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Administration



Traffic Safety Facts

2021 Data

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Motorcycles

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The following definitions apply to terms in this fact sheet:

- For the purposes of this fact sheet, motorcycles include two- and three-wheeled motorcycles, off-road motorcycles, mopeds, motor scooters, minibikes, and pocket bikes.
- The **motorcycle rider** is the person operating the motorcycle; the **passenger** is a person seated on, but not operating, the motorcycle; the **motorcyclist** is a general term referring to either the rider or passenger.
- Drivers or motorcycle riders are considered to be alcohol-impaired when their blood alcohol concentrations (BACs) are .08 grams per deciliter (g/dL) or higher.

Key Findings

- In 2021 there were 5,932 motorcyclists killed, 14 percent of all traffic fatalities. This is the highest number of motorcyclists killed since FARS started data collection in 1975.
- The number of motorcyclist fatalities in 2021 increased by 8 percent from 2020, from 5,506 to 5,932.
- An estimated 82,686 motorcyclists were injured in 2021, a 5-percent increase from 78,944 motorcyclists injured in 2020.
- Per vehicle miles traveled in 2021, the fatality rate for motorcyclists (30.05) was almost 24 times the passenger car occupant fatality rate (1.26).
- Thirty-six percent of motorcycle riders involved in fatal crashes in 2021 were riding without valid motorcycle licenses.
- In 2021 motorcycle riders involved in fatal crashes had higher percentages of alcohol impairment than drivers of any other motor vehicle type (28% for motorcycles, 24% for passenger cars, 20% for light trucks, and 3% for large trucks).
- Forty-three percent of motorcycle riders who died in single-vehicle crashes in 2021 were alcohol-impaired.
- Motorcycle riders killed in traffic crashes at night were three times more frequently found to be alcohol-impaired than those killed during the day (42% and 16%) in 2021.
- In States without universal helmet laws, 55 percent of motorcyclists killed in 2021 were not wearing helmets, as compared to 9 percent in States with universal helmet laws.

This fact sheet contains information on fatal motor vehicle traffic crashes based on data from the Fatality Analysis Reporting System (FARS) and non-fatal motor vehicle traffic crashes from the National Automotive Sampling System (NASS) General Estimates System (GES) and Crash Report Sampling System (CRSS). A change instituted with the release of 2020 data is rounding estimates to the nearest whole number instead of the nearest thousand for all police-reported crashes, including injury estimates. Refer to the end of this publication for more information on FARS, NASS GES, and CRSS.

Due to a vehicle classification change, the 2020 and later-year vehicle type classifications are not comparable to 2019 and earlier-year vehicle type classifications. This change affects any analysis with a vehicle component to it. Refer to the end of this publication for more information on Product Information Catalog and Vehicle Listing (vPIC).

A motor vehicle traffic crash is defined as an incident that involved one or more motor vehicles in-transport that originated on or had a harmful event (injury or damage) on a public trafficway, such as a road or highway. Crashes that occurred on private property not regularly used by the public for transport, including some parts of parking lots and driveways, are excluded. The terms “motor vehicle traffic crash” and “traffic crash” are used interchangeably in this document.

Overview

In 2021:

- There were 5,932 motorcyclists killed in motor vehicle traffic crashes – higher than the 5,506 motorcyclists killed in 2020 and the highest number of motorcyclists killed since FARS started data collection in 1975.
- Motorcyclists accounted for 14 percent of all traffic fatalities and 17 percent of all motor vehicle occupant (driver and passenger) fatalities.
- Of the 5,932 motorcyclists killed in traffic crashes, 95 percent (5,636) were riders and 5 percent (296) were passengers.
- There were an estimated 82,686 motorcyclists injured, a 5-percent increase from 78,944 motorcyclists injured in 2020.

Table 1 presents information about motorcyclists killed and injured from 2012 to 2021. From 2020 to 2021 motorcyclist fatalities increased by 8 percent. The number of registered motorcycles and motorcycle vehicle miles traveled (VMT) are also presented in Table 1, along with the respective fatality and injury rates.

Table 1. Motorcyclists Killed and Injured, and Fatality and Injury Rates, 2012–2021

| Year | Killed | Registered Vehicles | Fatality Rate per 100,000 Registered Vehicles | VMT (millions) | Fatality Rate per 100 Million VMT |
|------|--------|---------------------|---|----------------|-----------------------------------|
| 2012 | 4,986 | 8,454,939 | 58.97 | 21,385 | 23.32 |
| 2013 | 4,692 | 8,404,687 | 55.83 | 20,366 | 23.04 |
| 2014 | 4,594 | 8,417,718 | 54.58 | 19,970 | 23.00 |
| 2015 | 5,029 | 8,600,936 | 58.47 | 19,606 | 25.65 |
| 2016 | 5,337 | 8,679,380 | 61.49 | 20,445 | 26.10 |
| 2017 | 5,226 | 8,664,108 | 60.32 | 20,149 | 25.94 |
| 2018 | 5,038 | 8,659,741 | 58.18 | 20,076 | 25.09 |
| 2019 | 5,044 | 8,596,314 | 58.68 | 19,688 | 25.62 |
| 2020 | 5,506 | 8,347,435 | 65.96 | 17,947 | 30.68 |
| 2021 | 5,932 | 9,881,414 | 60.03 | 19,738 | 30.05 |

| Year | Injured | Registered Vehicles | Injury Rate per 100,000 Registered Vehicles | VMT (millions) | Injury Rate per 100 Million VMT |
|-------|---------|---------------------|---|----------------|---------------------------------|
| 2012 | 93,251 | 8,454,939 | 1,103 | 21,385 | 436 |
| 2013 | 88,760 | 8,404,687 | 1,056 | 20,366 | 436 |
| 2014 | 91,987 | 8,417,718 | 1,093 | 19,970 | 461 |
| 2015 | 88,738 | 8,600,936 | 1,032 | 19,606 | 453 |
| 2016† | 104,442 | 8,679,380 | 1,203 | 20,445 | 511 |
| 2017† | 88,592 | 8,664,108 | 1,023 | 20,149 | 440 |
| 2018† | 81,859 | 8,659,741 | 945 | 20,076 | 408 |
| 2019† | 83,814 | 8,596,314 | 975 | 19,688 | 426 |
| 2020† | 78,944 | 8,347,435 | 946 | 17,947 | 440 |
| 2021† | 82,686 | 9,881,414 | 837 | 19,738 | 419 |

Sources: FARS 2012-2020 Final File, 2021 Annual Report File (ARF); NASS GES 2012-2015; CRSS 2016-2021; VMT and Registered Vehicles – Federal Highway Administration (FHWA)

†CRSS estimates and NASS GES estimates are not comparable due to different sample designs. Refer to end of document for more information about CRSS.

Note: Due to a vehicle classification change, the 2020 and later year data are not comparable to 2019 and earlier years.

Motorcycles made up 3.5 percent of all registered vehicles in the United States in 2021 and accounted for only 0.6 percent of all VMT. Per 100,000 registered vehicles in 2021, the fatality rate for motorcyclists (60.03) was nearly 5 times the fatality rate for passenger car occupants (12.53) and 8 times the fatality rate for light-truck occupants (7.52), as shown in Table 2. The injury rate for motorcyclists (837) was lower than the injury rate for passenger car occupants (1,027), but higher than the injury rate of light-truck occupants (578).

Per 100 million VMT in 2021, the fatality rate for motorcyclists (30.05) was almost 24 times the passenger car occupant fatality rate (1.26) and 40 times the fatality rate for light-truck occupants (0.75). The motorcyclist injury rate (419) was 4 times the injury rate of passenger car occupants (103) and 7 times the injury rate of light-truck occupants (58).

Table 2. Occupant* Fatality and Injury Rates, by Vehicle Type, 2020 and 2021

| Rate | | Vehicle Type | | | | | |
|------|---------------------------------|---------------|-------------|----------------|-------------|---------------|-------------|
| | | Motorcycles | | Passenger Cars | | Light Trucks | |
| | | Fatality Rate | Injury Rate | Fatality Rate | Injury Rate | Fatality Rate | Injury Rate |
| 2020 | Per 100,000 Registered Vehicles | 65.96 | 946 | 11.42 | 924 | 6.87 | 539 |
| | Per 100 Million VMT | 30.68 | 440 | 1.22 | 99 | 0.73 | 58 |
| 2021 | Per 100,000 Registered Vehicles | 60.03 | 837 | 12.53 | 1,027 | 7.52 | 578 |
| | Per 100 Million VMT | 30.05 | 419 | 1.26 | 103 | 0.75 | 58 |

Sources: FARS 2020 Final File, 2021 ARF; CRSS 2020–2021; Registered Motorcycles and Motorcycle VMT– FHWA; Registered Passenger Cars and Light Trucks – Polk data from S&P Global Mobility, Copyright © R.L. Polk & Co.; Passenger Car and Light-Truck VMT – FHWA, revised by NHTSA

*Includes both riders/drivers and passengers.

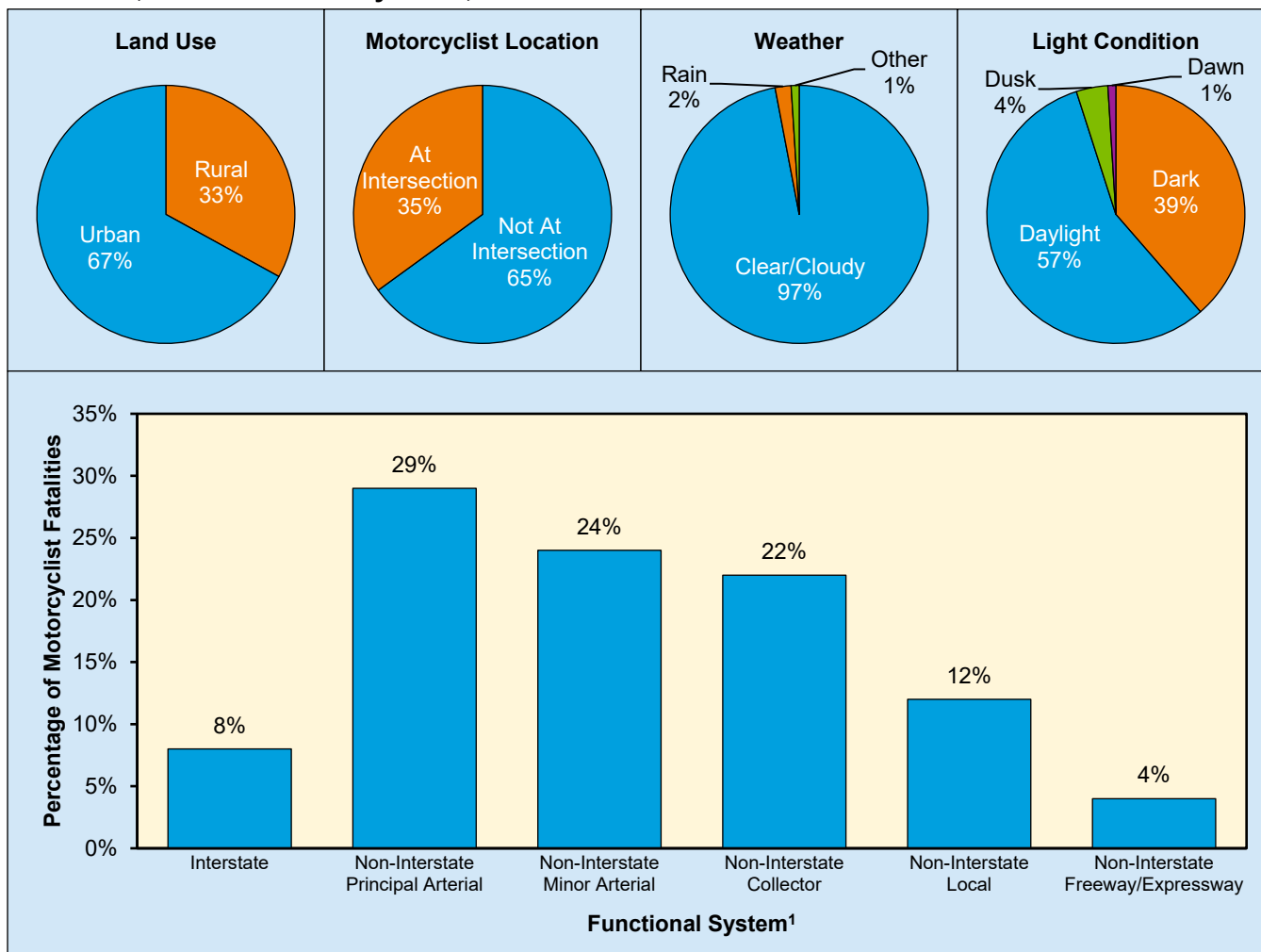
Crash Characteristics

Figure 1 displays information about the environment surrounding the motorcyclist fatalities in 2021 including land use, motorcyclist location, light condition, weather, and functional system. In 2021 (based on known values):

- 67 percent of the motorcycle fatalities occurred in urban areas compared to 33 percent in rural areas;
- 65 percent occurred at locations that were not intersections compared to 35 percent at intersections;
- 97 percent occurred in clear/cloudy conditions compared to 2 percent in rain conditions and 1 percent in snow/sleet, fog, or other conditions;

- 57 percent occurred during daylight compared to 39 percent in the dark, 4 percent during dusk, and 1 percent during dawn; and
- 92 percent occurred on non-interstate roads compared to 8 percent on interstates.

Figure 1. Motorcyclist Fatalities in Relation to Land Use, Motorcyclist Location, Weather, Light Condition, and Functional System¹, 2021



Source: FARS 2021 ARF

Notes: Unknowns were removed before calculating percentages. Percentages may not add up to 100 percent due to independent rounding.

Crash Involvement

The most harmful events in 2021 for 3,471 (57%) of the 6,082 motorcycles involved in fatal crashes were collisions with motor vehicles in transport.

In two-vehicle crashes, 75 percent of the motorcycles involved in fatal crashes were struck in the front. Only 8 percent were struck in the rear.

Motorcycles were more frequently involved in fatal collisions with fixed objects than other vehicle types. Twenty-four percent of motorcycles involved in fatal crashes in 2021 collided with fixed objects, compared to 17 percent for passenger cars, 12 percent for light trucks, and 4 percent for large trucks.

¹ Definitions for the different functional system can be found at www.fhwa.dot.gov/planning/processes/statewide/related/highway_functional_classifications/fcaub.pdf

In 2021 there were 3,052 fatal two-vehicle crashes each involving a motorcycle and another type of vehicle. In 43 percent (1,315) of these crashes, the other vehicles were turning left while the motorcycles were going straight, passing, or overtaking other vehicles. Both vehicles were going straight in 640 crashes (21%).

Motorcyclists

Age

From 2020 to 2021 motorcyclist fatalities among the 15-to-20 age group increased by 35 percent, from 218 to 294. Motorcyclist fatalities in the 40-to-44 age group increased 23 percent from 432 in 2020 to 531 in 2021. In 2021 the average age of motorcycle riders killed in traffic crashes was 43.

Weekday is defined as Monday 6 a.m. to Friday 5:59 p.m. and weekend is defined as Friday 6 p.m. to Monday 5:59 a.m. Table 3 shows that in 2020 and 2021 roughly half the motorcyclists were killed in traffic crashes during the weekend versus weekday. Additionally, motorcyclist fatalities on weekdays have increased by 11 percent from 2,736 in 2020 to 3,039 in 2021.

Table 3. Motorcyclist Fatalities, by Age Group and Day of Week, 2020 and 2021

| Age Group | 2020 | | | 2021 | | |
|---------------|--------------|--------------|--------------|--------------|--------------|--------------|
| | Weekday | Weekend | Total* | Weekday | Weekend | Total* |
| <15 | 7 | 6 | 13 | 6 | 5 | 11 |
| 15-20 | 119 | 99 | 218 | 179 | 115 | 294 |
| 21-24 | 270 | 219 | 489 | 267 | 204 | 472 |
| 25-29 | 337 | 357 | 695 | 384 | 309 | 693 |
| 30-34 | 330 | 350 | 680 | 363 | 337 | 700 |
| 35-39 | 235 | 251 | 487 | 271 | 296 | 568 |
| 40-44 | 218 | 213 | 432 | 248 | 280 | 531 |
| 45-49 | 223 | 264 | 488 | 264 | 271 | 535 |
| 50-54 | 221 | 281 | 505 | 255 | 296 | 552 |
| 55-59 | 270 | 263 | 534 | 255 | 281 | 537 |
| 60-64 | 202 | 225 | 427 | 219 | 213 | 433 |
| 65+ | 302 | 231 | 533 | 328 | 270 | 598 |
| Total* | 2,736 | 2,762 | 5,506 | 3,039 | 2,885 | 5,932 |

Source: FARS 2020 Final File, 2021 ARF

Weekday — Monday 6 a.m. to Friday 5:59 p.m. (4.5 days)

Weekend — Friday 6 p.m. to Monday 5:59 a.m. (2.5 days)

*Includes unknown age and unknown day of week.

Motorcycle Engine Size

Table 4 presents motorcyclist fatalities by the engine size (displacement) of the motorcycles from 2020 to 2021. Of the motorcyclists killed in traffic crashes in 2021, there were 35 percent riding on motorcycles with engine sizes of 501 to 1,000 cubic centimeters (cc), followed by 27 percent on motorcycles with engine sizes of 1,501 cc or higher, 23 percent on motorcycles with engine sizes of 1,001 to 1,500 cc, and 8 percent on motorcycles with engine sizes up to 500 cc.

The number of motorcyclist fatalities on motorcycles with engine sizes up to 500 cc increased by 10 percent (from 429 to 470) during this time, while the motorcyclist fatalities on motorcycles with engine sizes from 501 to 1,000 cc increased by 8 percent (from 1,942 to 2,088). Motorcyclist fatalities on motorcycles with engine sizes from 1,001 to 1,500 cc increased by 8 percent (from 1,263 to 1,361), while the number of motorcyclists killed on motorcycles with engine sizes 1,501 cc or higher increased by 12 percent (from 1,427 to 1,602).

Table 4. Motorcyclist Fatalities, by Engine Size* (cc), 2020–2021

| Year | Engine Size (cc) | | | | | | | | | | Total | |
|------|------------------|---------|-----------|---------|-------------|---------|----------------|---------|---------|---------|--------|---------|
| | Up to 500 | | 501–1,000 | | 1,001–1,500 | | 1,501 & Higher | | Unknown | | | |
| | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent |
| 2020 | 429 | 8% | 1,942 | 35% | 1,263 | 23% | 1,427 | 26% | 445 | 8% | 5,506 | 100% |
| 2021 | 470 | 8% | 2,088 | 35% | 1,361 | 23% | 1,602 | 27% | 411 | 7% | 5,932 | 100% |

Source: FARS 2020 Final File, 2021 ARF

*Based on data from NHTSA's Product Information Catalog and Vehicle Listing (vPIC).

Notes: Other motorcycle characteristics beside engine size (displacement) influence power and speed capability. NHTSA has not determined that there is a causal relationship between displacement and fatality risk.

Speeding

NHTSA considers a crash to be speeding-related if the driver was charged with a speeding-related offense or if an investigating police officer indicated that racing, driving too fast for conditions, or exceeding the posted speed limit was a contributing factor in the crash. Thirty-three percent of all motorcycle riders involved in fatal crashes in 2021 were speeding, compared to 22 percent for passenger car drivers, 15 percent for light-truck drivers, and 7 percent for large-truck drivers. As shown in Table 5, motorcycle riders 21 to 24 years old involved in fatal crashes had the highest speeding involvement at 49 percent.

Table 5. Motorcycle Riders Involved in Fatal Crashes, by Age Group and Speeding Involvement, 2021

| Age Group | Speeding Involvement | | | | Total | |
|---------------|----------------------|------------|--------------|------------|--------------|-------------|
| | Speeding | | Not Speeding | | | |
| | Number | Percent | Number | Percent | Number | Percent |
| <15 | 1 | 20% | 4 | 80% | 5 | 100% |
| 15-20 | 127 | 43% | 165 | 57% | 292 | 100% |
| 21-24 | 240 | 49% | 248 | 51% | 488 | 100% |
| 25-29 | 333 | 46% | 388 | 54% | 721 | 100% |
| 30-34 | 317 | 44% | 406 | 56% | 723 | 100% |
| 35-39 | 226 | 38% | 366 | 62% | 592 | 100% |
| 40-44 | 173 | 32% | 361 | 68% | 534 | 100% |
| 45-49 | 174 | 32% | 377 | 68% | 551 | 100% |
| 50-54 | 160 | 28% | 421 | 72% | 581 | 100% |
| 55-59 | 122 | 22% | 423 | 78% | 545 | 100% |
| 60-64 | 75 | 17% | 367 | 83% | 442 | 100% |
| 65+ | 77 | 13% | 515 | 87% | 592 | 100% |
| Total* | 2,026 | 33% | 4,054 | 67% | 6,080 | 100% |

Source: FARS 2021 ARF

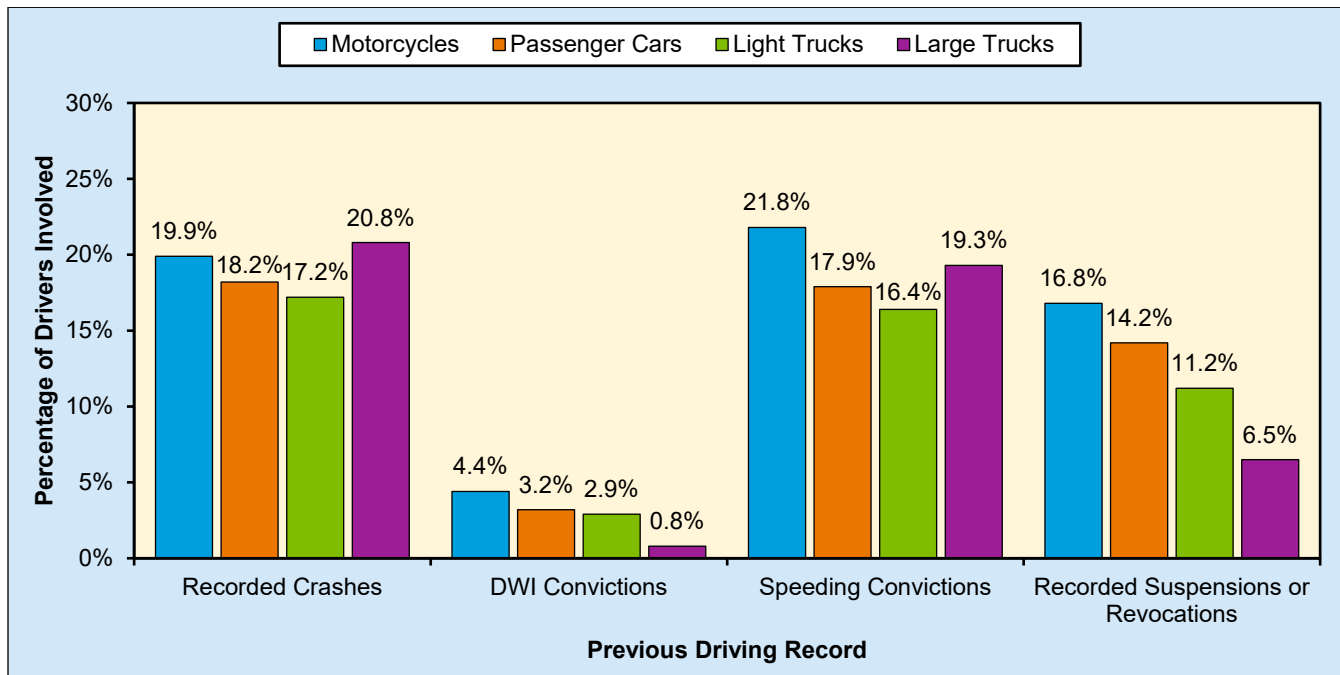
*Includes unknown age.

Licensing and Previous Driving Records

Thirty-six percent of motorcycle riders involved in fatal crashes in 2021 were riding without valid motorcycle licenses at the time of the crashes, while only 17 percent of passenger vehicle (passenger cars and light trucks) drivers in fatal crashes did not have valid licenses. A valid motorcycle license includes a rider having a valid driver license (non-CDL license status) with a motorcycle endorsement or a motorcycle-only license.

As shown in Figure 2, motorcycle riders involved in fatal crashes had the highest percentages of drivers with previous driving records as compared to other vehicle drivers. Motorcycle riders involved in fatal crashes were 1.2 times more likely than passenger car drivers to have previous license suspensions or revocations (16.8% and 14.2%, respectively). Note that FARS records drivers' previous driving records that occurred within 5 years from the crash date.

Figure 2. Percentage of Previous 5-Year Driving Records of Drivers Involved in Fatal Crashes, By Vehicle Type, 2021



Source: FARS 2021 ARF

Note: Excludes all drivers with previous records that were unknown.

Alcohol

In 2021 there were 5,636 motorcycle riders killed in traffic crashes compared to 5,199 in 2020. Of the 5,636 in 2021, there were 1,624 (29%) who were alcohol-impaired (BAC of .08 g/dL or higher). In 2020 there were 1,362 (26%) who were alcohol-impaired. There were 402 (7%) motorcycle riders killed in 2021 who had lower alcohol levels (BACs of .01 to .07 g/dL).

Motorcycle riders involved (killed or survived) in fatal crashes in 2021 had higher percentages of alcohol impairment than any other type of motor vehicle driver (28% for motorcycle riders, 24% for passenger car drivers, 20% for light-truck drivers, and 3% for large-truck drivers).

In 2021 the highest percentages of alcohol-impaired motorcycle rider fatalities were in the 35-to-39 and 40-to-44 age groups (35% each) followed by the 30-to-34 and 50-to-54 age groups (33% each), 45-to-49 age group (32%) and 25-to-29 age group (30%), when compared to other age groups.

Forty-three percent of the 2,170 motorcycle riders who died in single-vehicle crashes in 2021 were alcohol-impaired as compared to 20 percent of the 3,466 motorcycle riders who died in multiple-vehicle crashes, as shown in Table 6. Forty-six percent of those killed in single-vehicle crashes on weekends in 2021 were alcohol-impaired compared to 43 percent in 2020.

Table 6. Alcohol-Impaired Motorcycle Riders Killed, by Crash Type and Day of Week, 2020 and 2021

| Crash Type and Day of Week | | 2020 | | | 2021 | | |
|----------------------------|---------------|--------------------------------|------------------|------------|--------------------------------|------------------|------------|
| | | Total Motorcycle Riders Killed | Alcohol-Impaired | | Total Motorcycle Riders Killed | Alcohol-Impaired | |
| | | | Number | Percent | | Number | Percent |
| Single-Vehicle | Weekday | 945 | 304 | 32% | 968 | 377 | 39% |
| | Weekend | 1,175 | 506 | 43% | 1,197 | 552 | 46% |
| | Total* | 2,124 | 812 | 38% | 2,170 | 931 | 43% |
| Multiple-Vehicle | Weekday | 1,668 | 225 | 13% | 1,953 | 325 | 17% |
| | Weekend | 1,405 | 325 | 23% | 1,511 | 368 | 24% |
| | Total* | 3,075 | 550 | 18% | 3,466 | 693 | 20% |
| Total | Weekday | 2,613 | 528 | 20% | 2,921 | 701 | 24% |
| | Weekend | 2,580 | 831 | 32% | 2,708 | 920 | 34% |
| | Total* | 5,199 | 1,362 | 26% | 5,636 | 1,624 | 29% |

Source: FARS 2020 Final File, 2021 ARF

Weekday — Monday 6 a.m. to Friday 5:59 p.m. (4.5 days)

Weekend — Friday 6 p.m. to Monday 5:59 a.m. (2.5 days)

*Includes riders involved in fatal crashes when day of week was unknown.

Notes: Percentages are computed based on unrounded estimates. NHTSA estimates BACs when alcohol test results are unknown.

Motorcycle riders killed in traffic crashes at night were three times more frequently alcohol-impaired than those killed during the day (42% and 16%).

The reported helmet use rate for alcohol-impaired motorcycle riders killed in traffic crashes in 2021 was 52 percent as compared to 66 percent for those with no alcohol (BAC=.00 g/dL).

Helmet Use and Effectiveness

NHTSA estimates that helmets saved the lives of 1,872 motorcyclists in 2017. If all motorcyclists had worn helmets, an additional 749 lives could have been saved (latest data available).²

Helmets are estimated to be 37-percent effective in preventing fatalities to motorcycle riders and 41 percent for motorcycle passengers. In other words, for every 100 motorcycle riders killed in crashes while not wearing helmets, 37 of them could have been saved had all 100 worn helmets.²

All motorcycle helmets sold in the United States are required to meet Federal Motor Vehicle Safety Standard (FMVSS) 218, the performance standard that establishes the minimum level of protection for helmets designed for use by motorcyclists. According to results from the National Occupant Protection Use Survey (NOPUS), the overall rate of DOT-compliant motorcycle helmet use in the United States was 64.9 percent in 2021. Helmet use continued to be significantly higher in States that required all motorcyclists to be helmeted than in other States.³

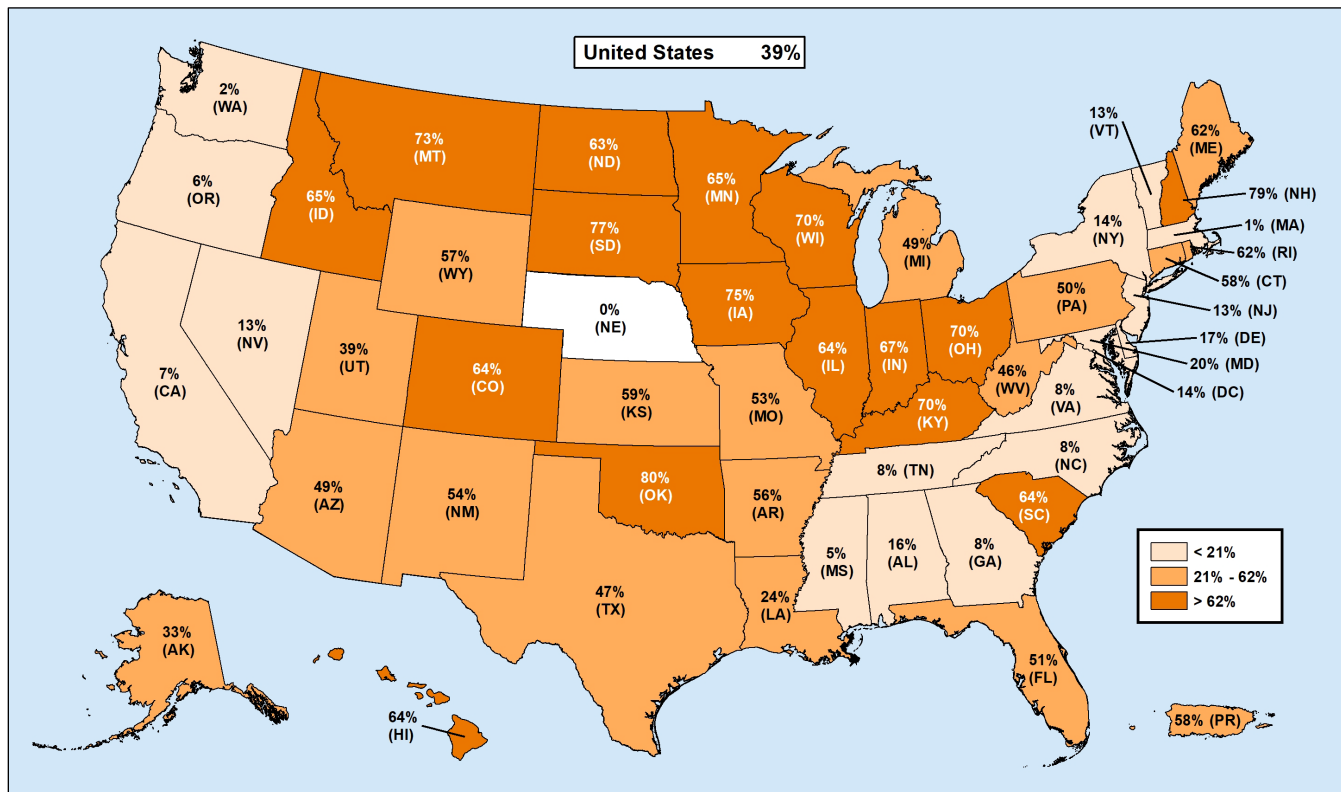
² National Center for Statistics and Analysis. (2019, December). *Lives and costs saved by motorcycle helmets, 2017* (Traffic Safety Facts Crash•Stats Report No. DOT HS 812 867). National Highway Traffic Safety Administration. <https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812867>

³ National Center for Statistics and Analysis. (2022, March). *Motorcycle helmet use in 2021 – Overall results* (Traffic Safety Fact Research Note. Report No. DOT HS 813 270). National Highway Traffic Safety Administration. <https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/813270>

State

Reported helmet use rates for motorcyclists killed in 2021 were 61 percent for riders and 47 percent for passengers, compared with 62 percent and 47 percent, respectively, in 2020. Figure 3 presents the percentage of motorcyclists killed who were not helmeted by each State in 2021, based on known helmet use.

Figure 3. Percentage of Known Unhelmeted* Motorcyclists Killed, 2021



Source: FARS 2021 ARF

*Based on known helmet use.

In 2021 only 18 States, the District of Columbia, and Puerto Rico required helmet use for all motorcyclists. Excluding the District of Columbia and Puerto Rico, the known helmet use percentages in fatal crashes ranged from 54 percent (West Virginia) to 100 percent (Nebraska) for these 18 States.

In 29 States helmet use was required for only a subset of motorcyclists (typically, motorcyclists under age 18), and 3 States (Illinois, Iowa, and New Hampshire) did not require helmet use for motorcyclists of any age. The known helmet use percentages in fatal crashes ranged from 20 percent (Oklahoma) to 83 percent (Delaware) for these 32 States.

The most current information on helmet use laws is available on the Governors Highway Safety Association (GHSA) website at www.ghsa.org/state-laws/issues/motorcyclists. In States without universal helmet laws, 55 percent of motorcyclists killed in 2021 were not wearing helmets, as compared to 9 percent in States with universal helmet laws. According to NOPUS, in 2021 DOT-compliant motorcycle helmet use in States requiring all to use helmets was 86.1 percent compared to 53.4 percent in other States.

Table 7 shows that 39 percent of the 5,932 motorcyclists killed nationwide in traffic crashes in 2021 were not helmeted, based on known helmet use. The State-level unhelmeted percentages ranged from a high of 80 percent (Oklahoma) to a low of 0 percent (Nebraska), based on known use.

Table 8 presents the percentage of motorcycle riders killed who were alcohol-impaired, by State where the crashes occurred in 2021. The percentages ranged from a low of 15 percent (South Dakota) to a high of 41 percent (Wyoming), compared to the national average of 29 percent.

Table 7. Motorcyclist Fatalities, by State and Helmet Use, 2021

| State | Helmet Use | | | | | | Total | | Percent Based on Known Helmet Use | |
|----------------------|--------------|------------|--------------|------------|------------|-----------|--------------|-------------|-----------------------------------|------------|
| | Helmeted | | Unhelmeted | | Unknown | | | | | |
| | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Helmeted | Unhelmeted |
| Alabama | 62 | 81% | 12 | 16% | 3 | 4% | 77 | 100% | 84% | 16% |
| Alaska | 4 | 67% | 2 | 33% | 0 | 0% | 6 | 100% | 67% | 33% |
| Arizona | 72 | 48% | 70 | 47% | 8 | 5% | 150 | 100% | 51% | 49% |
| Arkansas | 41 | 43% | 53 | 55% | 2 | 2% | 96 | 100% | 44% | 56% |
| California | 516 | 91% | 37 | 7% | 12 | 2% | 565 | 100% | 93% | 7% |
| Colorado | 48 | 36% | 84 | 62% | 3 | 2% | 135 | 100% | 36% | 64% |
| Connecticut | 25 | 38% | 35 | 54% | 5 | 8% | 65 | 100% | 42% | 58% |
| Delaware | 19 | 83% | 4 | 17% | 0 | 0% | 23 | 100% | 83% | 17% |
| District of Columbia | 6 | 86% | 1 | 14% | 0 | 0% | 7 | 100% | 86% | 14% |
| Florida | 314 | 48% | 328 | 50% | 9 | 1% | 651 | 100% | 49% | 51% |
| Georgia | 165 | 89% | 14 | 8% | 6 | 3% | 185 | 100% | 92% | 8% |
| Hawaii | 12 | 36% | 21 | 64% | 0 | 0% | 33 | 100% | 36% | 64% |
| Idaho | 11 | 35% | 20 | 65% | 0 | 0% | 31 | 100% | 35% | 65% |
| Illinois | 62 | 36% | 108 | 62% | 4 | 2% | 174 | 100% | 36% | 64% |
| Indiana | 42 | 31% | 86 | 64% | 6 | 4% | 134 | 100% | 33% | 67% |
| Iowa | 17 | 25% | 51 | 75% | 0 | 0% | 68 | 100% | 25% | 75% |
| Kansas | 18 | 38% | 26 | 55% | 3 | 6% | 47 | 100% | 41% | 59% |
| Kentucky | 32 | 30% | 73 | 70% | 0 | 0% | 105 | 100% | 30% | 70% |
| Louisiana | 61 | 73% | 19 | 23% | 3 | 4% | 83 | 100% | 76% | 24% |
| Maine | 8 | 38% | 13 | 62% | 0 | 0% | 21 | 100% | 38% | 62% |
| Maryland | 61 | 79% | 15 | 19% | 1 | 1% | 77 | 100% | 80% | 20% |
| Massachusetts | 66 | 92% | 1 | 1% | 5 | 7% | 72 | 100% | 99% | 1% |
| Michigan | 77 | 44% | 74 | 43% | 23 | 13% | 174 | 100% | 51% | 49% |
| Minnesota | 24 | 35% | 44 | 64% | 1 | 1% | 69 | 100% | 35% | 65% |
| Mississippi | 35 | 92% | 2 | 5% | 1 | 3% | 38 | 100% | 95% | 5% |
| Missouri | 71 | 45% | 80 | 51% | 7 | 4% | 158 | 100% | 47% | 53% |
| Montana | 7 | 27% | 19 | 73% | 0 | 0% | 26 | 100% | 27% | 73% |
| Nebraska | 19 | 90% | 0 | 0% | 2 | 10% | 21 | 100% | 100% | 0% |
| Nevada | 63 | 72% | 9 | 10% | 15 | 17% | 87 | 100% | 88% | 13% |
| New Hampshire | 5 | 19% | 19 | 73% | 2 | 8% | 26 | 100% | 21% | 79% |
| New Jersey | 83 | 84% | 12 | 12% | 4 | 4% | 99 | 100% | 87% | 13% |
| New Mexico | 23 | 45% | 27 | 53% | 1 | 2% | 51 | 100% | 46% | 54% |
| New York | 181 | 83% | 30 | 14% | 7 | 3% | 218 | 100% | 86% | 14% |
| North Carolina | 209 | 91% | 18 | 8% | 3 | 1% | 230 | 100% | 92% | 8% |
| North Dakota | 3 | 38% | 5 | 63% | 0 | 0% | 8 | 100% | 38% | 63% |
| Ohio | 66 | 30% | 154 | 69% | 3 | 1% | 223 | 100% | 30% | 70% |
| Oklahoma | 15 | 19% | 59 | 74% | 6 | 8% | 80 | 100% | 20% | 80% |
| Oregon | 76 | 90% | 5 | 6% | 3 | 4% | 84 | 100% | 94% | 6% |
| Pennsylvania | 107 | 48% | 108 | 49% | 7 | 3% | 222 | 100% | 50% | 50% |
| Rhode Island | 5 | 38% | 8 | 62% | 0 | 0% | 13 | 100% | 38% | 62% |
| South Carolina | 64 | 36% | 112 | 63% | 1 | 1% | 177 | 100% | 36% | 64% |
| South Dakota | 5 | 23% | 17 | 77% | 0 | 0% | 22 | 100% | 23% | 77% |
| Tennessee | 144 | 87% | 13 | 8% | 9 | 5% | 166 | 100% | 92% | 8% |
| Texas | 266 | 52% | 232 | 45% | 17 | 3% | 515 | 100% | 53% | 47% |
| Utah | 23 | 59% | 15 | 38% | 1 | 3% | 39 | 100% | 61% | 39% |
| Vermont | 13 | 87% | 2 | 13% | 0 | 0% | 15 | 100% | 87% | 13% |
| Virginia | 100 | 90% | 9 | 8% | 2 | 2% | 111 | 100% | 92% | 8% |
| Washington | 85 | 94% | 2 | 2% | 3 | 3% | 90 | 100% | 98% | 2% |
| West Virginia | 14 | 52% | 12 | 44% | 1 | 4% | 27 | 100% | 54% | 46% |
| Wisconsin | 36 | 30% | 83 | 69% | 2 | 2% | 121 | 100% | 30% | 70% |
| Wyoming | 6 | 35% | 8 | 47% | 3 | 18% | 17 | 100% | 43% | 57% |
| U.S. Total | 3,487 | 59% | 2,251 | 38% | 194 | 3% | 5,932 | 100% | 61% | 39% |
| Puerto Rico | 28 | 42% | 39 | 58% | 0 | 0% | 67 | 100% | 42% | 58% |

Source: FARS 2021 ARF

Note: Shading indicates requiring helmet use for all motorcyclists.

Table 8. Motorcycle Rider Fatalities, by State and Their BACs, 2021

| State | Total Fatalities | Motorcycle Rider Fatalities, by Their BACs | | | | | |
|----------------------|------------------|--|------------|------------------|------------|---------------|------------|
| | | BAC=.01+ g/dL | | Alcohol-Impaired | | | |
| | | Number | Percent | BAC=.08+ g/dL | | BAC=.15+ g/dL | |
| | | | | Number | Percent | Number | Percent |
| Alabama | 72 | 21 | 29% | 17 | 23% | 8 | 11% |
| Alaska | 6 | 2 | 33% | 2 | 33% | 2 | 33% |
| Arizona | 144 | 44 | 31% | 37 | 25% | 23 | 16% |
| Arkansas | 93 | 33 | 36% | 28 | 30% | 16 | 17% |
| California | 552 | 197 | 36% | 160 | 29% | 94 | 17% |
| Colorado | 128 | 55 | 43% | 43 | 33% | 28 | 22% |
| Connecticut | 64 | 29 | 45% | 21 | 32% | 14 | 21% |
| Delaware | 22 | 5 | 22% | 5 | 22% | 4 | 16% |
| District of Columbia | 7 | 4 | 57% | 2 | 26% | 2 | 23% |
| Florida | 612 | 201 | 33% | 168 | 27% | 99 | 16% |
| Georgia | 183 | 64 | 35% | 49 | 27% | 32 | 18% |
| Hawaii | 32 | 15 | 46% | 9 | 29% | 6 | 18% |
| Idaho | 31 | 12 | 39% | 11 | 36% | 10 | 32% |
| Illinois | 163 | 67 | 41% | 54 | 33% | 37 | 23% |
| Indiana | 123 | 40 | 33% | 33 | 27% | 19 | 15% |
| Iowa | 64 | 30 | 47% | 22 | 35% | 12 | 19% |
| Kansas | 44 | 11 | 25% | 9 | 21% | 6 | 14% |
| Kentucky | 96 | 25 | 26% | 19 | 19% | 13 | 14% |
| Louisiana | 81 | 36 | 44% | 27 | 33% | 17 | 21% |
| Maine | 19 | 8 | 43% | 5 | 27% | 3 | 18% |
| Maryland | 75 | 31 | 41% | 25 | 33% | 16 | 21% |
| Massachusetts | 66 | 27 | 40% | 23 | 34% | 13 | 19% |
| Michigan | 167 | 48 | 29% | 38 | 23% | 25 | 15% |
| Minnesota | 67 | 22 | 33% | 18 | 27% | 11 | 16% |
| Mississippi | 35 | 7 | 20% | 6 | 17% | 4 | 10% |
| Missouri | 151 | 50 | 33% | 42 | 28% | 28 | 18% |
| Montana | 25 | 11 | 43% | 9 | 38% | 4 | 17% |
| Nebraska | 21 | 7 | 33% | 6 | 27% | 3 | 13% |
| Nevada | 84 | 30 | 35% | 19 | 22% | 9 | 11% |
| New Hampshire | 22 | 10 | 44% | 9 | 39% | 5 | 24% |
| New Jersey | 95 | 32 | 34% | 27 | 29% | 22 | 23% |
| New Mexico | 49 | 17 | 34% | 13 | 27% | 7 | 15% |
| New York | 212 | 72 | 34% | 58 | 27% | 37 | 17% |
| North Carolina | 212 | 63 | 30% | 48 | 23% | 26 | 12% |
| North Dakota | 4 | 1 | 25% | 1 | 25% | 1 | 25% |
| Ohio | 202 | 92 | 45% | 70 | 35% | 46 | 23% |
| Oklahoma | 75 | 27 | 35% | 22 | 30% | 19 | 26% |
| Oregon | 78 | 27 | 34% | 21 | 27% | 15 | 19% |
| Pennsylvania | 211 | 72 | 34% | 55 | 26% | 32 | 15% |
| Rhode Island | 13 | 6 | 46% | 5 | 38% | 4 | 31% |
| South Carolina | 167 | 66 | 40% | 54 | 32% | 30 | 18% |
| South Dakota | 19 | 5 | 26% | 3 | 15% | 1 | 6% |
| Tennessee | 156 | 47 | 30% | 34 | 22% | 20 | 13% |
| Texas | 496 | 206 | 42% | 172 | 35% | 112 | 23% |
| Utah | 38 | 9 | 24% | 8 | 21% | 5 | 13% |
| Vermont | 15 | 5 | 34% | 5 | 34% | 3 | 20% |
| Virginia | 107 | 38 | 36% | 30 | 28% | 16 | 15% |
| Washington | 85 | 35 | 41% | 26 | 31% | 15 | 18% |
| West Virginia | 26 | 13 | 50% | 10 | 39% | 6 | 22% |
| Wisconsin | 112 | 46 | 41% | 41 | 36% | 21 | 19% |
| Wyoming | 15 | 6 | 42% | 6 | 41% | 5 | 30% |
| U.S. Total | 5,636 | 2,026 | 36% | 1,624 | 29% | 1,004 | 18% |
| Puerto Rico | 65 | 32 | 49% | 22 | 34% | 14 | 22% |

Source: FARS 2021 ARF

Notes: Percentages are computed based on unrounded estimates. NHTSA estimates BACs when alcohol test results are unknown.

Important Safety Reminders

For Motorcyclists:

- Wearing a helmet is the single most effective way to protect yourself from a head injury. Use a motorcycle helmet for every ride, and ensure your passengers also use a helmet.
- Make sure your helmet has a valid U.S. Department of Transportation (DOT) label; the label means the helmet meets the Federal Motor Vehicle Safety Standards – this is also known as the FMVSS 218 standard. Novelty helmets without this label may not meet the same standard and will not provide the best protection needed in a crash.



- Check the fit of your helmet to ensure optimal protection.
- Wear protective gear like a sturdy jacket, pants, boots, and gloves; safety gear provide protection in case of falls or crashes, and improves comfort during the ride.
- Make yourself visible by using high-visibility colors and retro-reflective materials to maximize the ability of drivers to see you.
- Motorcycle riding requires full attention, skill, and coordination. Avoid combining riding with drinking alcohol or using other impairing drugs.

For Drivers:

- Always be on the look-out for motorcyclists.
- A motorcycle's smaller size means it can be hidden in your vehicle's blind spot.
- A motorcycle's size and narrow profile can make it difficult to judge its distance and speed. Take extra care when judging when to turn or merge.
- Keep a safe distance from the motorcycle in front of you; motorcyclists can slow their motorcycles by downshifting instead of using their brakes. This means the brake lights won't come on.
- Remember that motorcyclists sometimes change positions in their lane to avoid debris on the road.

— NHTSA's Research and Program Development

Fatality Analysis Reporting System

FARS contains data on every fatal motor vehicle traffic crash within the 50 States, the District of Columbia, and Puerto Rico. To be included in FARS, a traffic crash must involve a motor vehicle traveling on a trafficway customarily open to the public, and must result in the death of a vehicle occupant or a nonoccupant within 30 days of the crash. The Annual Report File (ARF) is the FARS data file associated with the most recent available year, which is subject to change when it is finalized the following year to the final version known as the Final File. The additional time between the ARF and the Final File provides the opportunity for submission of important variable data requiring outside sources, which may lead to changes in the final counts. More information on FARS can be found at www.nhtsa.gov/crash-data-systems/fatality-analysis-reporting-system.

The updated final counts for the previous data year will be reflected with the release of the recent year's ARF. For example, along with the release of the 2021 ARF, the 2020 Final File was released to replace the 2020 ARF. The final fatality count in motor vehicle traffic crashes for 2020 was 39,007, which was updated from 38,824 in the 2020 ARF. The number of motorcycle fatalities from the 2020 Final File was 5,506, which was updated from 5,579 from the 2020 ARF.

Crash Report Sampling System

NHTSA's National Center for Statistics and Analysis (NCSA) redesigned the nationally representative sample of police-reported traffic crashes, which estimates the number of police-reported injury and property-damage-only crashes in the United States. CRSS replaced the National Automotive Sampling System (NASS) General Estimates System (GES) in 2016. More information on CRSS can be found at www.nhtsa.gov/crash-data-systems/crash-report-sampling-system-crss.

Product Information Catalog and Vehicle Listing (vPIC) Vehicle Classification

Historically, vehicle type classifications (e.g., passenger cars, light trucks, large trucks, motorcycles, buses) from FARS, NASS GES, and CRSS used for analysis and data reporting were based on analyst-coded vehicle body type. NHTSA did not have manufacturer authoritative data to assist in vehicle body type coding. NCSA has developed a Product Information Catalog and Vehicle Listing (vPIC) dataset that is being used to decode VINs (Vehicle Identification Numbers) and extract vehicle information. Details of vehicles (make, model, body class, etc.) involved in crashes are obtained from vPIC via VIN-linkage. The VIN-derived information from vPIC uses the manufacturer's classification of body class, which allows for more accurate vehicle type analysis.

The vPIC-based analysis data are available beginning with 2020 FARS and CRSS data files. Starting with the release of 2021 FARS and CRSS data, all vehicle-related analysis for 2020 and later years will be based on vPIC vehicle classification. As a result, the 2020 and later-year vehicle type classifications are not comparable to 2019 and earlier-year vehicle type classifications. This change affects any analysis with a vehicle component to it. More information on vPIC can be found at <https://vpic.nhtsa.dot.gov/>.

The suggested APA format citation for this document is:

National Center for Statistics and Analysis. (2023, June). *Motorcycles: 2021 data* (Traffic Safety Facts. Report No. DOT HS 813 466). National Highway Traffic Safety Administration.

For More Information:

Motor vehicle traffic crash data are available from the National Center for Statistics and Analysis (NCSA), NSA-230. NCSA can be contacted at NCSARequests@dot.gov or 800-934-8517. NCSA programs can be found at www.nhtsa.gov/data. To report a motor vehicle safety-related problem or to inquire about safety information, contact the Vehicle Safety Hotline at 888-327-4236 or www.nhtsa.gov/report-a-safety-problem.

The following data tools and resources can be found at <https://cdan.nhtsa.gov/>.

- Fatal Motor Vehicle Traffic Crash Data Visualizations
- Motor Vehicle Traffic Crash Databook
- Fatality and Injury Reporting System Tool (FIRST)
- State Traffic Safety Information (STSI)
- Traffic Safety Facts Annual Report Tables
- FARS Data Tables (FARS Encyclopedia)
- Crash Viewer
- Product Information Catalog and Vehicle Listing (vPIC)
- FARS, NASS GES, CRSS, NASS Crashworthiness Data System (CDS), and Crash Investigation Sampling System (CISS) data can be downloaded for further analysis.

Other fact sheets available from NCSA:

- Alcohol-Impaired Driving
- Bicyclists and Other Cyclists
- Children
- Large Trucks
- Occupant Protection in Passenger Vehicles
- Older Population
- Passenger Vehicles
- Pedestrians
- Rural/Urban Comparison of Motor Vehicle Traffic Fatalities
- School-Transportation-Related Crashes
- Speeding
- State Alcohol-Impaired-Driving Estimates
- State Traffic Data
- Summary of Motor Vehicle Traffic Crashes
- Young Drivers

Detailed data on motor vehicle traffic crashes are published annually in *Traffic Safety Facts: A Compilation of Motor Vehicle Traffic Crash Data*. The fact sheets and Traffic Safety Facts annual report can be found at <https://crashstats.nhtsa.dot.gov/>.



U.S. Department
of Transportation
**National Highway
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