearing rates**  
Percentages

	2000	2013	2018
<b>Front seats</b>			
Driver (light vehicles)		95	97
Passenger	88	94	..
Urban roads (driver)	78	96	95
Rural roads (driver)	92	97	97
Motorways (driver)	91	96	..
<b>Rear seats</b>			
General	84	94	..

All riders of motorised two-wheelers are required to wear **helmets**. The helmet-wearing rate is close to 100%.

There is no mandatory helmet-use law for cyclists. Helmet use by cyclists over the age of 12 in 2018 was 68%. In 2018, 2 out of the 7 cyclists killed on the roads were not wearing a helmet.

## Road safety management and strategies

There are several **factors of influence on Norway's road safety performance** as captured by the above indicators. In 2014, the Norwegian Institute of Transport Research investigated what could explain the decline in number of traffic fatalities and serious injuries between 2000 and 2012 (Hoye et al., 2014). The decline observed during this period was larger than in any other period of the same duration since 1970. The study indicated that the two most important contributing factors were increasing market penetration of various safety features on cars and the tendency, seen most clearly after 2006, for the mean speed of traffic to go down. Other factors that have contributed include a change in the age distribution of riders of large motorcycles (mean age has increased), a decline in the number of young drivers involved in crashes, a decline in the number of crashes involving young moped riders, the construction of motorways and other roads with median barriers and the increased use of speed cameras.

More recently since 2012, the continued decrease in mean speed contributes to the sustained decline in the number of road deaths.

**Responsibility for the organisation of road safety** in Norway lies with the Norwegian Public Roads Administration (NPRA). In addition to the NPRA, the police, the public health and education administrations, together with leading non-governmental organisations, are the main national stakeholders. At regional and local levels, counties and municipalities play a very important role. The Norwegian road safety policy relies on this broad and collaborative approach, a common and shared strategy and co-ordination among all stakeholders.



Norway's Parliament adopted Vision Zero in 2001. 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 cyclists and pedestrians. Special attention is also paid to high-risk road users, such as young drivers, elderly road users and motorcyclists.

The **National Transport Plan 2018-29** was presented to the public and submitted to the Parliament. It includes a new target of no more than 350 killed and seriously injured by 2030. The National Plan of Action for Road Safety 2018-2021 contains 13 priority areas and features 136 follow-up measures. Behind these measures, there are a wide range of different participants. The key participants are the Norwegian Public Roads Administration (NPRA), the Traffic Police, the Norwegian Directorate of Health, the Norwegian Directorate of Education and Training, the county administrations, seven large city municipalities and the Norwegian Council for Road Safety. Other parties, including the Norwegian Labour Inspection Authority, the Norwegian Correctional Service and a range of other non-governmental organisations have committed to implementing measures. The plan includes interim targets of no more than 550 killed and seriously injured by 2022 and 500 by 2024. The table below lists the priority areas and associated indicator targets.

**Table 3: National Road Safety Action Plan 2018-2021**

Priority Area	Indicator	Current status	Indicator target
<b>Speed</b>	Percentage of vehicles travelling in excess of the speed limit	59.9% (2017)	70% (2022)
<b>Intoxication</b>	Percentage of motor vehicle traffic involving intoxicated drivers with a blood alcohol content of 0.02%	0.2% (2016/2017)	0.1% (2026)
	Percentage of motor vehicle traffic involving intoxicated drivers under the influence of drugs and over the threshold for criminal punishment	0.6% (2016/2017)	0.4% (2026)
<b>Seat belts/securing of children in the car</b>	Percentage of drivers and front-seat passengers wearing seat belts in private cars	97.2% (2017)	98% (2022)
	Percentage of children aged 1–3 years secured in rear-facing car seats	63% (2017)	75% (2022)
	Percentage of drivers of heavy vehicles wearing seat belts	84.3% (2017)	95% (2022)
<b>Children</b>	Number of children (0–14 years) killed in the road system	4 (2017)	0 (at least one per year for 2018–2021)
<b>Young people and younger drivers</b>	Risk of being killed or seriously injured for car drivers aged 18–19, per kilometre driven		-30% <sup>1</sup>
<b>Older road users and road users with disabilities</b>	Risk of being killed or seriously injured for car drivers aged 75+ years, per kilometre driven		-30% <sup>1</sup>

	Risk of being killed or seriously injured in a traffic accident for pedestrians aged 75+ years, per kilometre walked		-30% <sup>1</sup>
<b>Pedestrians and cyclists</b>	Number of kilometres of national roads and county roads adapted for pedestrians and cyclists	Total for the plan period: 165 km of national roads (2018–2021) <sup>2</sup> 230 km of county roads (2018–2021)	
	Percentage of cyclists wearing bicycle helmets	58.8% (2017)	70% (2022)
	Number of pedestrians using reflectors on lighted roads in the dark	40% (2017)	50% (2022)
<b>Motorcycles and mopeds</b>	Risk of being killed or seriously injured for motorcycle and moped drivers per kilometre driven		-30% <sup>1</sup>
<b>Transportation involving heavy vehicles</b>	Percentage of heavy vehicles with a maximum authorised mass of over 7,500 kg that pass the periodic roadworthiness test without serious remarks	23.2% (2017)	30% (2022)
<b>Head-on collisions and run-off-the-road accidents</b>	Percentage of motor vehicle traffic on national roads with speed limits of 70 km/h or higher that takes place on roads with median barriers	49.3% as of 1 Jan 2018	54.1% as of 1 Jan 2022
	Number of kilometres of national road with speed limits of 70 km/h or higher that have been assessed, and that meet the minimum standards set out in the NTP to prevent serious run-off-the-road accidents		1500 km (to undergo improvement works in 2018–2023) <sup>3</sup>
<b>Vehicle technology</b>	Percentage of motor vehicle traffic involving cars with autonomous emergency braking (AEB)	14.4% <sup>4</sup> (2017)	25% (2022)
	Percentage of motor vehicle traffic involving cars with lane departure warning	392% <sup>4</sup> (2017)	52% (2022)
	Percentage of motor vehicle traffic involving cars with autonomous emergency braking to prevent collisions with pedestrians and cyclists (pedestrian AEB)	14.4% <sup>4</sup> (2017)	25% (2022)
<b>Road safety work in county administrations and municipalities</b>	Number of municipalities approved as Road safe municipalities	62 <sup>5</sup> as of 1 Jan 2018	125 as of 1 Jan 2022

1. Reduction for the period 2018–2021 compared to the period 2013–2016

2. In the NPRA's Action Programme figures are given for the six-year period 2018–2023. The figures in this table cover only the first four years of the efforts, to allow for comparability with the statistics provided for the county road network. However, there is a great deal of uncertainty associated with the estimate.

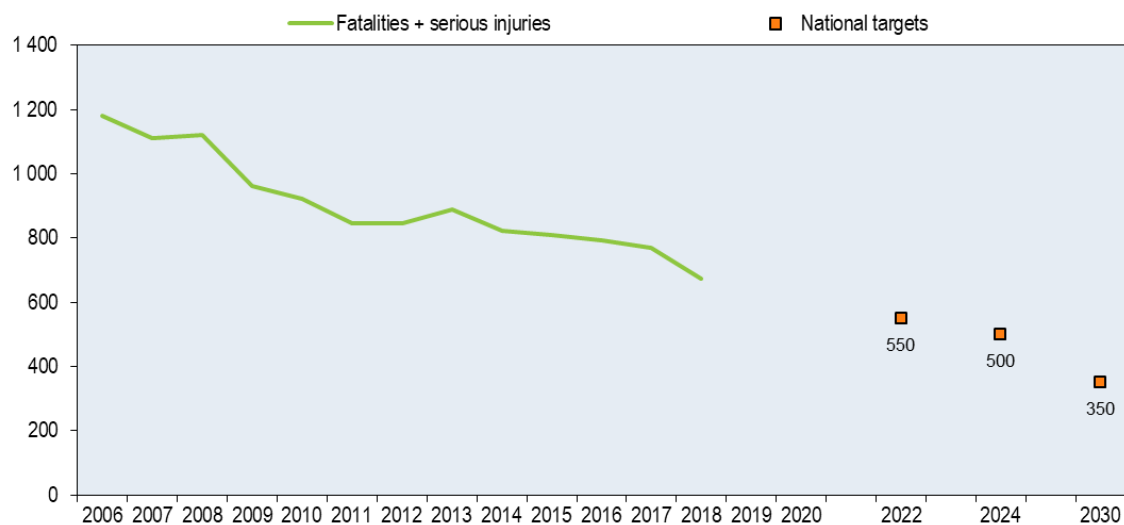
3. There is no estimate of how much will be improved in the four-year period 2018–2021. For this reason, we use the figures for the six-year period 2018–2023, taken from the NPRA's Action Programme. A total of 5,700 km is in need of improvement work.

4. The estimated percentage for 2017 is based on calculations carried out in 2015 (Institute of Transport Economics report 1450/2015 Advanced driver assistance systems – Status and future potential).

5. 61 municipalities and 1 district.

Through research and development, Norway has gained the knowledge to establish effective measures to improve road safety. The research programme Better Safety in Traffic (BEST) has been conducted in order to update the knowledge needed to search for appropriate measures, as well as whether to continue supporting existing measures or not. The final project evaluated the potential for reducing the number of killed or seriously injured road users. By means of 33 road safety measures with documented effect, the results showed that the reduction is possible by 2030 as long as the measures are implemented to the greatest possible extent.

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



## Measures

The Plan of Action 2018-2021 gives an overall description of the key road safety measures to be implemented during the period. This applies to the continuation of ongoing road safety measures and the implementation of new ones. A total of 13 different priority areas and 136 follow-up measures have been defined. The complete lists of measures can be found at:

[https://www.vegvesen.no/\\_attachment/2322975/binary/1261865?fast\\_title=National+Plan+of+Action+for+Road+Safety+2018-2021+%28short+version%29.pdf](https://www.vegvesen.no/_attachment/2322975/binary/1261865?fast_title=National+Plan+of+Action+for+Road+Safety+2018-2021+%28short+version%29.pdf).

The 13 priority areas which will be the focus of particular attention during the timeframe covered by the plan are the following:

- Speed;
- Intoxication;
- Seat belts in cars and buses and securing children;
- Children (0-14 years);

- Youth and younger drivers;
- Older road users and road users with disabilities;
- Pedestrians and cyclists;
- Motorcycles and mopeds;
- Transportation involving heavy vehicles;
- Head-on collisions and run-off-the-road accidents;
- Effective data exchange between vehicles and infrastructure, and for automated vehicles;
- Vehicle technology
- Road safety work in county administrations and municipalities.

## Definition, methodology, data collection

- Road fatality: a person who died immediately or within 30 days of a crash.
- Seriously injured: a person suffering life threatening injuries, or injuries that lead to lasting injury, or other larger injuries that are not life threatening.
- Slightly injured: a person with minor fractures and wounds not requiring a hospital stay.

Currently, in Norway, the Maximum Abbreviated Injury Scale of three or more (MAIS3+) is not used to classify serious injuries, but this will hopefully be the case in the future when such injury data is provided by hospitals.

Crash data are collected by the police and consolidated at the 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. In particular, this concerns light injuries and single bicycle crashes. At the moment, injury data is collected by the police. In 2014 and 2016, however, the Oslo University Hospital collected data for bicycle accidents and accidents with pedestrians.

## Resources

### Recent research

Amundsen, A. H. (2018), *Children and youth in traffic. Accident, traffic education, and active mobility*, TØI Report 1618/2018, <https://www.toi.no/publications/children-and-youth-in-traffic-accidents-traffic-education-and-active-mobility-article34783-29.html>

Fyhri, A. and O. J. Johansson (2018), *Mini scenario: increased use of e-bikes*, TØI Report 1625/2018, <https://www.toi.no/getfile.php/1347800/Publikasjoner/T%C3%98I%20rapporter/2018/1625-2018/1625-2018-sum.pdf>

Nævestad, T.-O., R. Philips, I. B. Hovi, G. N. Jordbakke and E. Rune (2018), *Mini scenario: the safety ladder*, TØI Report 1620/2018, [https://www.toi.no/getfile.php/1347337/Publikasjoner/T%C3%98I%20rapporter/2018/1620-2018/1620-2018\\_Summary.pdf](https://www.toi.no/getfile.php/1347337/Publikasjoner/T%C3%98I%20rapporter/2018/1620-2018/1620-2018_Summary.pdf)

Sagberg, F. and O. J. Johansson (2018), *Evaluation of training for moped and light motorcycle riders. Pre-intervention study*, TØI Report 1616/2018, <https://www.toi.no/getfile.php/1347283/Publikasjoner/T%C3%98I%20rapporter/2018/1616-2018/1616-2018-sum.pdf>

### Websites

Public Road Administration: <https://www.vegvesen.no/en/Home>

TØI – Research Institute for Transport Economics: <https://www.toi.no/>

International Research Institute: <http://www.iris.no/home>

SINTEF: <https://www.sintef.no/>

Norwegian Institute of Public Health: <https://www.fhi.no/>

COWI: <http://www.cowi.no/>

## References

Hoye, A., T. Bjørnskau and R. Elvik (2014), *What can explain the decline in the number of traffic fatalities and serious injuries in Norway from 2000 to 2012?*, TØI Report 1299/2014, <https://www.toi.no/getfile.php/1335365/Publikasjoner/T%C3%98I%20rapporter/2014/1299-2014/1299-2014-sum.pdf>

## Road safety and traffic data

	1990	2000	2010	2016	2017	2018	2018 % change over			
							2017	2010	2000	1990
Reported safety data										
Fatalities	332	341	208	135	106	108	1.9%	-48.1%	-68.3%	-67.5%
Deaths per 100,000 population	7.8	7.6	4.3	2.6	2.0	2.0	1.2%	-52.4%	-73.2%	-74.0%
Deaths per 10,000 registered vehicles	1.4	1.2	0.6	0.3	0.3	0.3	1.1%	-55.3%	-77.9%	-80.9%
Deaths per billion vehicle kilometres	12.0	10.5	4.9	3.0	2.3	2.3	0.3%	-52.0%	-77.6%	-80.4%
Fatalities by road user										
Pedestrians	55	47	24	15	10	13	30.0%	-45.8%	-72.3%	-76.4%
Cyclists	17	13	5	12	9	7	-22.2%	40.0%	-46.2%	-58.8%
Moped riders	14	6	0	1	1	2	100.0%	#DIV/0!	-66.7%	-85.7%
Motorcyclists	25	40	26	22	20	14	-30.0%	-46.2%	-65.0%	-44.0%
Passenger car occupants	214	225	125	74	56	62	10.7%	-50.4%	-72.4%	-71.0%
Other road users	7	10	28	11	10	10	0.0%	-64.3%	0.0%	42.9%
Fatalities by age group										
0-14 years	18	20	4	2	4	1	-75.0%	-75.0%	-95.0%	-94.4%
15-17 years	23	20	8	4	2	2	0.0%	-75.0%	-90.0%	-91.3%
18-20 years	49	34	23	15	5	7	40.0%	-69.6%	-79.4%	-85.7%
21-24 years	33	35	19	5	6	7	16.7%	-63.2%	-80.0%	-78.8%
25-64 years	146	170	115	77	57	60	5.3%	-47.8%	-64.7%	-58.9%
65-74 years	..	..	14	13	13	10	-23.1%	-28.6%	..	..
≥ 75 years	..	..	25	18	19	21	10.5%	-16.0%	..	..
Traffic data										
Registered vehicles (thousands)	2 343	2 777	3 426	3 884	3 950	3 981	0.8%	16.2%	43.4%	69.9%
Vehicle kilometres (millions)	27 755	32 547	42 561	44 737	45 283	46 000	1.6%	8.1%	41.3%	65.7%
Registered vehicles per 1,000 population	553.5	620.1	705.2	745.4	751.2	751.8	0.1%	6.6%	21.2%	35.8%