International Transport Forum

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CZECH REPUBLIC

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The Czech Republic had 617 traffic fatalities in 2019 – a 6.2% decrease compared to 2018. The mortality rate was 5.8 deaths per 100 000 inhabitants in 2019. The National Road Safety Strategic Plan 2011-20 had a target of 60% fewer road deaths by 2020. Despite initial satisfactory progress, interim targets between 2014 and 2019 were not achieved. A new strategy for the period 2021-30 is under development and will include as the main target the reduction of fatalities and serious injuries by 50% between 2020 and 2030.

Impact of Covid-19

In response to the Covid-19 pandemic, the Czech Republic introduced lockdown measures on 13 March 2020, which affected the movement of people and goods on the road and in turn the exposure to road crashes.

As an illustration, traffic volume decreased by 36% in April 2020 compared with the average in April for 2017-19. There was a decrease in the number of monthly fatalities mainly from May onwards in 2020 when compared to 2017-19 (Table 1).

Table 1. Road fatalities by month

	Average 2017-2019	2020	% change
January	36	38	5.6
February	31	42	35.5
March	39	35	-10.3
April	45	49	8.9
May	52	37	-28.8
June	63	49	-22.2
July	60	43	-28.3
August	68	62	-8.8
September	60	45	-25.0
October	56	43	-23.2
November	57	36	-36.8
December	51	38	-25.5

Table 2. Road motor vehicle traffic by month (vehicles-kilometres)

	% change
January	5
February	2
March	-23
April	-36
May	-21
June	-7
July	-1
August	0
September	-3
October	-17
November	-18
December	-19

Trends

The Czech Republic registered a decrease **in the number of road deaths in 2019**. According to the latest data, 617 persons lost their lives in traffic crashes in the Czech Republic in 2019. This represents a 6.2% decrease compared to 2018. In 2018, 658 road deaths were reported – a 14% increase on 2017.

Country Profile

Population in 2019: 10.6 million

GDP per capita in 2019: USD 23 145

Cost of road crashes: 1.4% of GDP (2019)

Road network: 55 756 kilometres (urban roads 30%; rural roads 68%; motorways 2%)

Registered motor vehicles in 2019: 7.6 million (cars 75%; motorised two-wheelers 15%; goods vehicles 9%; motorcycles 8.5%)

Volume of traffic: +42% between 2000 and 2019

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

Limits on Blood Alcohol Content (BAC): 0.0 g/l

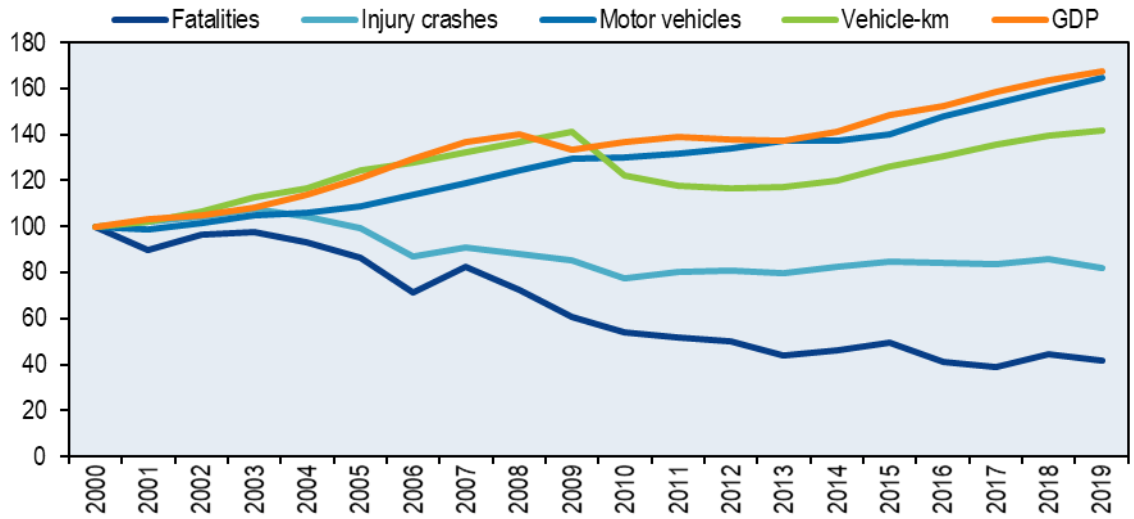
The **longer-term trend for road deaths** in the Czech Republic is one of significant progress. Between 2000 and 2019, the number of annual road fatalities fell by 59%. The greatest reductions were achieved between 2000 and 2013, when the number of annual road deaths dropped 56%. Since 2013, when annual 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 in 2018.

The number of **traffic deaths per 100 000 inhabitants** in the Czech Republic has fallen 60% between 2000 and 2019. In 2019, 5.8 **traffic deaths per 100 000** inhabitants were recorded, compared to 14.5 in 2000. By way of comparison, the average in the European Union (EU) was 5.1 deaths per 100 000 inhabitants in 2019.

Measured as **traffic deaths per billion vehicle-kilometres** (vkm) driven, the fatality risk of the Czech Republic shows a similar long-term downward trend. In 2019, this metric stood at 10.7, 71% lower than in 2000.

The Czech Republic recorded 0.8 **road fatalities per 10 000 registered vehicles** in 2019. This represents a decrease of 75% compared to the year 2000, when the rate of deaths to registered vehicles stood at 3.2.

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



The graph for **fatalities by road user group** shows that passenger car occupants is the group most affected by road crashes. In 2019, passenger car occupants accounted for more than half of all road deaths, with 329 fatalities. They were followed by pedestrians (18%), motorcyclists (14%) and cyclists (9%).

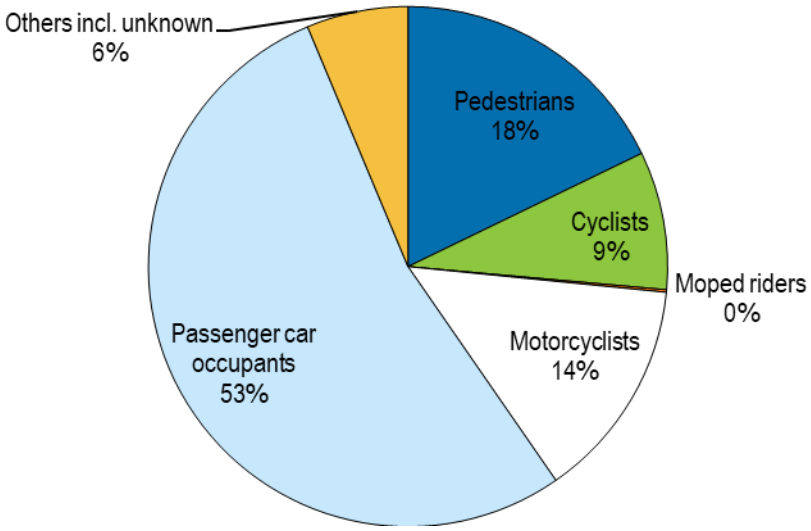
In 2019, all road users saw a decrease in the number of fatalities compared with 2018 figures. The biggest decrease in 2019 was registered by pedestrians, who suffered 32 fewer fatalities than in 2018.

The long-term view shows that traffic in the Czech Republic has become safer for all road user groups. Pedestrians registered the largest reduction among all road user groups from 2000 to 2019, with 70% fewer road deaths in the latter year. Likewise, cyclists, occupants of passenger cars and moped riders saw strong fatality reductions of 58% or greater over this time.

The road users that have benefitted least are motorcyclists, who saw the number of crash deaths fall by only 15% since 2000.

From 2010 to 2019 road mortality also decreased for all users, but to a lesser extent for motorcyclists (Figure 6).

Figure 2. Road fatalities by road user group, 2019



Analysis of **road deaths by age group** shows that the senior population has benefitted less than the general population from road safety improvements. From 2000 to 2019 fatalities more than halved for all age groups, except those aged 65 and over, who saw the number of road deaths fall by 37% over this time.

Historically, young people represent a high-risk group when it comes road safety. In 2019, those 18-20 had a fatality rate of 12.2 deaths per 100 000 inhabitants and those 21-24 11.6 per 100 000 inhabitants. Seniors had a mortality rate of 10.1 in 2019.

Figure 3. Road fatality rates by age group, 2010-19

Deaths per 100 000 inhabitants in a given age group

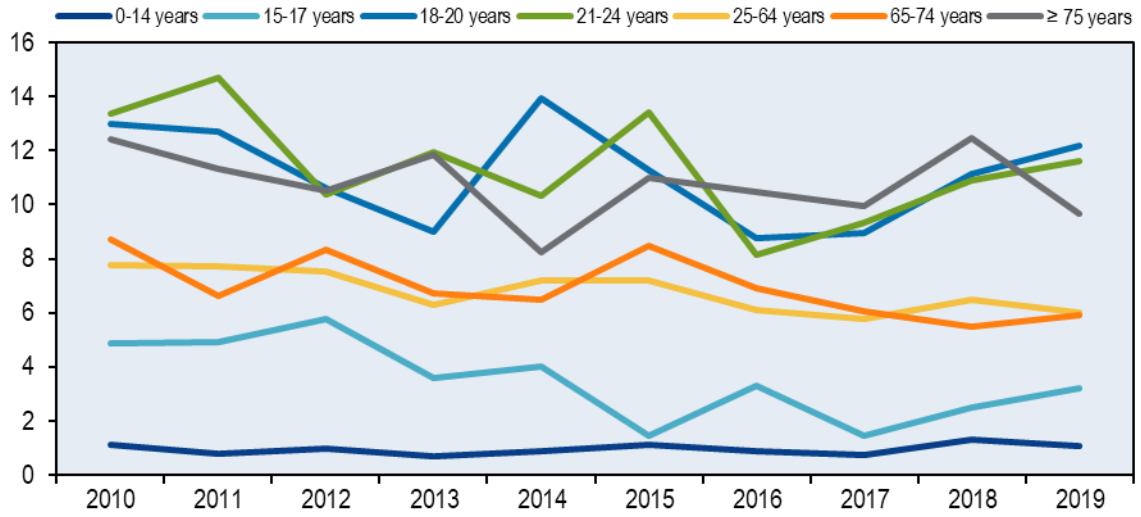
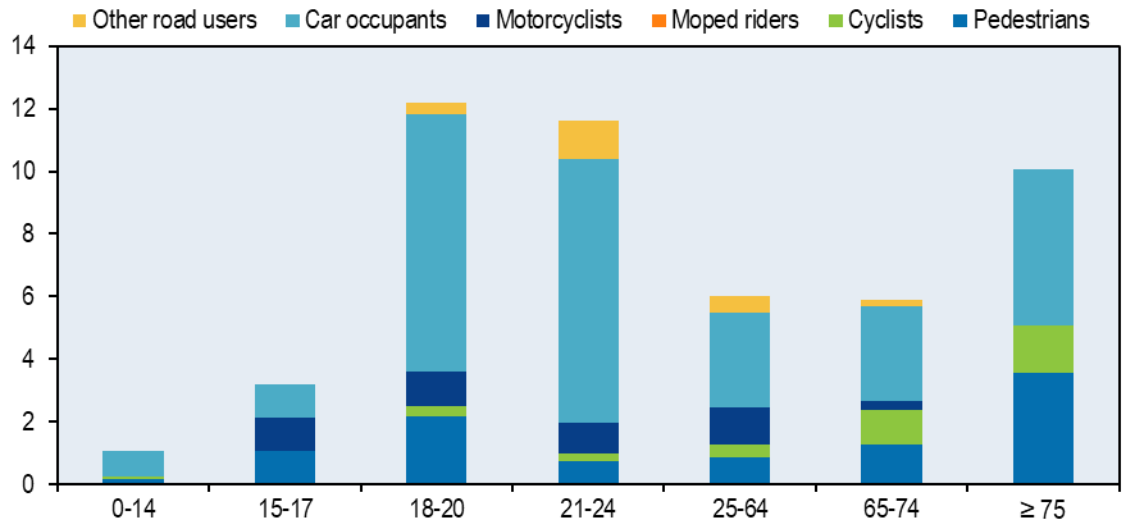


Figure 4. Road fatality rate by age and road user group, 2019

Fatalities per 100 000 inhabitants



Analysis of **fatalities by road type** shows that the rural road network is the deadliest. In 2019, 65% of deaths occurred on rural roads, 30% on urban roads and 5% on motorways. This repartition has remained relatively stable in recent years.

The number of road deaths decreased by 15% on urban road networks in 2019 when compared to 2018. They decreased by a mere 1% on rural road networks and 14% on motorways over the same period. This result shows an improvement compared to 2018, when motorways registered 44% more road deaths year on year.

Fatalities decreased 70% from 2000 to 2019 in urban areas, 51% on rural roads and 31% on motorways.

Figure 5. Road fatalities by road type

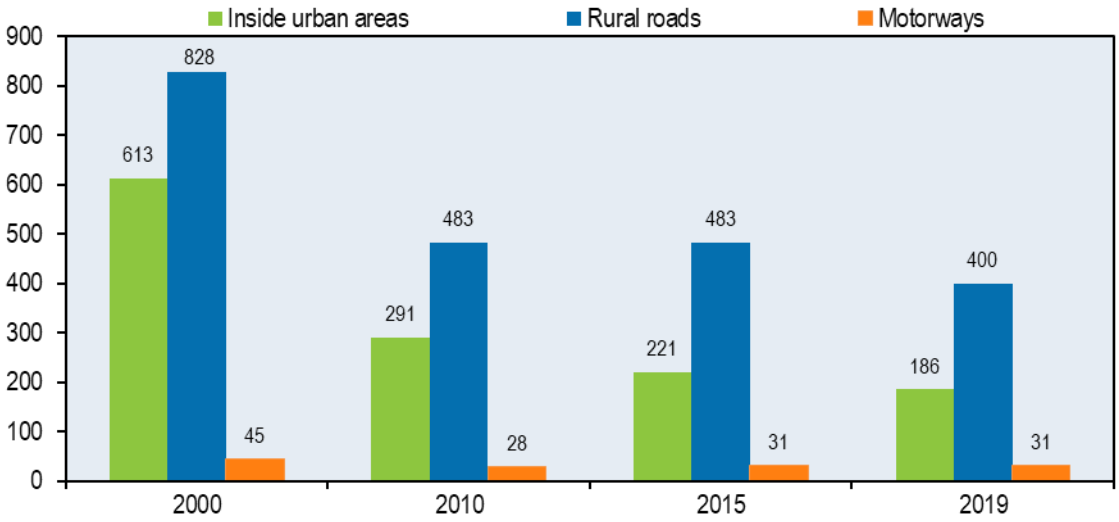
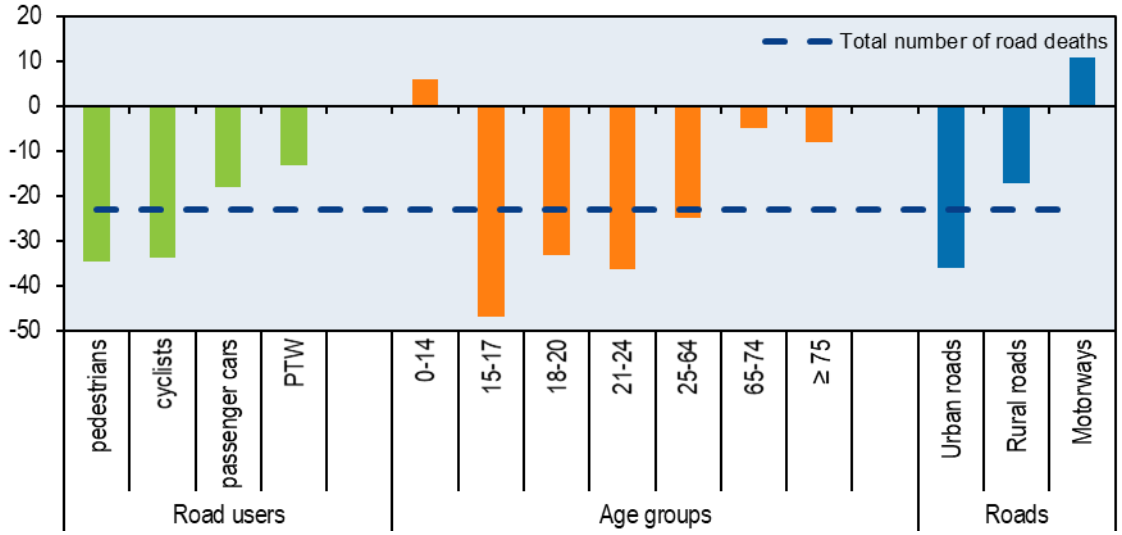


Figure 6. Evolution of road deaths by user category, age group and road type, 2010-19



Economic costs of crashes

Economic costs engendered by road crashes are evaluated using the human capital approach. They are composed of direct costs (i.e. medical care, rescue service, police and justice) and indirect costs (i.e. 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 2019, they have been estimated at EUR 3.2 billion, or 1.4% of GDP.

Table 3. Costs of road crashes, 2019

	Unit cost [EUR]	Total [EUR]
Fatalities	975 000	602 million
Hospitalised persons	217 000	447 million
Slight injuries	31 500	754 million
Property damage costs	15 800	1 369 million
Total		**3.2 billion**
Total as % of GDP		**1.4%**

Behaviour

The behaviour of road users is an important determinant of a country's road safety performance. **Speed** continues to be the main contributing factor in fatal crashes. The

share of fatal crashes due to excessive speed was measured at 33% in 1980, 40% in 2000 and 2014 and 37% in 2019.

Average speed, the 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. It is estimated that 6% of drivers in urban areas and 11% of drivers in rural areas exceeded the speed limit by more than 10 km/h in 2019 (the 85th percentile speed is 56 km/h in urban areas and 97 km/h in rural areas).

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

Table 4. Passenger car speed limits by road type, 2020

	General speed limit	85th percentile speed in 2019
Urban roads	50 km/h	56 km/h
Rural roads	90 km/h	97 km/h
Motorways	130 km/h	

Driving under the influence of alcohol is another major cause of road crashes. In 2019, 9.7% of road fatalities were a result of alcohol-related crashes. This share was of 11.0% in 2002. It decreased to 3.4% in 2007 but then increased again.

There is a zero 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 2.7% in 2019. 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. Drivers are not allowed to drive while using a hand-held phone or other electronic device. Hands-free devices are tolerated. In 2019, 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 2019, 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 2019, 26% 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 4+ who are less than 150 cm in height or 36 kg in weight.

Table 5. Seat belt wearing rates
Percentages

	2000	2010	2019
Front seats			
General (driver + passengers)	63	..	..
Driver	..	97	92
Passenger	..	96	90
Rear seats	..	73	84
General	..	..	..

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

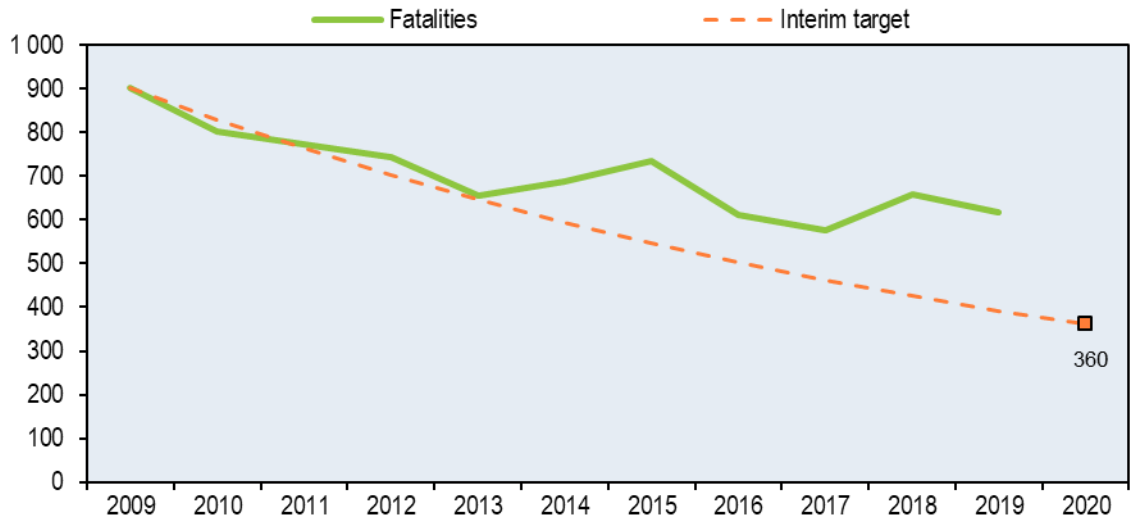
There are several **factors of influence on the Czech Republic's road safety performance** in recent decades as captured by the above indicators. Fatalities reached a peak in 1969 and then steadily decreased until 1986. Due to a rapid deterioration in road safety, deaths increased by 82% between 1986 and 1994. This was during a period of important political change in the Czech Republic and other neighbouring 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. This trend subsequently reversed, and between 1990 and 2019 the number of road deaths dropped by 52%. These positive results are the fruit of successive national strategic safety plans.

The main **responsibility for the organisation of road safety** lies with BESIP (***Be****zpečnost* ***si****lničního* ***p****rovozu*), an independent department of the Ministry of Transport. BESIP is responsible for the National Road Strategy for 2011-20. The other key player is the Government Council of Road Traffic Safety, consisting 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 2011-20 is to decrease the fatality rate (deaths per 100 000 inhabitants) to the European average. This corresponds approximately to a 60% reduction in fatalities from 2009 to 2020. The second target is a 40% reduction 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. BESIP monitors results annually 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 2019 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. New sub-targets for right-of-way, overtaking and goods vehicles have been introduced. Since 2016, the development of accidents has partially improved. However, the objectives of the national strategy have not been met.

The **new National Safety Strategy for 2021-30** is under development and will include as the main target the reduction of fatalities and serious injuries by 50% between 2020 and 2030, in accordance with the objectives set by EU. The new strategy will focus on a number of specific traffic safety areas (e.g. children, seniors, pedestrians, cyclists, motorcyclists, alcohol, etc.).

Measures

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

Road safety management: The National Safety Strategy is subject to regular review and evaluation on national, regional and local levels.

Enforcement: Traffic enforcement is being intensified. Transboundary enforcement is being implemented. Increased penalties for driving across 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.

Harmonisation with European legislation for vehicles with preferred right-of-way has been introduced.

Speed management: Mobile speed cameras are being deployed by police in marked and unmarked vehicles starting all on motorways and national roads.

Road users: The compulsory use of helmets by all cyclists is under discussion.

The compulsory use of reflective devices 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

Improving the safety 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

A road fatality is a person who dies immediately or within 30 days of a crash. (Note this is used for international data comparisons, but for domestic purposes a road fatality often refers to a person who dies immediately or within 24 hours).

A physician at the scene of the crash or in the hospital within 24 hours of the crash determines whether someone is seriously injured or not. Generally speaking, a serious injury is one that causes serious harm to the victim's health. At present, the severity value of 3+ on the Maximum Abbreviated Injury Scale (MAIS) is not in use in crash registration. However, a new system of crash registration will be implemented this year to record MAIS 3+ injuries. In 2019, discussions took place between the Ministry of Transport and hospitals concerning the transfer of data on traffic injuries and fatalities from hospitals to the police.

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 since 2009 that all crashes with a death, injury or material damage over CZK 100 000 must be reported to and registered by the police.

Resources

Recent research

Recent research projects of the Transport Research Centre (CDV) have focused on:

- in-depth accident analysis
- road infrastructure assessment
- improving safety 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

							2019 % change over			
	1990	2000	2010	2017	2018	2019	*2018*	*2010*	*2000*	*1990*
Reported safety data										
Fatalities	1 291	1 486	802	577	658	617	-6.2%	-23.1%	-58.5%	-52.2%
Injury crashes	21 910	25 445	19 675	21 263	21 890	20 806	-5.0%	5.7%	-18.2%	-5.0%
Injured persons hospitalised	..	27 975	19 447	17 104	17 979	..	..	..	..	..
Deaths per 100,000 population	12.5	14.5	7.7	5.5	6.2	5.8	-6.6%	-24.4%	-59.9%	-53.5%
Deaths per 10,000 registered vehicles	3.3	3.2	1.3	0.8	0.9	0.8	-9.4%	-39.4%	-74.8%	-75.4%
Deaths per billion vehicle kilometres	48.3	36.7	16.2	10.5	11.7	10.7	-7.9%	-33.8%	-70.8%	-77.8%
Fatalities by road user										
Pedestrians	359	362	168	129	142	110	-22.5%	-34.5%	-69.6%	-69.4%
Cyclists	135	151	80	57	56	53	-5.4%	-33.8%	-64.9%	-60.7%
Moped riders	47	16	4	2	2	1	-50.0%	-75.0%	-93.8%	-97.9%
Motorcyclists	66	100	95	69	97	85	-12.4%	-10.5%	-15.0%	28.8%
Passenger car occupants	597	784	401	279	334	329	-1.5%	-18.0%	-58.0%	-44.9%
Other road users	87	73	54	41	27	39	44.4%	-27.8%	-46.6%	-55.2%
Fatalities by age group										
0-14 years	59	54	17	12	22	18	-18.2%	5.9%	-66.7%	-69.5%
15-17 years	57	44	17	4	7	9	28.6%	-47.1%	-79.5%	-84.2%
18-20 years	107	103	51	25	31	34	9.7%	-33.3%	-67.0%	-68.2%
21-24 years	123	155	74	43	47	47	0.0%	-36.5%	-69.7%	-61.8%
25-64 years	668	881	471	342	383	354	-7.6%	-24.8%	-59.8%	-47.0%
65-74 years	124	123	79	74	69	75	8.7%	-5.1%	-39.0%	-39.5%
≥ 75 years	146	120	86	76	98	79	-19.4%	-8.1%	-34.2%	-45.9%
Fatalities by road type										
Urban roads	664	613	291	193	218	186	-14.7%	-36.1%	-69.7%	-72.0%
Rural roads	596	828	483	359	404	400	-1.0%	-17.2%	-51.7%	-32.9%
Motorw ays	31	45	28	25	36	31	-13.9%	10.7%	-31.1%	0.0%
Traffic data										
Registered vehicles (thousands)	3 933	4 636	6 021	7 107	7 386	7 643	3.5%	26.9%	64.9%	94.3%
Vehicle kilometres (millions)	26 710	40 480	49 434	54 784	56 450	57 485	1.8%	16.3%	42.0%	115.2%
Registered vehicles per 1,000 population	379.6	451.1	575.5	671.8	696.1	717.7	3.1%	24.7%	59.1%	89.1%