



ROAD SAFETY ANNUAL REPORT 2019

CZECH REPUBLIC

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Following its record-low road fatalities total of 577 in 2017, the Czech Republic failed to build on its road safety achievements, notching 658 traffic fatalities in 2018 for a 14% increase on the year prior. The mortality rate is 6.2 deaths per 100 000 population in 2018. The current National Road Safety Strategic Plan covers the period 2011-2020 and includes a target of 60% fewer road deaths by 2020. Despite initial satisfactory progress, interim targets between 2014 and 2018 were not achieved. In response, an in-depth revision of the national strategy is underway; new measures are needed to kick-start progress towards the 2020 target.

Trends

The Czech Republic registered an overall **increase in the number of road deaths in 2018**. According to the latest data, 658 persons lost their lives in traffic crashes in the Czech Republic in 2018. This represents a 14% increase on the record-low total registered in 2017. In 2017, 577 road deaths were reported - a 5.6% decline on 2016.

The **longer-term trend for road deaths** in the Czech Republic has demonstrated significant progress. Between 2000 and 2018, the number

of annual road fatalities fell by 56%. The greatest reductions were achieved between 2000 and 2013 when the number of annual road deaths dropped 56%. Since 2013, when annual road deaths numbered 654, the number of road deaths has oscillated, reaching a high of 737 in 2015 and a record low of 577 in 2017 before returning to the 658 fatalities registered in 2018.

The number of **traffic deaths per 100 000 inhabitants** in the Czech Republic has fallen by 57% between 2000 and 2018. In 2018, **6.2 traffic deaths per 100 000** inhabitants were recorded, compared to 14.5 in 2000. 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 fatality risk of the Czech Republic showed a similar long-term downwards trend. In 2017, this metric stood at 10.5, 71% lower than in 2000.

The Czech Republic recorded 0.9 **road fatalities per 10 000 registered vehicles** in 2018. This represents a decrease of 72% compared to the year 2000, when the rate of deaths to registered vehicles stood at 3.2.

Country Profile

Population in 2018: 10.6 million

GDP per capita in 2018: 23 007 USD

Cost of road crashes: 1.5% of GDP (2018)

Road network: 55 757 kilometres (urban roads 30%; rural roads 68%; motorways 2%)

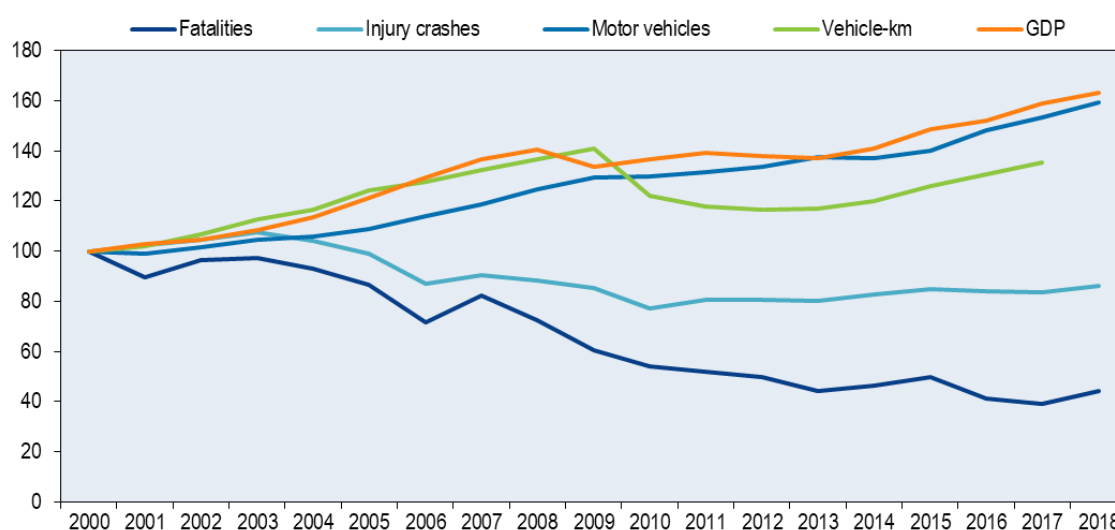
Registered motor vehicles in 2018: 7.4 million (cars 75%; goods vehicles 9%; motorcycles 8.4%)

Volume of traffic : +35% between 2000 and 2017

Speed limits: 50 km/h on urban roads; 90 km/h on rural roads; 130 km/h on motorways

Limits on Blood Alcohol Content: 0.0 g/l

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

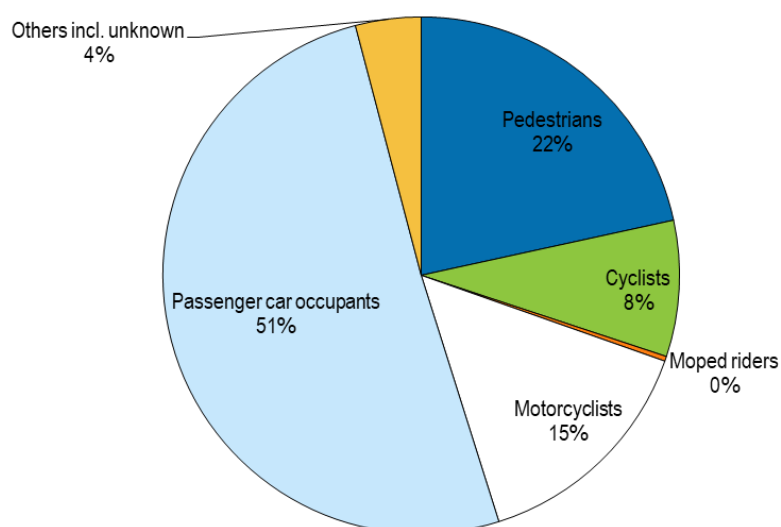


The graph for **fatalities by road user groups** shows that passenger car occupants continue to be the group most affected by road crashes. In 2018, passenger car occupants accounted for the largest share of road deaths with 51% of the total. They were followed by pedestrians (22%), motorcyclists (15%) and cyclists (9%).

The sole decrease in 2018 was registered by cyclists who suffered one fewer fatality than in 2017. The largest increase in 2018 was registered by motorcyclists with 41% more deaths compared to 2017. Passenger car occupants and pedestrians experienced increases of 20% and 10%, respectively.

The long-term view shows that traffic in the Czech Republic has become safer for all road user groups. Since 2000, cyclists registered the largest reduction among all road user groups with 63% fewer road deaths in 2018. Likewise, pedestrians, occupants of passenger cars and moped riders saw strong fatality reductions of 44% or greater over this time.

The road users that have benefitted least are motorcyclists, who saw the number of crash deaths fall by only 3% since 2000.

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

Analysis of **road deaths by age group** shows that the senior population has benefitted less than the general population from road safety improvements. Since 2000, fatalities have more than halved for all age groups, except those aged 65 and over who saw the number of road deaths fall by 31% over this time.

In 2018, all age groups experienced an increase in the number of road deaths compared to 2017. Czech road users aged 0-14 (10 more deaths), 15-17 (3 more deaths), 18-20 (6 more deaths), 21-24 (4 more deaths), 25-64 (41 more deaths) and 65 years and over (17 more deaths) collectively accounted for the 14% more road fatalities in 2018 than in the year prior.

Historically, young people represent a high-risk group in road safety. In 2018, 18-20 and 21-24 year olds suffered mortality rates of 11.1 and 10.9 deaths per 100 000 inhabitants.

However, the group at highest risk in traffic is now the senior population above 75 years of age. The oldest Czech road users suffer traffic fatalities at a rate of 12.5 per 100 000 persons.

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

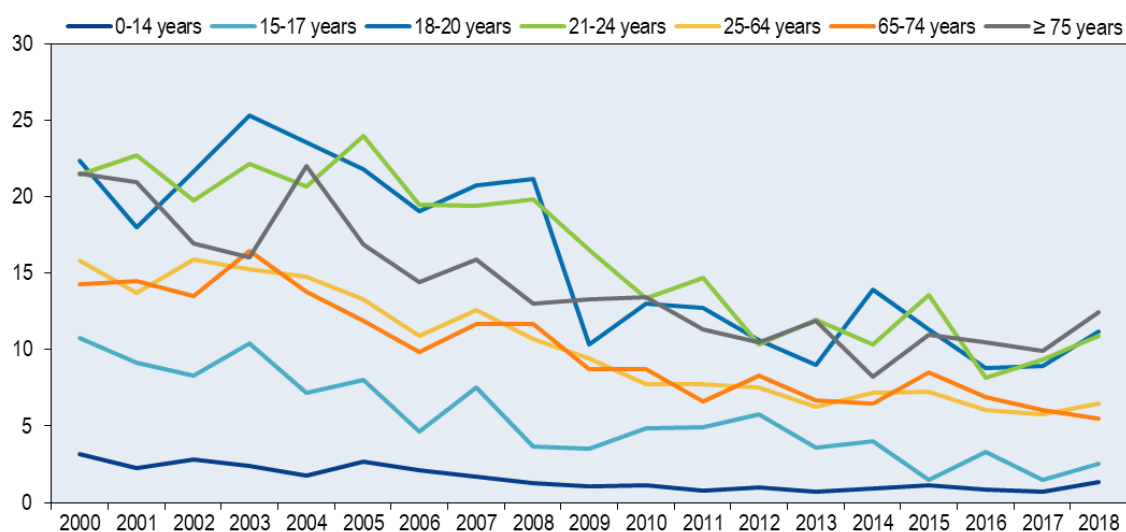
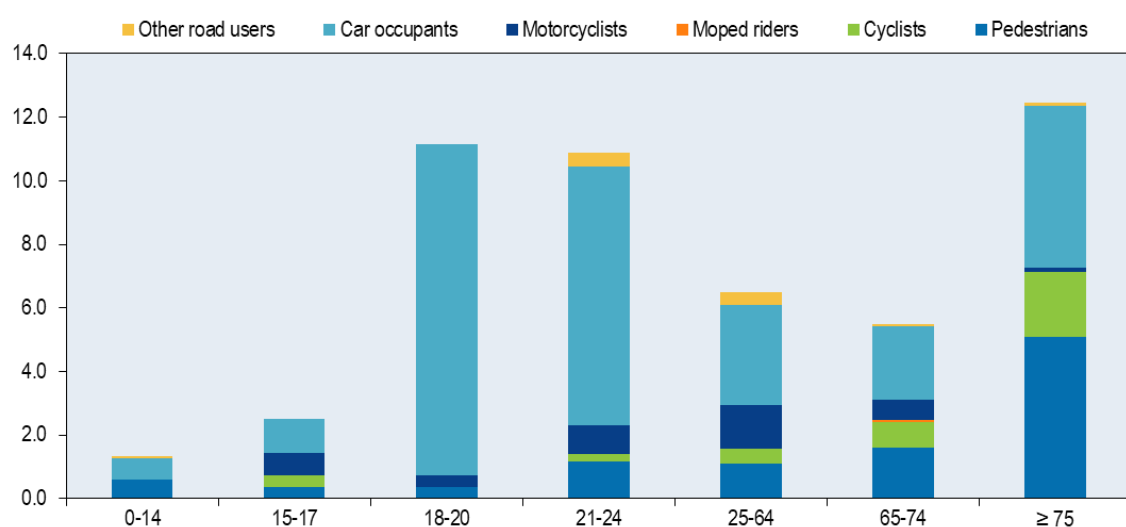


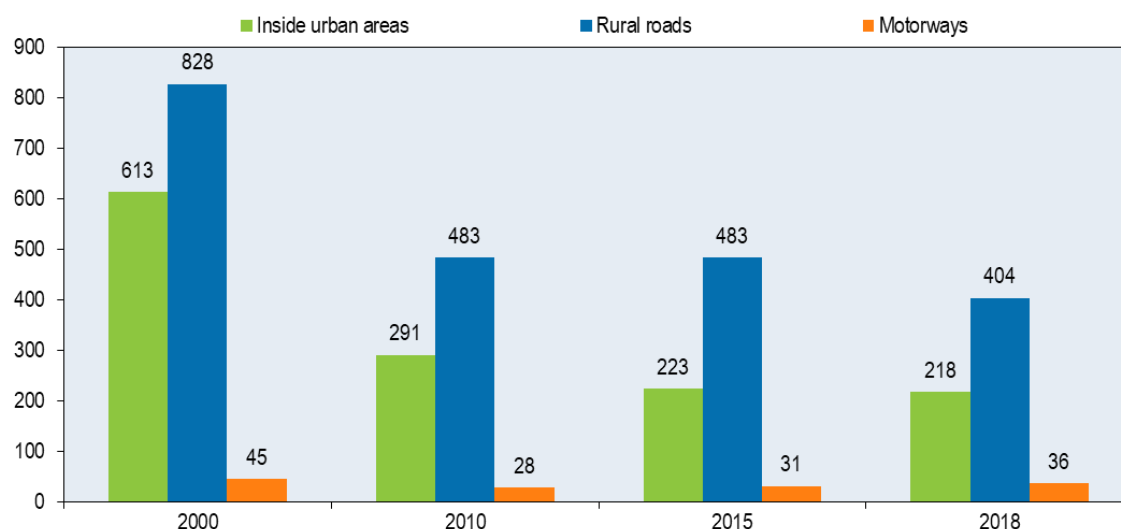
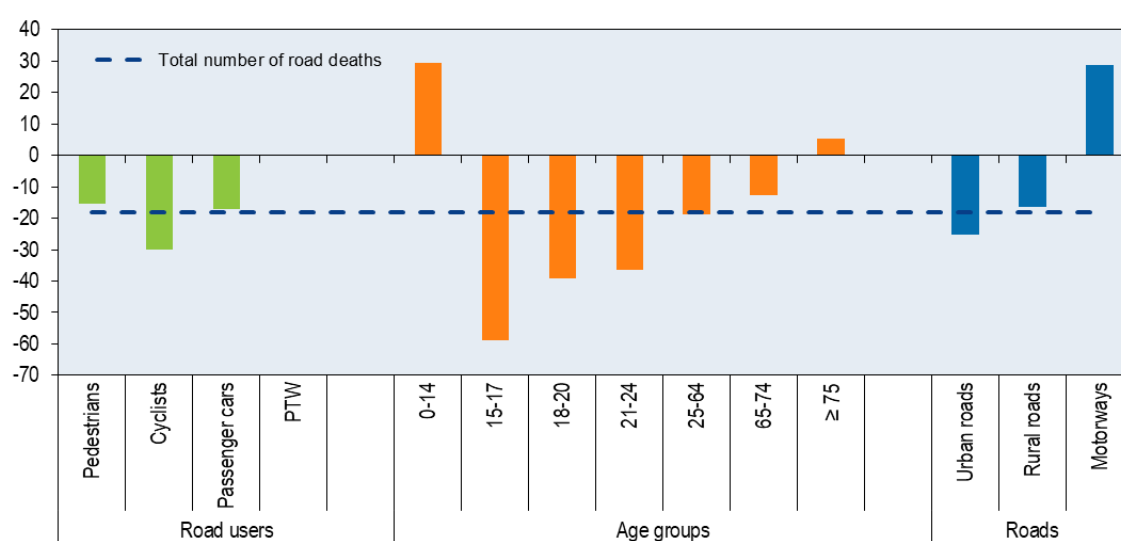
Figure 4. Road fatality rate by age and road user group, 2018
Fatalities per 100 000 population



Analysis of **fatalities by road type** shows that the rural road network is the deadliest. In 2018, 61% of deaths occurred on rural roads, 33% on urban roads and 5% on motorways. This repartition has remained relatively stable in recent years.

In 2018, in comparison to 2017, the number of road deaths increased by 13% on both urban and rural road networks. Motorways saw an increase of 44% compared to 2017.

Since 2000, fatalities in urban areas decreased by 64%, on rural roads by 51% and 20% on motorways.

Figure 5. Road fatalities by road type**Figure 6. Evolution of road deaths by user category, age group and road type, 2010-2018**

Economic costs of road 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 economic costs of crashes for the Czech Republic are published every year. For 2018, they have been estimated at EUR 3.0 billion, or 1.5% of GDP.

Table 1. Costs of road crashes, 2018

	Unit cost [EUR]	Total [EUR]
Fatalities	788 000	518 million
Hospitalised persons	203 000	486 million
Slight injuries	28 500	719 million
Property damage costs	15 400	1 274 million
Total		3.0 billion
Total as % of GDP		1.5%

Behaviour

The behaviour of road users is an important determinant of a country's road safety performance. Although **speed** continues to be the main contributing factor in fatal crashes, the number of drivers operating above the legal speed limit has decreased, especially in urban areas. The share of fatal crashes due to excessive speed was measured at 33% in 1980, 40% in 2000 and 2014 and 39% in 2018.

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 after 2012. Overall, it is estimated that 25% of drivers exceed the speed limit (30% in urban areas and 20% in rural areas).

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

Table 2. Passenger car speed limits by road type, 2019

	General speed limit
Urban roads	50 km/h
Rural roads	90 km/h
Motorways	130 km/h

Driving under the influence of alcohol is another major cause of road crashes. In 2002, 11% of fatalities were due to alcohol-related crashes. This proportion decreased to 3.4% in 2007 but then increased again. In 2018, 11% of road fatalities were a result of alcohol-related crashes.

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

The share of fatal crashes due to a driver under the **influence of drugs** was estimated at 3.2% in 2018. A crash is defined as drug related if the driver tests positive for drug consumption.

An increasing problem for traffic safety in the Czech Republic is **distraction**, for instance through the use of mobile phones while driving. In the Czech Republic, drivers are not allowed to drive while using a hand-held phone or other electronic device. Hands-free devices are tolerated. In 2018, it was estimated that 3% of drivers used a mobile phone while driving.

The share of **sleepiness and fatigue** as a causal factor in crashes is especially challenging to detect. In 2018, it was estimated that about 1% of crashes were due to fatigue.

Seat-belt use has been 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 2018, 27% of car occupants killed were not wearing a seat belt when the crash occurred. It is estimated that 80 lives could have been saved if all car occupants had worn seat belts.

Dedicated **child restraints** are compulsory for children aged 0-3 and for children aged four and over who are less than 150 cm in height or 36 kg in weight.

Table 3. Seat-belt wearing rates
Percentages

	2000	2010	2018
Front seats			
General (driver + passengers)	63	..	..
Driver	..	97	93
Passenger	..	96	93
Rear seats			
General	..	73	..

Helmet wearing is compulsory for all motorcycle and moped riders. 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. The compulsory wearing of helmets for all cyclists is under discussion.

Road safety management and strategies

There are several **factors of influence on the Czech Republic's road safety performance** over recent decades as captured by the above indicators. Fatalities had reached a peak in 1969 and then steadily decreased until 1986. Between 1986 and 1994, due to a rapid deterioration in road safety, deaths increased by 82%. This was during a

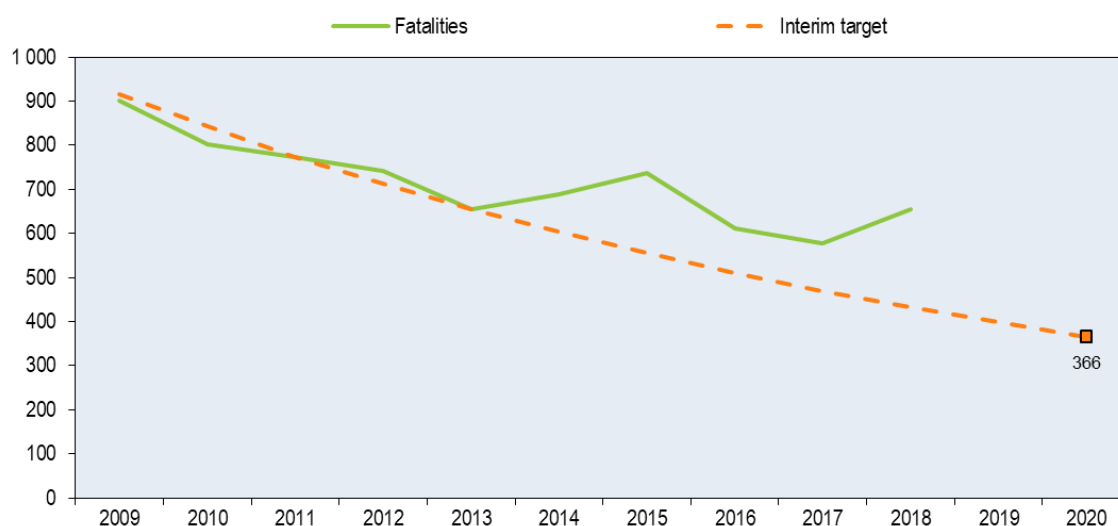
period of important political change in the Czech Republic and other neighbouring Central-Eastern European countries following the fall of the Soviet bloc. During this period, the number of motorised vehicles increased sharply in a context of weak police control and low political attention to road safety. Between 1994 and 2018, the number of road deaths dropped by 60%. These positive results are the fruit of successive national strategic safety plans.

The main **responsibility for the organisation of road safety** lies with BESIP (*Bezpečnost silničního provozu*), an independent department of the Ministry of Transport. BESIP is responsible for the National Road Strategy for 2011-2020. The other key player is the Government Council of Road Traffic Safety (composed of representatives of parliament, ministries, civil associations, professional organisations and the private sector). There are also 14 regional BESIP co-ordinators.

The main target of the **National Road Safety Strategic Plan** for the years 2011-2020 is to decrease the fatality rate (deaths per 100 000 inhabitants) to the European average. This corresponds approximately to a 60% reduction in fatalities by 2020 compared to 2009. The second target is a reduction by 40% in the number of persons seriously injured.

Interim targets for the number of fatalities and persons seriously injured have been set for each year until 2020. Results are monitored annually by the BESIP for the Government Council of Road Traffic Safety at national and regional levels.

Figure 7. Trends in road fatalities towards national target



Despite being on track in 2013, interim targets between 2014 and 2018 were not achieved. In view of this unfavourable development, an in-depth revision of the national strategy is being undertaken. The main targets have not been changed; however, new sub targets have been introduced. There are new sub targets for right of way, overtaking and goods vehicles.

New measures are needed to resume progress towards the 2020 target including more enforcement, traffic education, a strengthened driving licence system, traffic infrastructure audit and inspection, and the penetration of safer vehicles into the fleet, etc.

The **New National Strategy for 2021-2030** is under preparation although the target level of reduction of fatalities and serious injuries has not yet been established. While the current Strategy contains 11 partial goals focused on different traffic safety areas (e.g. children, senior people, pedestrians, cyclists, motorcyclists, alcohol, etc.), the new Strategy is expected to develop additional traffic safety areas.

Measures

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

Road safety management

- A Revision of the National Safety Strategy for 2017-20 has been put in place, with the update of some sub targets, the introduction of new targets and periodical evaluation.

Enforcement

- Traffic enforcement is being intensified. Transboundary enforcement is being implemented. Increased penalties for driving on a railway crossing have been introduced. The improvement of the penalty point system is under discussion.
- Systems to detect right-of-way violations are being implemented.
- Harmonization of a driving of vehicles with preferred right-of-way with European legislation has been introduced.

Speed management

- Mobile speed cameras are being deployed (also by unlabelled police vehicles, first of all on motorways and national roads).

Road users

- The compulsory use of helmets by all cyclists is under discussion.
- The compulsory use of reflective components for pedestrians walking along rural roads without public lightning at times of worsened visibility has been introduced.
- Work is underway to implement an improved curriculum in driving schools.

Infrastructure

- Safety improvement of railway crossings has become a priority.

Vehicles

- Antilock Braking Systems (ABS) and Electronic Stability Control (ESC) are standard equipment in new vehicles.

Definition, methodology, data collection

- Road fatality: a person who died immediately or within 30 days of a crash. (*Note: this is fully applied for international data comparison, but for domestic purposes a road fatality often refers to a person who died immediately or within 24 hours*).
- Seriously injured: injury severity is determined through the opinion of the physician at the scene of the crash or later in hospital (within 24 hours of the crash). A serious injury is one considered to cause serious harm to health. At present, the severity value based on a score of three or more on the Maximum Abbreviated Injury Scale (MAIS3+) although this is not in use in crash registration. However, a new system of crash registration where this item should be contained will be prepared for introduction in 2021. In 2019, discussions between the Ministry of Transport and hospitals concerning the readiness of hospitals to transfer traffic injury and fatality data to the police, as well as additional legislative measures, are underway.

Crash data in the Czech Republic are collected by the traffic police in 80 districts and transferred to the police headquarters. Data are checked both at district and central levels.

Crash reporting rates in the police database are relatively high due to the legal obligation that all crashes with a death, injury or material damage over CZK 100 000 (since 2009) must be reported to and registered by the police.

Resources

Recent research

Recent research projects of CDV have focused on:

- in-depth accident analysis
- road infrastructure assessment
- safety improvement at railways crossings
- prediction models of crashes
- human factor analysis.

Websites

CDV, Transport Research Centre: <https://www.cdv.cz/en/>

Ministry of Transport: <https://www.mdcr.cz/?lang=en-GB>

Police of the Czech Republic: <https://www.policie.cz/clanek/Police-of-the-Czech-Republic.aspx>

Road safety observatory: <https://www.czrso.cz/>

In-depth accident analysis: <https://www.vyzkumnehod.cz/en/>

Road traffic infrastructure improvement: <https://veobez.cdvinfo.cz/>

Road safety and traffic data

	1990	2000	2010	2016	2017	2018	2018 % change over			
							2017	2010	2000	1990
Reported safety data										
Fatalities	1 291	1 486	802	611	577	658	14.0%	-18.0%	-55.7%	-49.0%
Injury crashes	21 910	25 445	19 676	21 386	21 263	..	..	..	..	..
Deaths per 100,000 population	12.5	14.5	7.7	5.8	5.5	6.2	13.7%	-19.1%	-57.1%	-50.2%
Deaths per 10,000 registered vehicles	3.3	3.2	1.3	0.9	0.8	0.9	10.9%	-32.4%	-71.9%	-72.6%
Deaths per billion vehicle kilometres	48.3	36.7	16.2	11.5	10.5	12.0	13.9%	-26.0%	-67.3%	-75.2%
Fatalities by road user										
Pedestrians	359	362	168	130	129	142	10.1%	-15.5%	-60.8%	-60.4%
Cyclists	135	151	80	53	57	56	-1.8%	-30.0%	-62.9%	-58.5%
Moped riders	47	16	4	1	2	2	0.0%	-50.0%	-87.5%	-95.7%
Motorcyclists	66	100	95	62	69	97	40.6%	2.1%	-3.0%	47.0%
Passenger car occupants	597	784	403	328	279	334	19.7%	-17.1%	-57.4%	-44.1%
Other road users	87	73	52	37	41	27	-34.1%	-48.1%	-63.0%	-69.0%
Fatalities by age group										
0-14 years	59	54	17	14	12	22	83.3%	29.4%	-59.3%	-62.7%
15-17 years	57	44	17	9	4	7	75.0%	-58.8%	-84.1%	-87.7%
18-20 years	107	103	51	25	25	31	24.0%	-39.2%	-69.9%	-71.0%
21-24 years	123	155	74	40	43	47	9.3%	-36.5%	-69.7%	-61.8%
25-64 years	668	881	471	362	342	383	12.0%	-18.7%	-56.5%	-42.7%
65-74 years	..	123	79	82	74	69	-6.8%	-12.7%	-43.9%	..
≥ 75 years	..	120	85	78	76	98	28.9%	15.3%	-18.3%	..
Fatalities by road type										
Urban roads	664	613	291	215	193	218	13.0%	-25.1%	-64.4%	-67.2%
Rural roads	596	828	483	356	359	404	12.5%	-16.4%	-51.2%	-32.2%
Motorways	31	45	28	40	25	36	44.0%	28.6%	-20.0%	16.1%
Traffic data										
Registered vehicles (thousands)	3 933	4 636	6 021	6 866	7 107	7 386	3.9%	22.7%	59.3%	87.8%
Vehicle kilometres (millions)	26 710	40 480	49 434	52 919	54 784	..	..	..	..	..
Registered vehicles per 1,000 population	379.6	451.1	575.5	650.6	671.8	696.1	3.6%	21.0%	54.3%	83.4%