



# GERMANY

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*Germany recorded 3 046 road fatalities in 2019 – a 7% decrease on 2018. The mortality rate stands at 3.7 traffic deaths per 100 000 persons. Since 2000, the number of road deaths has declined for all age groups, except for those above 75 years of age. Elderly German road users now form the age group at highest risk in traffic. The 2011 2020 federal road safety programme aims at enabling safe, ecologically-sensitive and sustainable mobility for all road users in Germany. A new road safety programme, covering the years 2021-30, is under development.*

## Impact of Covid-19

In response to the Covid-19 pandemic, Germany introduced lockdown measures on 22 March 2020, which affected the movement of people and goods on the road and in turn the exposure to road crashes.

Traffic volume decreased by almost 11% in 2020 compared to the average rate for 2017-19, while the number of road deaths decreased by almost 12%, according to preliminary data.

Road traffic data for 2020 is available through preliminary information from approximately 1 600 automatic permanent counting stations on German federal highways (motorways and national roads). This preliminary information is available on a monthly basis until October 2020.

Based on this information, motorised road traffic on federal highways has decreased, starting in March 2020, compared to the monthly average traffic in 2019. The strongest decrease occurred in April (47.6% less vehicles on motorways and 20.5% less on national roads, compared to April 2019).

Heavy motor vehicles (i.e. buses and trucks with more than 3.5 t permissible gross weight and semi-trailer trucks) have only been slightly affected and only showed a moderate decrease in traffic in April and May. This was, however, not the case for buses. Bus traffic decreased much more than all other motor vehicles, which had a relatively low rate in October 2020.

Light motor vehicles (i.e. passenger cars, small trucks with 3.5 t or less permissible weight and motorcycles) showed strong decreases in traffic from March to May, with the largest decrease in April. The effect was stronger on motorways than on national roads. Traffic of light motor vehicles on motorways decreased by almost 60% in April 2020, and it had not returned to 2019 levels by October 2020.

**Table 1. Road fatalities by month**

	Average 2017-19	2020 <sup>1</sup>	% change
January	225	207	-8.0
February	186	191	2.7
March	225	160	-28.9
April	249	245	-1.6
May	290	232	-20.0
June	327	258	-21.1
July	295	278	-5.8
August	315	271	-14.0
September	300	258	-14.0
October	290	236	-18.6

1. Preliminary data.

## Trends

Germany registered an overall **decrease in the number of road deaths in 2019**. According to the latest data, 3 046 persons lost their lives in traffic crashes in Germany in 2019. This represents a 7% decrease on 2018. In 2018, 3 275 road deaths were reported – a 3% increase on 2017.

The **longer-term trend for road deaths** in Germany has shown significant progress. Between 2000 and 2019, the number of annual road fatalities fell by 59%. The greatest reductions were achieved between 2000 and 2013, when the number of annual road fatalities fell by 55%. Since 2013, the reduction in the number of road deaths has slowed significantly.

The number of **traffic deaths per 100 000 inhabitants** in Germany has fallen by 60% between 2000 and 2019. In 2019, **3.7 traffic deaths per 100 000 inhabitants** were recorded compared to 9.1 in 2000. By way of comparison, the average in the European Union is 5.1 deaths per 100 000 inhabitants.

Measured as **traffic deaths per billion vehicle-kilometres** (vkm) driven, the fatality risk of Germany demonstrates a long-term downward trend. In 2019, this metric stood at 4.0, 65% lower than in 2000.

### Country Profile

**Population** in 2019: 83 million

**GDP per capita** in 2019: 46 322 USD

**Cost of road crashes:** 1.0% of GDP (2018)

**Registered motor vehicles** in 2019: 57.3 million (cars 82%; goods vehicles 8%; motorcycles 8%)

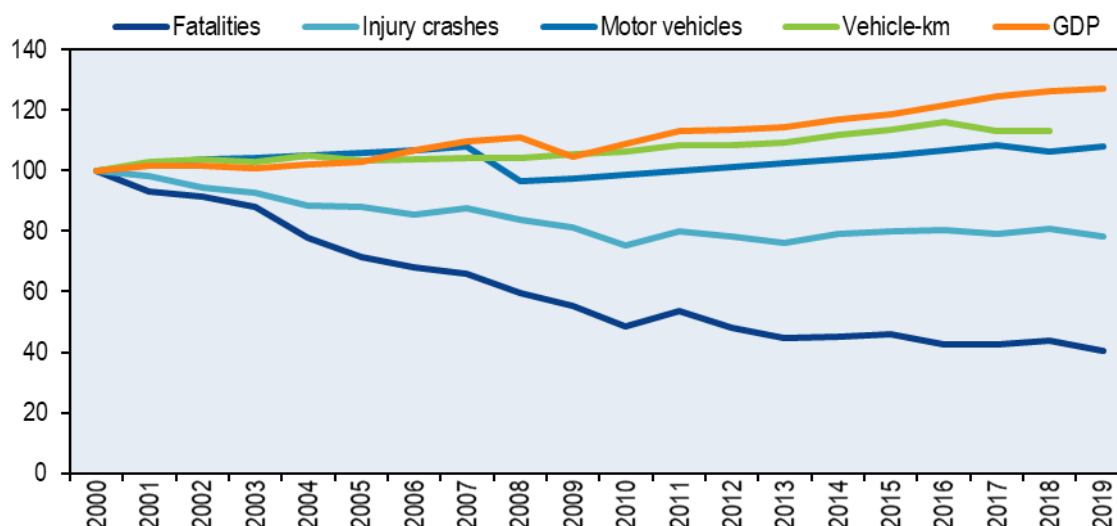
**Volume of traffic** : +13.9% between 2000 and 2019

**Speed limits:** 50 km/h on urban roads; 100 km/h on rural roads; 130 km/h on motorways (recommended)

**Limits on Blood Alcohol Content:** 0.5 /l for general drivers; 0.0 g/l for drivers under 21 years of age, novice drivers and professional drivers who transport passengers or hazardous goods

Germany recorded 0.5 **road fatalities per 10 000 registered vehicles** in 2019. This represents a decrease of 64% compared to the year 2000, when the rate of deaths to registered vehicles stood at 1.5.

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



Note: In 2018 and 2019, registered vehicles do not include mopeds.

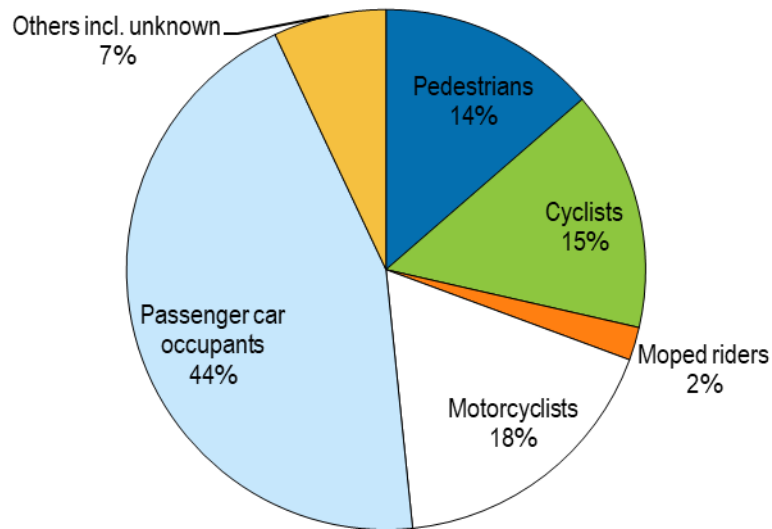
The graph for **fatalities by road user groups** shows that passenger car occupants continue to be the group most affected by road crashes. In 2019, passenger car occupants accounted for the largest share of road deaths with 45% of the total. They were followed by motorcyclists (18%), cyclists (15%) and pedestrians (14%).

Almost all user groups saw a decrease in the number of road fatalities between 2018 and 2019. Moped riders registered the greatest decrease in 2019 with 15 less fatalities (-19.2%) compared to 2018. Motorcyclists followed with 77 less fatalities (-12.4%) and pedestrians with 31 less fatalities (-9%). Occupants of passenger cars decreased by 4.2%, while the number of cyclists killed remained stable at 445.

The long-term trend shows that German roads have become safer for all user groups. Passenger car occupants registered the strongest decline recording 69% fewer fatalities in 2019 than in 2000. Similarly, the number of road fatalities was reduced by almost 60% for pedestrians and moped riders during this time. Fatalities for cyclists fell 32% and 43% for motorcyclists, the smallest road death reductions among the different groups.

More recently, since 2010 (Figure 6), against an average reduction of 16.5% in the number of road deaths, the number of cyclists killed in traffic increased sharply by 17.0%, while road fatalities fell for other road users.

**Figure 2. Road fatalities by road user group as percentage of total, 2019**



**Road deaths by age group** in 2019 decreased compared to 2018 for most of the age groups. Youths aged 0-14 saw 24 less fatalities (-30%), while youths aged 15-17 had a 14.3% decrease in fatalities and young adults aged 21-24 a 14.7% drop. On the other hand, people aged 18-20 years saw an increase of 14.5% and those above 75 registered 14 more fatalities (+2.1%) in 2019 compared to 2018.

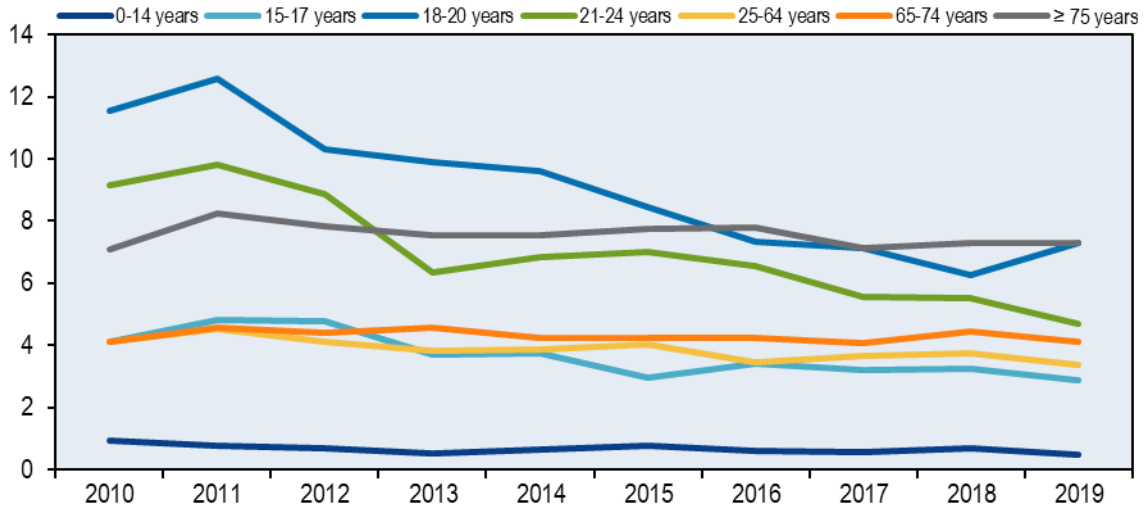
Looking at the longer-term trend, since 2000 the number of road deaths has decreased for all groups except the elderly. The greatest fatality reductions over this period occurred among young people. Each age category under 25 registered more than 77% fewer fatalities in 2019 than at the beginning of the century.

More recently, since 2010 (Figure 6) road fatalities again decreased for all age groups with the exception of those over 75. Against an average reduction of 16.5 in the number of road deaths, the number of fatal casualties among the people aged 75 and above increased by 34%.

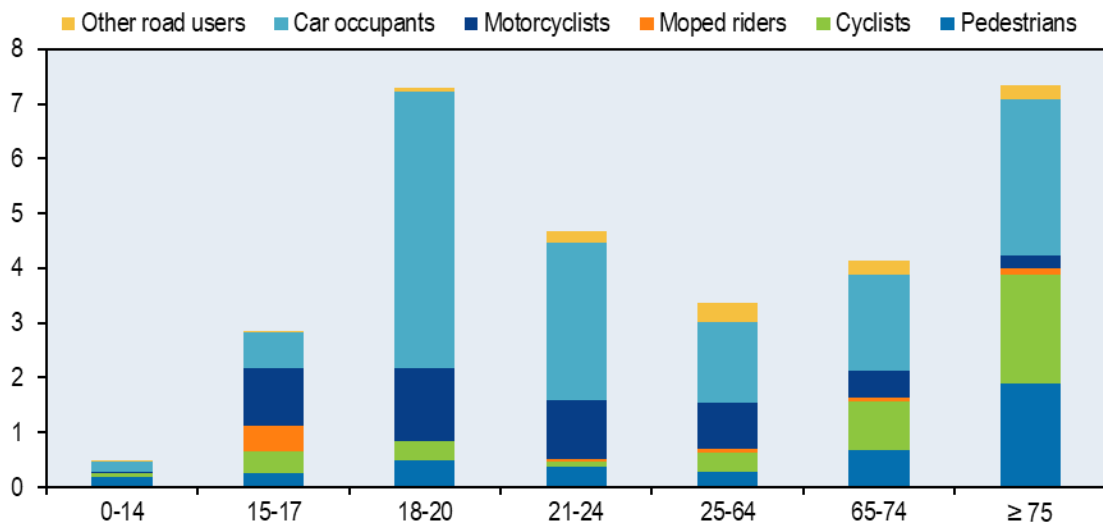
Despite recent improvements, young adults continue to be at high risk in traffic with an above average mortality rate. In 2019 road fatality rates were 7.3 per 100 000 persons for the 18-20 age group and 4.7 for the 21-24 age group. People above 75 now have a mortality rate of 7.3, equivalent to that of young people.

The elevated mortality rate among the elderly is especially a concern given Germany's overall demographic outlook. The elderly aged 65 and above account for 21.5% of the German population, and this share is forecasted to rise in the coming decades (OECD, 2019). The federal road safety programme for 2011-20 seeks to address the specific road safety needs of this vulnerable road user group.

**Figure 3. Road fatality rates by age group, 2010-19**  
Deaths per 100 000 population in a given age group



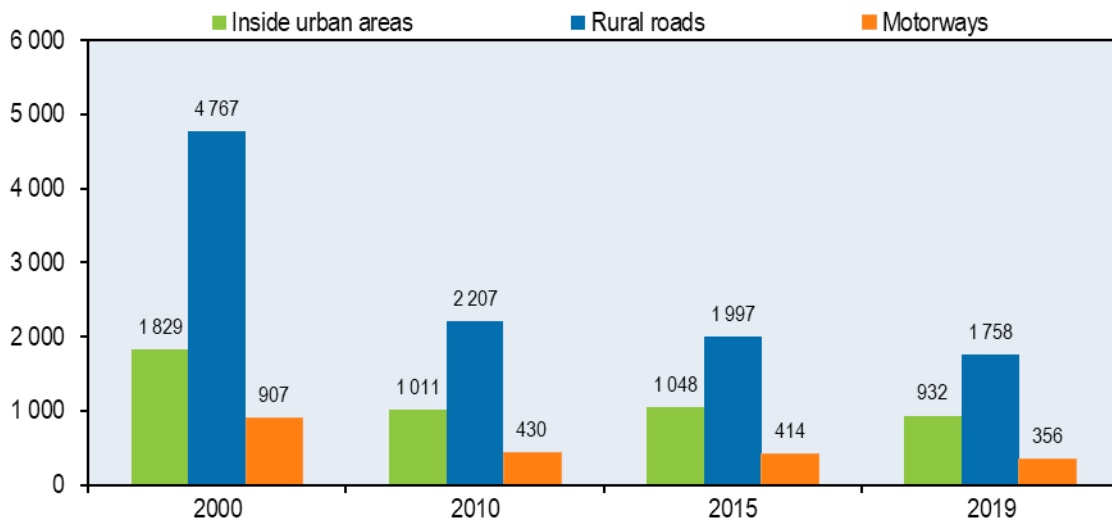
**Figure 4. Road fatality rate by age and road user group, 2019**  
Fatalities per 100 000 population



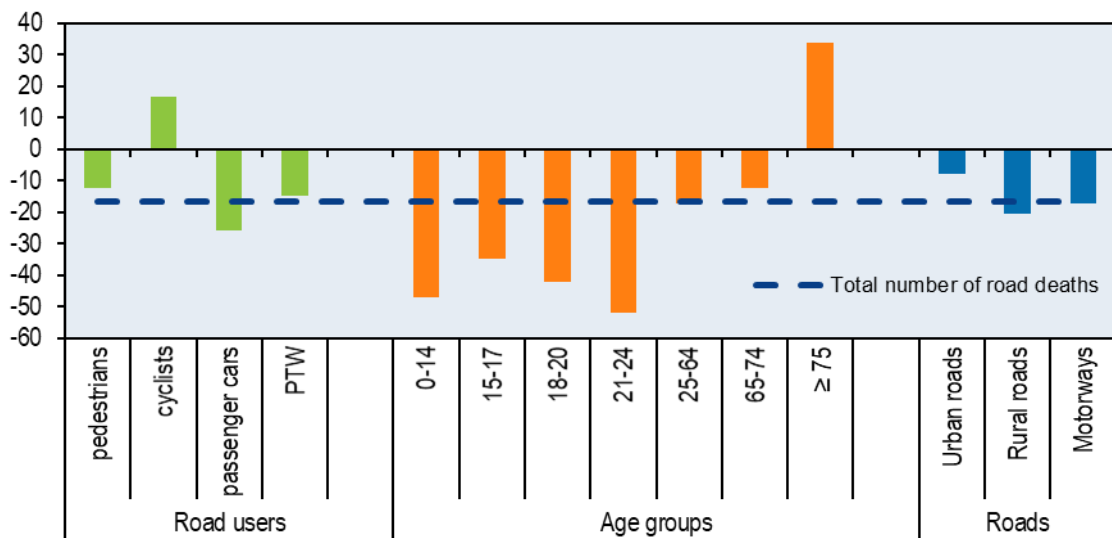
Analysis of **fatalities by road type** shows that the rural road network continues to claim the majority of road casualties. In 2019, 58% of deaths occurred on rural roads, 31% on urban roads and 12% on motorways. This repartition has remained relatively stable in recent years.

In 2019, compared to 2018, the number of road deaths decreased by 5.8% on rural roads, 5.3% on urban roads and 16.0% on motorways. Since 2000, fatalities in urban areas have decreased 49.0%, 63.0% on rural roads and 61.0% on motorways.

**Figure 5. Road fatalities by road type**



**Figure 6. Evolution of road deaths by user category, age group and road type, 2010-19**



Fatality data are essential to understanding 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. Based on available data, the number of hospitalised road casualties in Germany decreased at a slower pace than the number of road deaths. Between 2000 and 2019, the number of people hospitalised decreased by 36%, compared to 59% for road fatalities.

## Economic costs of road crashes

The Federal Highway Research Institute (*Bundesanstalt für Straßenwesen, BASt*) calculates the cost of road crashes on an annual basis. The cost of road traffic crashes to

Germany's national economy is based on the capital approach, encompassing costs for personal injuries and damage to goods. Calculated costs include: direct costs (medical treatment, vehicle repair/replacement), indirect costs (police services, legal system, insurance administration, replacement of employees), lost potential growth (including the shadow economy), lost added value of housework and voluntary work, humanitarian costs and costs of travel time lost due to crashes on motorways.

Traffic crashes represent a significant cost for German society. For 2018, this is estimated at around EUR 33.7 billion or 1.0% of Germany's GDP. According to estimates, crash costs have increased by 7.0% since 2005. These figures do not include an estimation for costs of non-reported crashes. The most recent information on costs for road accidents in Germany can be downloaded from the website of the Federal Highway Research Institute ([www.bast.de](http://www.bast.de)).

**Table 2. Costs of road crashes, 2018**

	Cost per casualty [EUR]	Total [EUR]
Fatalities	1 121 888	3.68 billion
Serious injuries	112 570	7.68 billion
Slight injuries	4 959	1.72 billion
Property damage costs	NA	20.62 billion
<b>Total</b>		<b>33.70 billion</b>
<b>Total as % of GDP</b>		<b>1.0%</b>

## Behaviour

The behaviour of road users is an important determinant of a country's road safety performance. **Inappropriate speed** was a factor in about 13.6% of injury crashes and 31.6% of fatal crashes in Germany in 2019. Speed is often cited as a factor in combination with other high-risk behaviour, such as drink driving. The table below summarises the main speed limits in Germany.

**Table 3. Passenger car and lorry speed limits by road type, 2020**

	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	60km/h
Motorways	130 km/h (recommended)	80km/h

In 2019, **alcohol** was cited as a contributory factor in around 4.6% of all injury crashes and 7.5% of fatal crashes – one in every 13 killed. The number of both alcohol-related crashes and alcohol-related fatalities has decreased continuously over recent years.



Driving with a blood alcohol content (BAC) over 0.5 g/l in Germany is punishable by a fine, licence suspension and possibly jail. In addition, drivers with a BAC between 0.3 g/l and 0.5 g/l can have their licence suspended if their driving ability is impaired. Since 2007, a zero BAC is required for drivers under 21 and those in their probationary period as part of Germany’s graduated licencing programme.

**Driving under the influence of drugs** is considered an offence according to German law. Drivers are considered under the influence of drugs are found in their blood, irrespective of the amount or concentration. This regulation refers to a selected list of drugs. Drugs used as medication and administered as intended are exempt.

In 2019, there were 2 386 reported drug-related crashes in Germany, causing 52 fatalities and 3 272 injuries. These figures have risen from the 2000 level, when 1 015 drug-related crashes were reported. This increase may be related both to increased drug use as well as better education among police agencies in regards to detecting the influence of drugs.

**Seat belt** use has been compulsory in Germany for front seats since 1976 and rear seats since 1984. Fines for not wearing seat belts were introduced in the mid-1980s and led to a sharp increase in seat belt use. In recent years, the seat belt wearing rates of adult car occupants have been consistently high at 99%.

Children under the age of 12 and less than 150 centimetres tall must be restrained in motor vehicles by an approved system suitable for the child’s height and weight.

**Table 4. Seat belt and helmet wearing rates**  
Percentages

	2000	2010	2019
<b>Front seats</b>			
Driver	94	98	99
Passenger (front seat)	95	98	99.3
Urban roads (driver)	90	97	99
Rural roads (driver)	95	98	99.4
Motorways (driver)	98	99	99.4
<b>Rear seats</b>			
General	82	97	98.5
Children up to 5 years inside urban areas (use of child restraint)	..	92	97.8
<b>Helmet</b>			
Riders of motorised two-wheelers	..	..	98
Passengers of motorised two-wheelers	..	..	97.5

All riders of powered two-wheelers (PTWs) on German roads are required to wear helmets. The helmet-wearing rate is high, at 98.0% for riders and 97.5% for passengers.

Helmets are not mandatory for cyclists (including electric cycles with pedal assistance up to 25 km/h).

## Road safety management and strategies

There are several **factors of influence on Germany's road safety performance** as captured by the above indicators. The long-term progress is due to various changes in all fields of road safety. These include traffic safety-related behaviour and education as well as infrastructure and vehicle safety. Highlights among the several measures taken and regulations introduced in the past ten years 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
- identifying special fields of road safety and finding solutions, such as requiring child restraint systems, protecting trees on the roadside and adding under-run protection for guard rails to prevent serious motorcycle accidents.

**Responsibility for the organisation of road safety** at the national level in Germany lies with the Federal Ministry of Transport and Digital Infrastructure. The federal ministry develops the national road safety strategy, including the national road safety action programme, and sets and monitors national targets.

Each of the 16 German federal states (*Bundesländer*) has its own ministry of transport. These can formulate road safety programmes independently and are usually responsible for improvements in road infrastructure in their own state. Police forces are organised at the state level and enforcement of traffic laws is the responsibility of each federal state.

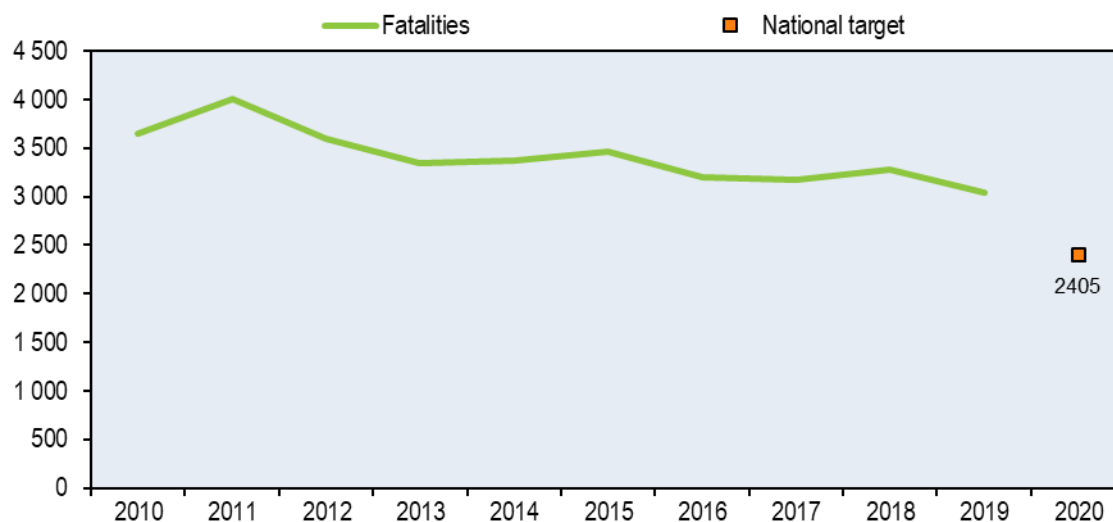
The 2011-20 **federal road safety programme** was launched in 2011. The principal aim of the programme is to enable safe, ecologically sensitive and sustainable mobility for all road users in Germany. It has a wide range of road safety measures addressing users, vehicles and infrastructure.

The programme addresses new challenges such as demographic change and the mobility of the older population. At the same time, it aims to safeguard the efficiency of Germany's road network. The programme reflects recent technological developments in vehicles such as driver assistance systems, co-operative vehicle systems and new engine concepts. In these latter areas, the focus lies on ensuring that the development of vehicle technology does not create safety risks. Activities also focus on rural roads and on reducing the number of serious injuries and fatalities.

Germany's quantitative road safety target for 2020 is a fatality reduction of 40% compared to the 2011 level. The target was defined based on research regarding the expected

development of road safety until the year 2020. It was established taking into account the 50% reduction target of the European Commission and the current level of road safety in Germany. There are also specific targets in individual federal states. Based on recent developments, it appears unlikely that Germany will reach its target.

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



The Road Accident Prevention Report monitors and assesses road safety measures and progress towards the target. It is prepared every two years and submitted to the German Parliament (*Bundestag*). The report discusses the general development of road safety and contains a comprehensive collection of measures implemented in the two years following the previous report, as well as major on-going and concluded research and planned projects.

The new road safety programme, covering the years 2021-30, is currently being developed.

## Measures

Several measures to improve road safety management have recently been put into place.

**Road safety management:** Legal preconditions to introduce 30 km/h zones on main roads inside urban areas have been lowered. Also, a new law on automated driving was adopted in 2017. The core of the law concerns the legal equality of the human driver and

the computer. As a result, highly and fully automated driving systems can take on the driving task in future.

**Road users:** Fines for several offences have been increased considerably, for instance for the use of smartphones or tablets while driving, blocking the emergency lane in case of an accident or non-observance of flashing lights and sirens on emergency vehicles.

Since January 2017, adults are allowed to ride a bicycle on footpaths if they accompany a cycling child. Before 2017, children up to the age of eight years had to use the footpath, whereas adults were prohibited from using it. Also, since January 2017 electric bikes with a top speed of less than 25km/h are permitted to use designated cycling lanes inside urban areas and all cycling lanes outside urban areas.

The long-standing road safety information campaign "Stop speeding" was continued in 2019, this time focusing on helmet wearing. The posters show well-known models from the television emission "Germany's next top model", wearing helmets with the title "Looks terrible but saves my life".

**Vehicles:** Since June 2019, electric scooters (e-scooters) with a maximum speed of up to 20 km/h have been allowed in road traffic in Germany. They may not be driven on footpaths and in pedestrian zones, but only on cycle paths or cycle lanes. If there are none available, the scooters must be on the road. A minimum age of 14 years applies to all e-scooters. They must be insured, but there is no obligation to wear a helmet. Hoverboards and other small electric vehicles without steering and holding bars are not allowed in road traffic.

In 2018, the Federal Ministry of Transport and Digital Infrastructure launched an incentive programme to increase the market penetration of turn-off assistance systems in trucks. The ministry promotes the voluntary equipping and retrofitting of trucks and buses with turn-off assistance systems. The financial promotion concerns all commercial vehicles with a permissible total mass of more than 3.5 t and buses with more than nine seats (including driver's seats), which are purchased and operated in Germany and which are used for commercial, freelance, non-profit or public-law activities. The budget for this programme was EUR 10 million in 2019 and 2020 each, and the incentive will run for five years.

**Infrastructure:** Since October 2018, the Ministry of Transport has provided funding of EUR 25 million to create an incentive for the federal states to build high-speed cycle routes. The Federal Highway Act has been amended to allow the construction of cycle highways by the federal states.

## Definitions, methodology, data collection

German crash data is collected by the police agencies of the different federal states and then consolidated at the federal level. Data in this section correspond to the consolidated set of German police data.

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 estimated to be nearly 100%. No information is available on the percentage of crash injuries that are not reported.

The following definitions are used in the collection of German crash data:

- Road fatality: a person who has died immediately or within 30 days of a crash
- Injury crash: a road crash resulting in at least one injured or killed person
- Seriously injured: any person immediately taken to hospital after a road crash for inpatient treatment lasting at least 24 hours
- Slightly injured: any other person injured in a road crash.

According to directives from the European High-Level Group on Road Safety, all member states of the European Union are requested to estimate their number of critically injured persons. These are defined as crash victims with injuries rated as Maximum Abbreviated Injury Scale of 3 or more (MAIS3+) from 2014 onwards. In Germany, the number of MAIS3+ is extrapolated from data from the German In-Depth Accident Study (GIDAS).

## Resources

### Recent research

Kreußlein, M., Schleinitz, K. and J. Krems (2020), *Frequency of distraction while driving*, BAST report M297, <https://bast.opus.hbz-nrw.de/frontdoor/index/index/docId/2430%20%C2%A0>.

Obermeyer, A. et al. (2020), *Willingness to pay for road safety – conceptual study and pilot survey*, BAST report M298, <https://bast.opus.hbz-nrw.de/frontdoor/index/index/docId/2402>.

Weißgerber, T., Grattenthaler, H. and H. Hoffmann (2019), *Influence of increasing vehicle automation on driving skills and driving skills acquisition*, BAST report F126, <https://bast.opus.hbz-nrw.de/frontdoor/index/index/docId/2138>.

Schlag, B. et al. (2019), *Perceptual-psychological aspect (human factors) and their influence on rural road design*, BAST report V317, <https://bast.opus.hbz-nrw.de/frontdoor/index/index/docId/2185>.

Library of the Federal Highway Research Institute:  
[https://www.bast.de/BAST\\_2017/EN/Publications/Reports/reports\\_node.html](https://www.bast.de/BAST_2017/EN/Publications/Reports/reports_node.html).

### Websites

Federal Ministry of Transport and Digital Infrastructure:  
<https://www.bmvi.de/EN/Home/home.html>.

Road Safety Programme 2011-20:

[https://ec.europa.eu/transport/road\\_safety/sites/roadsafety/files/pdf/20151210\\_2\\_germany\\_road-safety-programme-2011.pdf](https://ec.europa.eu/transport/road_safety/sites/roadsafety/files/pdf/20151210_2_germany_road-safety-programme-2011.pdf).

Federal Highway Research Institute (BASt):

[https://www.bast.de/BASt\\_2017/EN/Home/home\\_node.html](https://www.bast.de/BASt_2017/EN/Home/home_node.html).

German Federal Statistical Office's accident statistic reports:

<https://www.destatis.de/EN/FactsFigures/EconomicSectors/TransportTraffic/TrafficAccidents/TrafficAccidents.html>.

German Road Safety Council e.V.: <https://www.dvr.de/>.

German In-Depth Accident Study (GIDAS): <https://www.gidas.org/en/willkommen/>.

## References

OECD (2019), *Elderly population (indicator)*, DOI: <https://doi.org/10.1787/8d805ea1-en>.

## Road safety and traffic data

	1991	2000	2010	2017	2018	2019	2019 % change over			
							2018	2010	2000	1991
<b>Reported safety data</b>										
Fatalities	11 300	7 503	3 648	3 180	3 275	3 046	-7.0%	-16.5%	-59.4%	-73.0%
Injury crashes	385 147	382 949	288 297	302 656	308 721	300 143	-2.8%	4.1%	-21.6%	-22.1%
Injured persons hospitalised	131 093	102 416	62 620	66 513	67 967	65 244	-4.0%	4.2%	-36.3%	-50.2%
Deaths per 100,000 population	14.2	9.1	4.5	3.9	4.0	3.7	-7.2%	-17.7%	-59.8%	-74.1%
Deaths per 10,000 registered vehicles	2.5	1.4	0.7	0.6	0.6	0.5	-8.4%	-23.8%	-62.4%	-78.9%
Deaths per billion vehicle kilometres	19.7	11.3	5.2	4.2	4.4	..	..	..	..	..
<b>Fatalities by road user</b>										
Pedestrians	1 918	993	476	483	458	417	-9.0%	-12.4%	-58.0%	-78.3%
Cyclists	925	659	381	382	445	445	0.0%	16.8%	-32.5%	-51.9%
Moped riders	243	157	74	59	78	63	-19.2%	-14.9%	-59.9%	-74.1%
Motorcyclists	992	945	635	583	619	542	-12.4%	-14.6%	-42.6%	-45.4%
Passenger car occupants	6 801	4 396	1 840	1 434	1 424	1 364	-4.2%	-25.9%	-69.0%	-79.9%
Other road users	421	353	242	239	251	215	-14.3%	-11.2%	-39.1%	-48.9%
<b>Fatalities by age group</b>										
0-14 years	511	240	104	61	79	55	-30.4%	-47.1%	-77.1%	-89.2%
15-17 years	415	336	101	78	77	66	-14.3%	-34.7%	-80.4%	-84.1%
18-20 years	1 204	933	327	189	165	189	14.5%	-42.2%	-79.7%	-84.3%
21-24 years	1 545	803	363	205	204	174	-14.7%	-52.1%	-78.3%	-88.7%
25-64 years	5 754	3 874	1 842	1 650	1 698	1 524	-10.2%	-17.3%	-60.7%	-73.5%
65-74 years	..	629	395	334	369	347	-6.0%	-12.2%	-44.8%	..
≥ 75 years	..	682	515	660	676	690	2.1%	34.0%	1.2%	..
<b>Fatalities by road type</b>										
Urban roads	3 349	1 829	1 011	976	984	932	-5.3%	-7.8%	-49.0%	-72.2%
Rural roads	6 399	4 767	2 207	1 795	1 867	1 758	-5.8%	-20.3%	-63.1%	-72.5%
Motorways	1 552	907	430	409	424	356	-16.0%	-17.2%	-60.7%	-77.1%
<b>Traffic data</b>										
Registered vehicles (thousands)	44 925	53 106	52 289	57 554	56 459	57 305	1.5%	9.6%	7.9%	27.6%
Vehicle kilometres (millions)	574 100	663 302	704 800	749 600	751 100	..	..	..	..	..
Registered vehicles per 1,000 population	563.3	646.3	639.2	697.4	681.9	690.3	1.2%	8.0%	6.8%	22.5%

Note: In 2018 and 2019, registered vehicles do not include mopeds.