



## ROAD SAFETY ANNUAL REPORT 2019

# KOREA

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Korea marked its sixth consecutive annual reduction in road fatalities, measuring 3 781 road deaths in 2018. Despite this improvement, the mortality rate, at 7.3 traffic deaths per 100 000 population, remains high relative to other IRTAD member countries. Pedestrian and cyclist safety is in need of improvement – together, these groups accounted for 44% of all road fatalities in 2018. Likewise, the elderly form a particularly vulnerable road user group. Korea has adopted an ambitious transport safety plan for 2017-21 with the target of reducing the number of road deaths to under 2 700 by 2021. In September 2018, the use of seat belts for rear seat passengers became mandatory on all roads.

## Trends

Korea registered an overall **decrease in the number of road deaths in 2018**. According to the latest available preliminary data, 3 781 persons lost their lives in traffic crashes in Korea in 2018, marking a new record-low national fatalities total. This represents a 9.7% decrease on 2017. In 2017, 4 185 road deaths were reported, a 2.5% decrease on 2016.

The **longer-term trend for road deaths** in Korea shows significant progress. Between 2000 and 2018, the number of annual road fatalities fell by 63%.

The number of **traffic deaths per 100 000 inhabitants** in Korea has fallen by 66% between 2000 and 2018. In 2018, 7.3 traffic deaths per 100 000 inhabitants were recorded, compared to 21.8 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 Korea showed similar longer-term progress. In 2018, this metric stood at 11.6, 77% lower than in 2000.

Korea recorded 1.4 **road fatalities per 10 000 registered vehicles** in 2018. This represents a decrease of 80% compared to the year 2000, when the rate of deaths to registered vehicles stood at 6.9.

### Country Profile

**Population** in 2018: 51.6 million

**GDP per capita** in 2018: 31 380 USD

**Cost of road crashes:** 1.4% of GDP (2016)

**Road network:** 108 780 kilometres

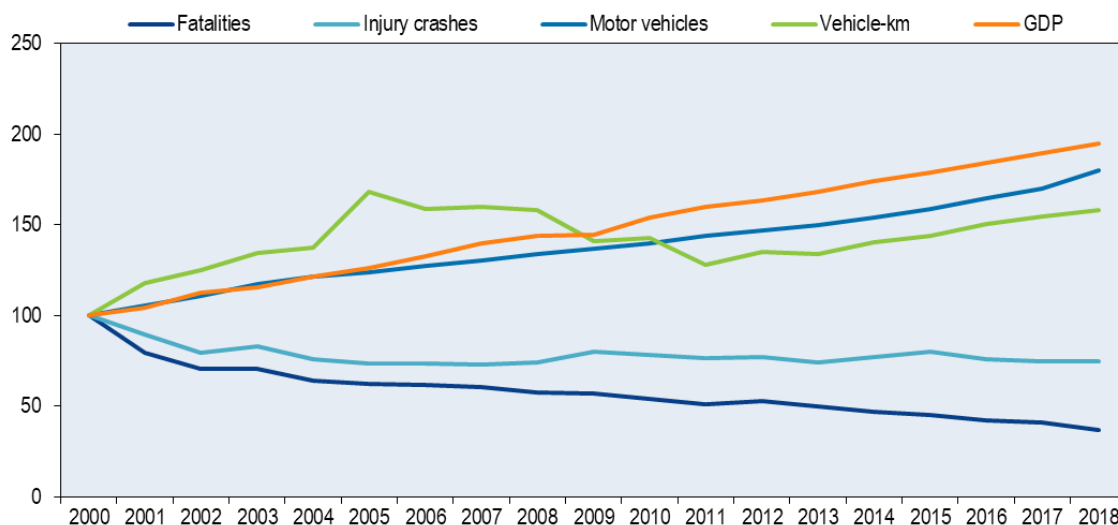
**Registered motor vehicles** in 2017: 26.9 million (cars 70%; goods vehicles 13%; motorised two-wheelers 8%)

**Volume of traffic** : +58% between 2000 and 2018

**Speed limits:** 50 km/h on urban roads; 60-80 km/h on rural roads; 110 km/h on motorways (100 km/h in urban areas)

**Limits on Blood Alcohol Content:** 0.5 g/l

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



Note: registered vehicles do not include mopeds.

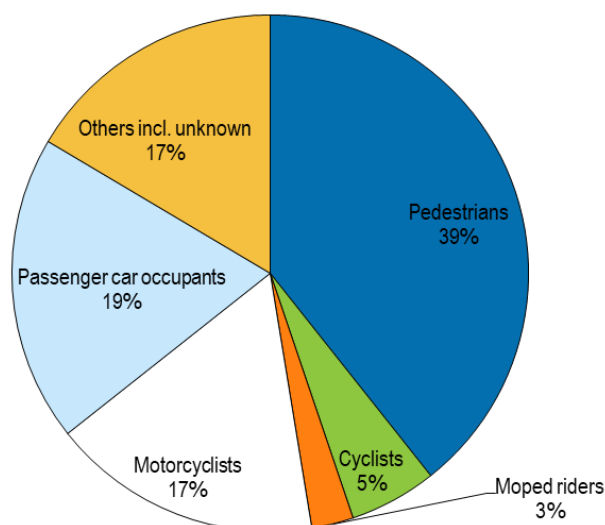
The picture for **fatalities by road user groups** shows that pedestrians are the group most affected by road crashes. In 2018, pedestrians accounted for the largest share of road deaths with 39% of the total. They were followed by passenger car occupants (19%), motorcyclists (17%) and cyclists (5%).

All user groups saw fatalities fall in 2018 compared to the year prior. The largest decrease in 2018 was registered among moped riders, who suffered 75 fewer deaths than 2017 – a decrease of 43.1%. Cyclists saw 53 fewer deaths (-20.4%); pedestrian fatalities fell by 11.2% while passenger car occupant deaths dropped 8.6%.

Motorcyclists experienced the weakest safety improvements in 2018 with 5 fewer deaths than in 2017. Since 2013 – when motorcycle fatalities set a record low of 541– the number of annual motorcycle deaths has increased by 18.3% with 640 persons killed while using a motorcycle on Korean roads in 2018.

The long-term trend shows that traffic in Korea has become safer for all road user groups. The strongest decline was registered among passenger car occupants and moped riders who counted 74% and 71% fewer fatalities, respectively, in 2018 than in 2000. Pedestrians suffered 61% fewer fatalities, and motorcyclists counted 48% fewer road deaths.

The user group that has benefitted least are cyclists, who saw the number of crash deaths fall by 35% since 2000.

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

**Road deaths by age group** in 2018 showed changes compared to 2017. The number of road deaths fell by 28% year-on-year among 0-20 year olds. Elderly people did not share in these road safety improvements, however. Those aged 75 years and more experienced only a 0.9% decrease in road deaths in 2018. The elderly above 65 made up 44.5% of all road fatalities on Korean roadways in 2018.

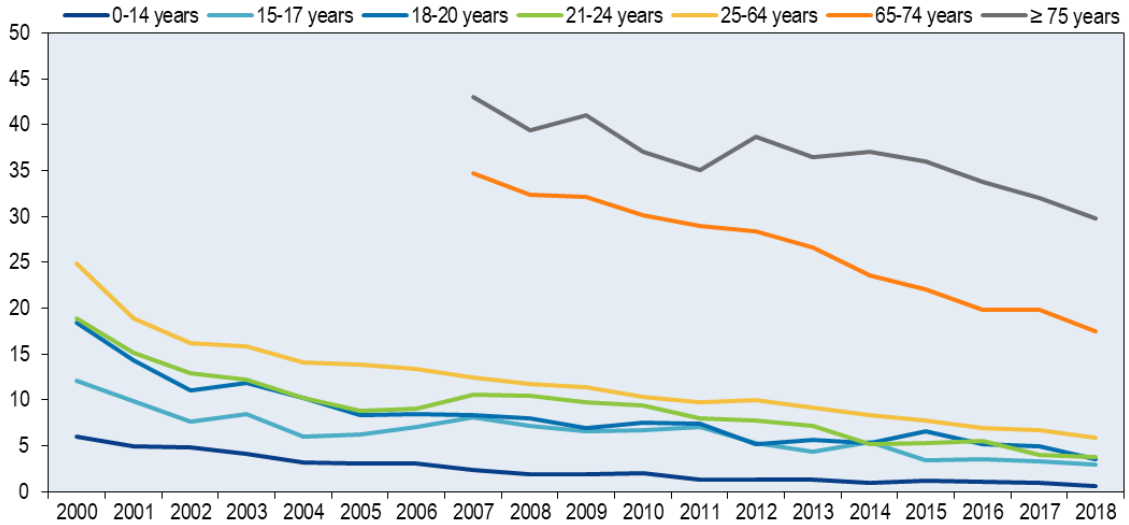
Looking at the longer-term trend, since 2000 the number of road deaths decreased for all groups, with the exception of people aged 75 and above. The most senior road users suffered 30% more deaths in 2018 than they did in 2000. By contrast, the strongest fatality reductions over this period occurred among young road users, with every age group between 0 and 25 years old registering upwards of 80% fewer road deaths than at the start of the century.

More recently, since 2010 all age groups benefited from safety improvement at the exception of the elderly aged 75 and above for whom the number of fatalities increased by 33%.

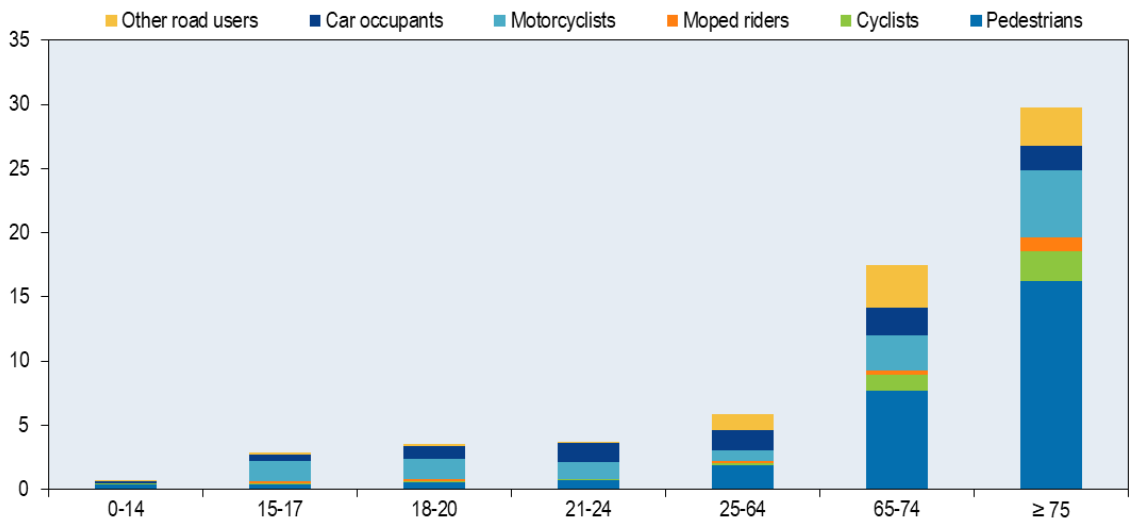
Measuring road safety by deaths per 100 000 population serves to further highlight the danger elderly road users are exposed to in Korea. The elderly above 75 years of age suffer road traffic fatalities at a rate of 29.8 per 100 000 persons – more than 4 times the national average of 7.3. Likewise, those aged between 65 and 74 are killed at a rate of 17.5 per 100 000.

Compared to other IRTAD countries, youth are relatively safe on Korean roadways – mortality rates vary from 0.6 for 0-14 year olds to a high of 3.7 for 21-24 year olds. This may be due to the fact that young people tend to start driving at a later age in Korea. According to a mobility survey undertaken in Seoul in 2017, only 10% of young people in their 20s travel by car. This share rises to 35% for adults in their 40s.

**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

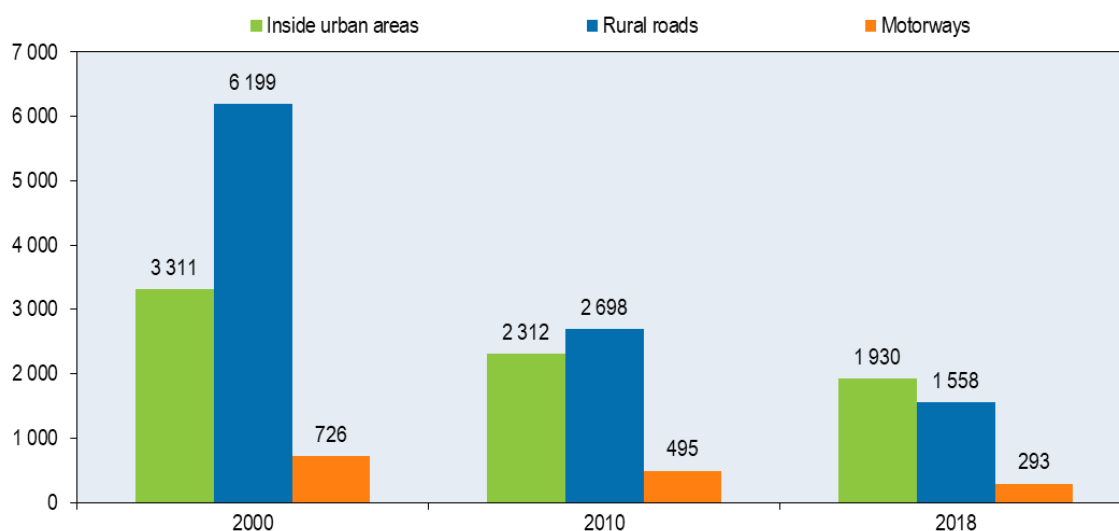


Analysis of **fatalities by road type** shows that the urban road network now claims the more victims than other road types. In 2018, 51% of deaths occurred on urban roads, 41% on rural roads and 8% on motorways. This repartition represents a significant shift from previous years.

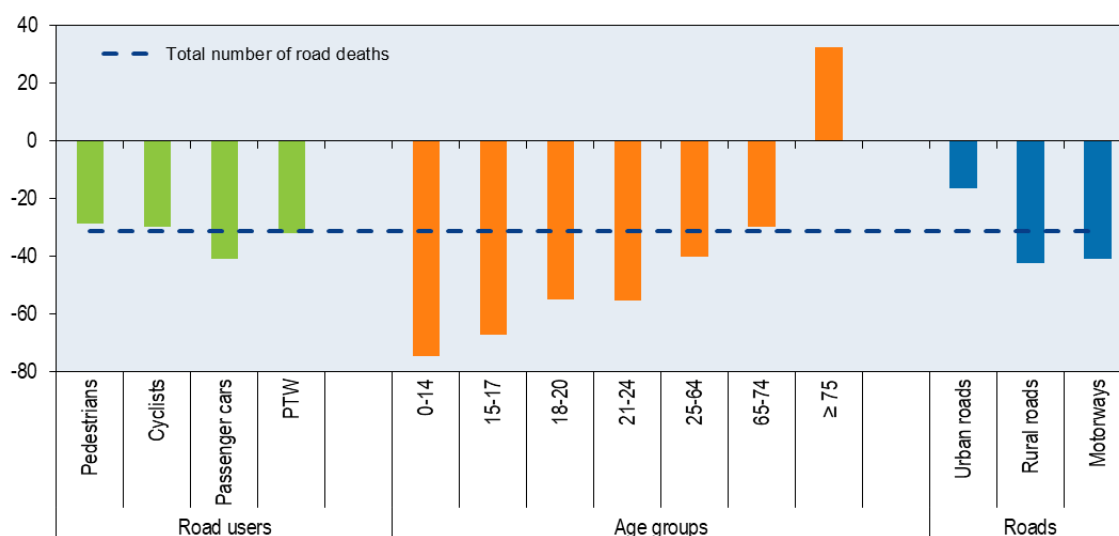
Rural roads have improved their road safety record faster than other road types. Since 2000, fatalities decreased on rural roads by 75%, in urban areas by 42% and by 60% on motorways. Overall, reductions in deaths on rural roads contributed to 72% of the total decrease in road fatalities between 2000 and 2018.

In 2018, in comparison to 2017, the number of road deaths decreased by 11.5% on urban roads and by 9.9% on rural roads, while they increased by 7.3% 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

Traffic crashes represent a significant cost for Korean society. A study in 2016 estimated total costs to be around USD 21 billion, or about 1.4% of Korea's GDP. The costs are based on police crash data and information from insurance companies. These costs do not take into account the indirect costs of suffering and pain.

Since 1992, KoROAD has calculated the economic cost of road crashes using the Gross Loss of Output Approach. The most recently published estimation of road crash cost is based on 2016 crash data (KoROAD, 2017).

**Table 1. Costs of road crashes, 2016**

	Unit cost [USD]	Total [USD]
Fatalities	382 262	1.63 billion
Severe injuries	52 289	5.23 billion
Slight injuries	3 711	2.00 billion
Injuries less than 3 days treatment	1 689	1.76 billion
<b>Total</b>		<b>20.99 billion</b>
<b>Total as % of GDP</b>		<b>1.4%</b>

## Behaviour

The behaviour of road users is an important determinant of a country's road safety performance. **Inappropriate or excessive speed**, in particular, is one of the main causes of road crashes. Based on police reports in 2017, excessive speed was a primary contributing factor in 4.9% of all road fatalities.

The speed limits in Korea are summarised below. In 2012, the speed limit in urban areas was reduced from 80 km/h to 60 km/h for two-lane roads. In 2015, as part of a pilot project, the speed limit was lowered from 60 km/h to 50 km/h or 40 km/h in around 118 residential and shopping areas. In 2017, this measure was extended to most residential and shopping areas.

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

General speed limit	
Urban roads	60 km/h Pilot project underway with 50 and 40 km/h in residential and shopping areas
Rural roads	One-lane roads: 60 km/h Two or more lane roads: 80 km/h
Motorways	Urban areas: 100 km/h Outside urban areas: 110 km/h

**Driving under the influence of alcohol** is another major cause of road crashes in Korea, as in most IRTAD countries. In 2017, it was estimated that 10.2% of fatal crashes were alcohol related.

The maximum authorised blood alcohol content (BAC) is 0.5 g/l. A crash is categorised as "alcohol related" when at least one of the crash-related casualties has a BAC above the legal limit.

**Drugs and driving** is likely to be a problem in Korea, however there is no data to assess the prevalence of drugs and driving and its impact on crash occurrence. Drugs and driving is not classified in the police forms as a possible cause of a crash.

An increasing problem for traffic safety in Korea is **distraction**, for instance through mobile phone use while driving or crossing a street. There is no official data on the prevalence of distraction in crashes, as distraction is not classified as a possible cause of a crash in police forms. However, according to the Traffic Culture Index Survey undertaken in 2017 by KOTSA, 13.2% of pedestrians use their smart phone while crossing a road and 5.0% of drivers on urban roads use a mobile phone while driving (KOTSA, 2017).

Since 2008, the use of hand-held mobile phones while driving is prohibited. It remains, however, a behaviour difficult to enforce, as it is strongly dependent on the driver's statement.

The share of **sleepiness and fatigue** as a causal factor in crashes is especially challenging to detect. Based on police data, 1.1% of all injury crashes and 2.3% of all road fatalities were caused by drowsiness.

To prevent driver fatigue and sleepiness, the Korea Expressway Corporation installed more than 290 rest areas on the motorway network. It has planned to install 84 additional rest areas by 2021.

**Seat-belt wearing** has been compulsory since 1990 in front seats. The use of rear seat belts was made compulsory on motorways in 2008, but it was not made compulsory on other roads. Since September 2018, seat belt use became mandatory for all car occupants and all types of roads. The *Traffic Culture Index Survey 2018* shows that 94% of drivers, 87% of front seat passengers and 56% of rear seat passengers wear seat belts on motorways. The seat belt wearing rate on urban roads was of 86% for drivers, 88% for front seat passengers and 32% for rear seat passengers (KOTSA, 2018). Improving the usage of seatbelt in rear seats is indispensable.

Children under 6 years of age must be seated in a dedicated child seat. In 2017, the wearing rate was 60% on motorways and 49% on urban roads.



**Table 3. Seat belt and helmet wearing rates**  
Percentages

	2010	2015	2017	2018
<b>Front seats</b>				
Urban roads (driver)	..	..	..	86
Urban roads (passenger)	..	..	..	88
Motorways (driver)	89	91	94	94
Motorways (passenger)	78	83	86	87
<b>Rear seats</b>				
Motorways (general)	6	28	49	56
Motorways (children)	..	45	60	..
Urban roads (children)	..	..	49	..
Urban roads (general)	..	..	..	32
<b>Helmet</b>				
Riders of motorcycles	78	88	84	85
Passengers of motorcycles	78	88	84	85

For motorcyclists, **helmet wearing** is the most effective passive safety habit. In Korea, helmets have been compulsory for users of all of motorised two-wheelers since 2007. In 2018, the overall helmet use rate was 84%. The wearing rate varies markedly between cities.

Wearing a cycle helmet has been mandatory since September 2018 following a revision to the Road Traffic Law in March to reduce the risks of serious head and face injuries.

## Road safety management and strategies

There are several **factors of influence on Korea's road safety performance** as captured by the above indicators. Fatalities peaked in 1991 at 13 429. Since, road deaths have decreased (with some fluctuations) and were halved by 2004. In 2013, for the first time in 37 years the number of road deaths measured below 5 000, and in 2018, Korea marked its sixth consecutive year of achieving a record-low annual fatalities total. This promising record of reductions is due in part to the following measures:

- the compulsory wearing of front seat belts (1990);
- drink driving enforcement (1998);
- installation of median barriers on national roads;
- speed enforcement by the police, including automatic speed camera enforcement since 2008;
- lower speed limits on urban roads in residential areas (ongoing pilot project since 2014);

- compulsory wearing of rear seat belts (2018).

However, Korea still faces a number of challenges and continues to post fatality rates above the average for countries in the Organisation for Economic Co-operation and Development (OECD). Reasons for the elevated levels of deaths and serious injuries on the roads include high alcohol consumption, wide junctions, a lack of sidewalks on rural roads, high speed limits on urban roads (usually 60 km/h and sometimes 80 km/h), a lack of road safety education in high schools and the low priority of road safety by local government. Also, Korea's older population (above 65) has a very high risk in traffic when compared to other OECD countries. This is a serious concern as the share of the senior population is increasing steadily.

**Responsibility for the organisation of road safety** in Korea is shared among various ministries and agencies.

- The Ministry of Land, Infrastructure and Transport (MOLIT) is responsible for the national trunk road network of motorways and national highways. It also manages vehicle safety and runs the New Car Assessment Program;
- The Ministry of Public Safety and Security oversees road safety for local governments. It contributes to safety strategies for provincial, municipal and county roads;
- The National Police Agency is mainly responsible for traffic enforcement and crash investigation. It also operates traffic signals, crossings and speed enforcement cameras;
- The Korea Transportation Safety Authority is a government agency mainly responsible for vehicle safety that supports the Ministry of Land, Infrastructure and Transport;
- KoROAD is a government agency, supporting the National Police Agency, responsible for road traffic management. The agency is in charge of traffic monitoring, drivers' licence examinations and management, training and education.

Road safety policy is co-ordinated by the National Transport Safety Committee, an inter-ministerial body. The committee is chaired by the Minister of Land, Infrastructure and Transport. Private professionals can participate in the committee, but in practice the committee does not convene often. The role of the committee is to review road safety policies and measures implemented by the various agencies; however, it does not have a monitoring function, nor does it have a budget or budget allocation power.

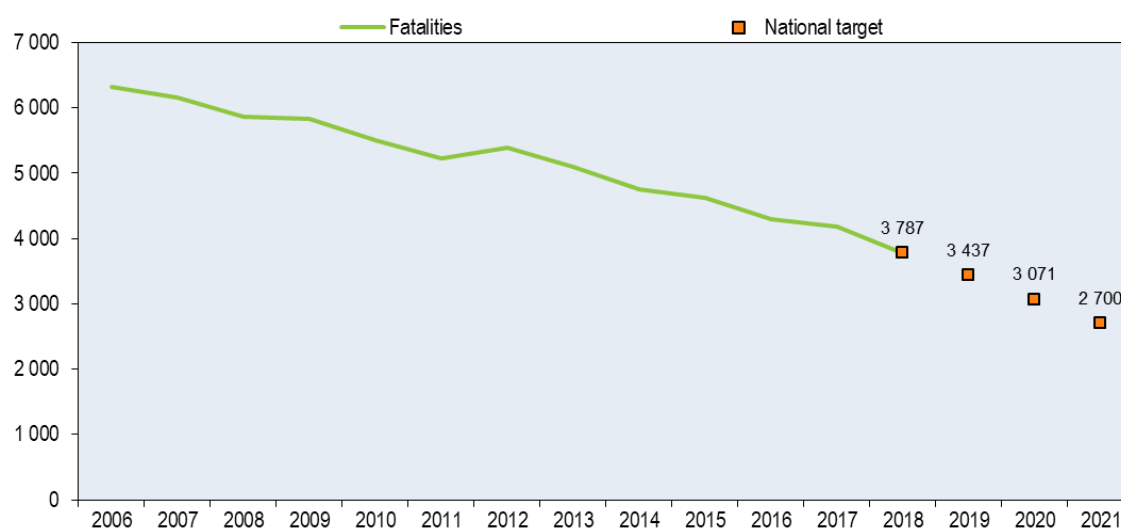
The 8<sup>th</sup> National Safety Transport Plan covers the period 2017-21. Three main targets have been set for 2021:

- Reducing the number of road fatalities to less than 2 700, with interim targets for each year from 2017 to 2021;
- Reducing the rate of fatalities per 100 000 inhabitants to 5.2;

- Reducing the rate of fatalities per 10 000 vehicles (including mopeds) to below 1.0, in order to be ranked in the middle range of OECD member countries.

**Table 4. Targets and interim targets to 2021**

	2017	2018	2019	2020	2021
Fatality target (actual figure)	3 976 (4 185)	3 787 (3 781)	3 437	3 071	2 700
Fatalities per 100 000 inhabitants (actual figure)	7.8 (8.1)	7.4 (7.3)	6.7	6.0	5.2
Fatalities per 10 000 vehicles (including mopeds) (actual figure)	1.5 (1.6)	1.4 (1.4)	1.3	1.1	1.0

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

## Measures

Several measures to improve **road safety management** have recently been put into place. In particular, the responsibility for developing road safety measures is being progressively transferred from the National Police Agency to local governments, with the creation of local autonomous police agencies. Local governments manage and promote their traffic crash-reducing measures by creating their own police organisations.

Likewise, a number of **rules and regulations for road users** were introduced. Since September 2018, seat belt wearing was made compulsory for all car occupants on all types of road (until then, the use of seat belts for rear seat passengers was only mandatory on motorways). Also a bicycle helmet law entered into force in September 2018.

In terms of speed management, reduction of the **speed limit** from 60 km/h to 40 or 50 km/h in residential and shopping areas was introduced. This is being progressively extended to additional areas. In residential areas where there is dense pedestrian activity,

the speed limit was reduced to 30 km/h. These measures are accompanied by intense enforcement campaigns, especially at black spot areas.

Several measures are being implemented to make the **infrastructure** safer: construction of additional roundabouts, the designation of Silver Zones near facilities for the elderly, the construction of additional rest areas along highways, the construction of additional pedestrian crossings to limit to less than 200 metres the distance between two crossings, the installation of safety fences to prevent jaywalking.

## Definition, methodology, data collection

- Road fatality: any person killed immediately or dying within 30 days as a result of a road crash.
- Person seriously injured: any injured person requiring medical treatment for more than three weeks.
- Person slightly injured: any injured person requiring medical treatment for less than three weeks.

Any road crash resulting in at least one person killed or injured must be reported to the police. The police investigate the crash, fill out a form and enter the information in the police Traffic Accident Management System database. The police refer to the medical diagnosis to classify the injuries by severity.

To complete police reported crash data, the Korea Road Traffic Authority (KoROAD) has developed an integrated road crash database, the Traffic Accident Analysis System (TAAS). This contains not only police data, but also inputs from car insurance companies and mutual aid associations. The TAAS data are collected regularly from these sources, and are refined to eliminate duplicated information.

## Resources

### Recent research

Research is currently being undertaken on the following topics:

- High risk drivers (on the major causes of crashes within this group);
- Older drivers (crash patterns);
- Methodologies to assess the driving ability of older drivers.

### Websites

Ministry of Land, Infrastructure and Transport: <http://www.molit.go.kr/english/intro.do>

Road Traffic Authority: [www.koroad.or.kr](http://www.koroad.or.kr)

Korea Transportation Safety Authority: [www.ts2020.kr](http://www.ts2020.kr)

Traffic safety information management complex system: <https://tmacs.kotsa.or.kr/>

Korea Transport Institute (KOTI): <https://english.koti.re.kr/>

## References

KoROAD (2017), *The Estimation and Evaluation of Road Accidents Costs*, Road Traffic Authority, Korea.

KOTSA (2018), *The Traffic Culture Index survey*, Korea Transportation Safety Authority.

## Road safety and traffic data

	1990	2000	2010	2016	2017	2018	2018 % change over			
							2017	2010	2000	1990
<b>Reported safety data</b>										
Fatalities	14 174	10 236	5 505	4 292	4 185	3 781	-9.7%	-31.3%	-63.1%	-73.3%
Injury crashes	255 303	290 481	226 878	220 917	216 335	217 148	0.4%	-4.3%	-25.2%	-14.9%
Deaths per 100,000 population	33.1	21.8	11.1	8.4	8.1	7.3	-10.1%	-34.0%	-66.4%	-77.8%
Deaths per 10,000 registered vehicles	28.9	6.9	2.6	1.7	1.6	1.4	-14.5%	-46.7%	-79.5%	-95.1%
Deaths per billion vehicle kilometres	..	49.5	18.7	13.8	13.1	11.6	-11.6%	-38.0%	-76.6%	..
<b>Fatalities by road user</b>										
Pedestrians	7 063	3 764	2 082	1 714	1 675	1 487	-11.2%	-28.6%	-60.5%	-78.9%
Cyclists	644	317	294	255	260	207	-20.4%	-29.6%	-34.7%	-67.9%
Moped riders	..	343	450	265	174	99	-43.1%	-78.0%	-71.1%	..
Motorcyclists	..	1 221	633	613	645	640	-0.8%	1.1%	-47.6%	..
Passenger car occupants	2 100	2 792	1 228	823	793	725	-8.6%	-41.0%	-74.0%	-65.5%
Other road users	2 692	1 799	818	622	638	623	-2.4%	-23.8%	-65.4%	-76.9%
<b>Fatalities by age group</b>										
0-14 years	..	588	160	76	61	41	-32.8%	-74.4%	-93.0%	..
15-17 years	..	263	139	63	57	46	-19.3%	-66.9%	-82.5%	..
18-20 years	..	459	149	105	96	67	-30.2%	-55.0%	-85.4%	..
21-24 years	..	573	236	159	115	106	-7.8%	-55.1%	-81.5%	..
25-64 years	..	6 474	3 068	2 156	2 088	1 839	-11.9%	-40.1%	-71.6%	..
65-74 years	..	1 117	1 030	782	801	725	-9.5%	-29.6%	-35.1%	..
≥ 75 years	..	736	722	951	966	957	-0.9%	32.5%	30.0%	..
<b>Fatalities by road type</b>										
Urban roads	..	3 311	2 312	2 170	2 182	1 930	-11.5%	-16.5%	-41.7%	..
Rural roads	..	6 199	2 698	1 822	1 730	1 558	-9.9%	-42.3%	-74.9%	..
Motorways	..	726	495	300	273	293	7.3%	-40.8%	-59.6%	..
<b>Traffic data</b>										
Registered vehicles (thousands)	4 897	14 927	20 832	24 571	25 409	26 845	5.7%	28.9%	79.8%	448.2%
Vehicle kilometres (millions)	..	206 985	295 055	311 236	319 871	327 073	2.3%	10.9%	58.0%	..
Registered vehicles per 1,000 population	114.2	317.5	420.4	479.7	494.7	520.2	5.2%	23.7%	63.8%	355.4%

Note: registered vehicles do not include mopeds.