



Early Estimate of Motor Vehicle Traffic Fatalities for the First Half (January–June) of 2021

Summary

A statistical projection of traffic fatalities for the first half of 2021 shows that an estimated 20,160 people died in motor vehicle traffic crashes. This represents an increase of about 18.4 percent as compared to 17,020 fatalities that were projected in the first half of 2020, as shown in Table 1. This also represents the highest number of fatalities during the first half of the year since 2006 and the highest half-year percentage increase in the history of data recorded by the Fatality Analysis Reporting System (FARS). Also, the projected 11,225 fatalities during Q2 2021 represents the highest Q2 fatalities since 1990 and highest quarterly percentage change (+23.1%) in FARS data recorded history. Preliminary data reported by the Federal Highway Administration (FHWA) show that vehicle miles traveled (VMT) in the first half of 2021 increased by about 173.1 billion miles, or about a 13.0-percent increase as compared to the first half of 2020. Also shown in Table 1 are the fatality rates per 100 million

VMT, by quarter. The fatality rate for the first half of 2021 increased to 1.34 fatalities per 100 million VMT, up from the projected rate of 1.28 fatalities per 100 million VMT in the first half of 2020. The fatality rate in Q2 has declined, which represents the first decline in year-to-year quarterly fatality rate since Q4 of 2019. For the NHTSA regional differences, all 10 regions are estimated to have increases in fatalities, and 6 of the 10 regions are estimated to have increases in fatality rate per 100 million VMT in the first half of 2021 as compared to the same half of 2020. The actual counts for 2020 and 2021 and the ensuing percentage changes from 2020 to 2021 will be further revised as the FARS annual report files for 2020 are available later this year, as well as when the FARS final file for 2020 and annual report file for 2021 are available next year. These estimates will be further refined when the projections for the first 9 months of 2021 are released in late December.

Table 1: Fatalities and Fatality Rate by Quarter, First Half, Full Year, and the Percentage Change From the Corresponding Quarter, First Half or Full Year in the Previous Year

Year	1st Quarter (Jan–Mar)	2nd Quarter (Apr–Jun)	3rd Quarter (Jul–Sep)	4th Quarter (Oct–Dec)	Total (Full Year)	1st Half (Jan–Jun)
Fatalities and Percentage Change in Fatalities for the Corresponding Quarter From the Prior Year						
2011	6,726 [-0.4%]	8,227 [-3.5%]	8,984 [-2.6%]	8,542 [+0.5%]	32,479 [-1.6%]	14,953 [-2.1%]
2012	7,521 [+11.8%]	8,612 [+4.7%]	9,171 [+2.1%]	8,478 [-0.7%]	33,782 [+4.0%]	16,133 [+7.9%]
2013	7,166 [-4.7%]	8,207 [-4.7%]	9,024 [-1.6%]	8,496 [+0.2%]	32,893 [-2.6%]	15,373 [-4.7%]
2014	6,856 [-4.3%]	8,179 [-0.3%]	8,799 [-2.5%]	8,910 [+4.9%]	32,744 [-0.5%]	15,035 [-2.2%]
2015	7,370 [+7.5%]	8,823 [+7.9%]	9,805 [+11.4%]	9,486 [+6.5%]	35,484 [+8.4%]	16,193 [+7.7%]
2016	8,154 [+10.6%]	9,563 [+8.4%]	10,078 [+2.8%]	10,011 [+5.5%]	37,806 [+6.5%]	17,717 [+9.4%]
2017	8,301 [+1.8%]	9,460 [-1.1%]	10,081 [+0.0%]	9,631 [-3.8%]	37,473 [-0.9%]	17,761 [+0.2%]
2018	8,203 [-1.2%]	9,323 [-1.4%]	9,934 [-1.5%]	9,375 [-2.7%]	36,835 [-1.7%]	17,526 [-1.3%]
2019	7,816 [-4.7%]	9,172 [-1.6%]	9,953 [+0.2%]	9,155 [-2.3%]	36,096 [-2.0%]	16,988 [-3.1%]
2020†	7,900 [+1.1%]	9,120 [-0.6%]	11,305 [+13.6%]	10,355 [+13.1%]	38,680 [+7.2%]	17,020 [+0.2%]
2021†	8,935 [+13.1%]	11,225 [+23.1%]	—	—	—	20,160 [+18.4%]
Fatality Rate per 100 Million Vehicle Miles Traveled (VMT)						
2011	0.98	1.09	1.18	1.17	1.10	1.04
2012	1.08	1.12	1.21	1.16	1.14	1.10
2013	1.04	1.07	1.17	1.16	1.10	1.05
2014	0.99	1.03	1.11	1.17	1.08	1.01
2015	1.03	1.08	1.20	1.21	1.15	1.06
2016	1.11	1.16	1.23	1.27	1.19	1.14
2017	1.12	1.13	1.21	1.20	1.17	1.13
2018	1.10	1.11	1.18	1.15	1.14	1.11
2019	1.05	1.08	1.17	1.12	1.11	1.07
2020†	1.12	1.46	1.49	1.41	1.37	1.28
2021†	1.29	1.38	—	—	—	1.34

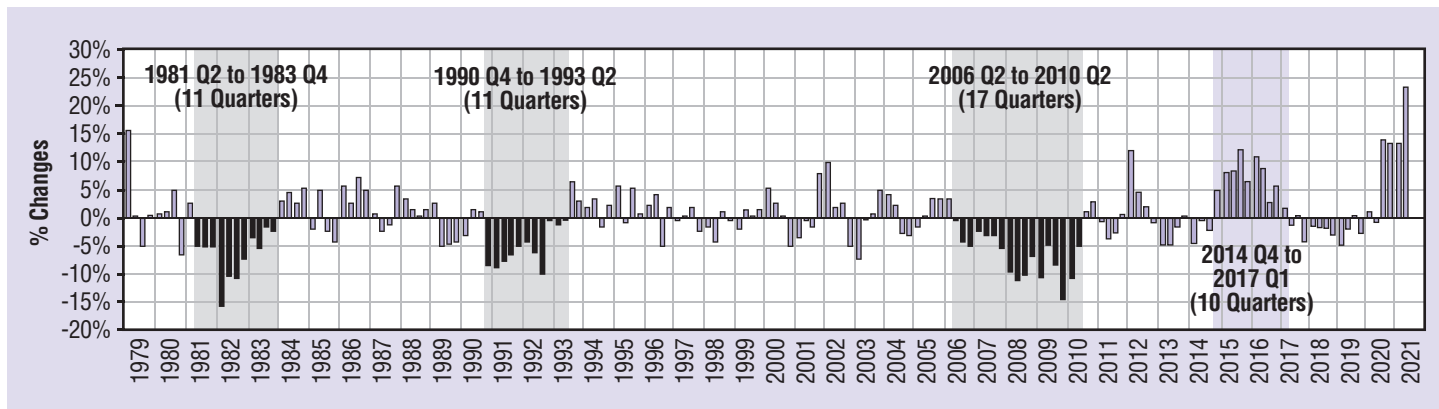
†2020 and 2021 statistical projections and rates based on these projections.

Sources: Fatalities: 2009–2018 FARS final file, 2019 FARS annual report file; VMT: FHWA June 2021 traffic volume trends for 2020 and 2021 VMT

Figure 1 shows the historical trend of the percentage change every quarter from the same quarter in the previous year, going back to 1979 (NHTSA has fatality data since 1975). The shading in the chart depicts the years during which there were significant numbers of consecutive quarters with increases/declines as compared to the corresponding quarters of the previous years. The declines during the early 1980s and 1990s lasted 11 consecutive quarters, while the most recent decline occurred

over 17 consecutive quarters ending in the second quarter of 2010. More recently, the significant increases in fatalities occurred over 10 consecutive quarters ending after the first quarter of 2017. The third and fourth quarter of 2020 and the first and especially the second quarter of 2021 showed significant increases in fatalities as compared to the corresponding quarters of 2019 and 2020. The percentage increase in the second quarter of 2021 is actually the highest in FARS data recorded history.

Figure 1: Percentage Change in Fatalities in Every Quarter as Compared to the Fatalities in the Same Quarter During the Previous Year



To examine the effect of the COVID-19 pandemic, the quarterly projections of fatalities, fatality rates, and VMT are further split into the respective monthly estimates for 2020 and 2021. The stay-at-home orders started in mid-March 2020, followed by the first full month of stay-at-home measures that were in effect during April (the smallest VMT in this month). During May some States began to reopen in some way while almost all States partially reopened by June. After June each State continued to adapt their local and statewide COVID-19 guidelines and assess specific reopening and potential reclosing

efforts accordingly. Table 2 shows that fatalities are projected to have decreased in February (February 2020 was a leap month) but increased in January and March–June 2021 (April and June are the months with the greatest and smallest increases in fatalities, respectively). The fatality rate per 100 million VMT shows an increase during January–March (1st quarter) 2021 (January is the month with the greatest increase in fatality rate) but a decrease during April–June (2nd quarter) 2021 (June is the month with the greatest decrease in fatality rate), as compared to the corresponding month (quarter) in 2020.

Table 2: Fatalities, VMT, Fatality Rate by Month or Quarter in 2021, and the Percentage Change in Fatalities and VMT From the Corresponding Month or Quarter in 2020

Year	1st Quarter				2nd Quarter				3rd Quarter				4th Quarter			
	Jan	Feb	Mar	Total	Apr	May	Jun	Total	Jul	Aug	Sep	Total	Oct	Nov	Dec	Total
Fatalities in 2021 and Percentage Change in Fatalities for the Corresponding Month and Quarter From 2020																
2020†	2,665	2,675	2,560	7,900	2,310	3,095	3,715	9,120	3,770	3,820	3,715	11,305	3,795	3,430	3,130	10,355
2021†	3,105 16.5%	2,585 -3.4%	3,245 26.8%	8,935 13.1%	3,575 54.8%	3,850 24.4%	3,800 2.3%	11,225 23.1%	—	—	—	—	—	—	—	—
Fatality Rate per 100 Million Vehicle Miles Traveled (VMT)/VMT (in Billion) and Percentage Change in VMT																
2020†	1.06 251.7	1.14 233.9	1.16 221.1	1.12 706.7	1.39 165.9	1.46 212.7	1.51 246.8	1.46 625.0	1.45 260.1	1.51 252.8	1.50 247.2	1.49 760.1	1.46 259.1	1.47 233.6	1.28 244.1	1.41 736.8
2021†	1.39 223.2 -11.3%	1.26 205.3 -12.2%	1.24 262.6 18.8%	1.29 691.1 -2.2%	1.39 257.3 55.2%	1.41 273.7 28.9%	1.35 282.5 14.5%	1.38 813.5 30.2%	—	—	—	—	—	—	—	—

†2020 and 2021 statistical projections and rates based on these projections.
Sources: VMT: FHWA June 2021 traffic volume trends for 2020 and 2021 VMT

Regional Differences

The statistical procedures employed in these projections were generated for each NHTSA administrative region and were collated to create the national estimate. This allows for the comparison of regional estimates in 2021 with the reported 2020 counts. Figure 2 shows the percentage change in estimated fatalities in the first half of 2021 from the reported fatalities in the same half of 2020 by NHTSA Region; all 10 regions experienced increases.

Figure 3 shows the comparison of the estimated fatality rate per 100 million VMT in the first half of 2021 with the estimated fatality rate per 100 million VMT in the same half of 2020, by NHTSA Region; 6 of the 10 regions presented increases. These estimates by NHTSA Region shown in Figures 2 and 3 are subject to change as the FARS annual report files for 2020 and 2021 are available later this year and next year, respectively.

Figure 2: Percentage Change in Estimated Fatalities in the First Half of 2021 From Estimated Fatalities in the Same Half of 2020, by NHTSA Region

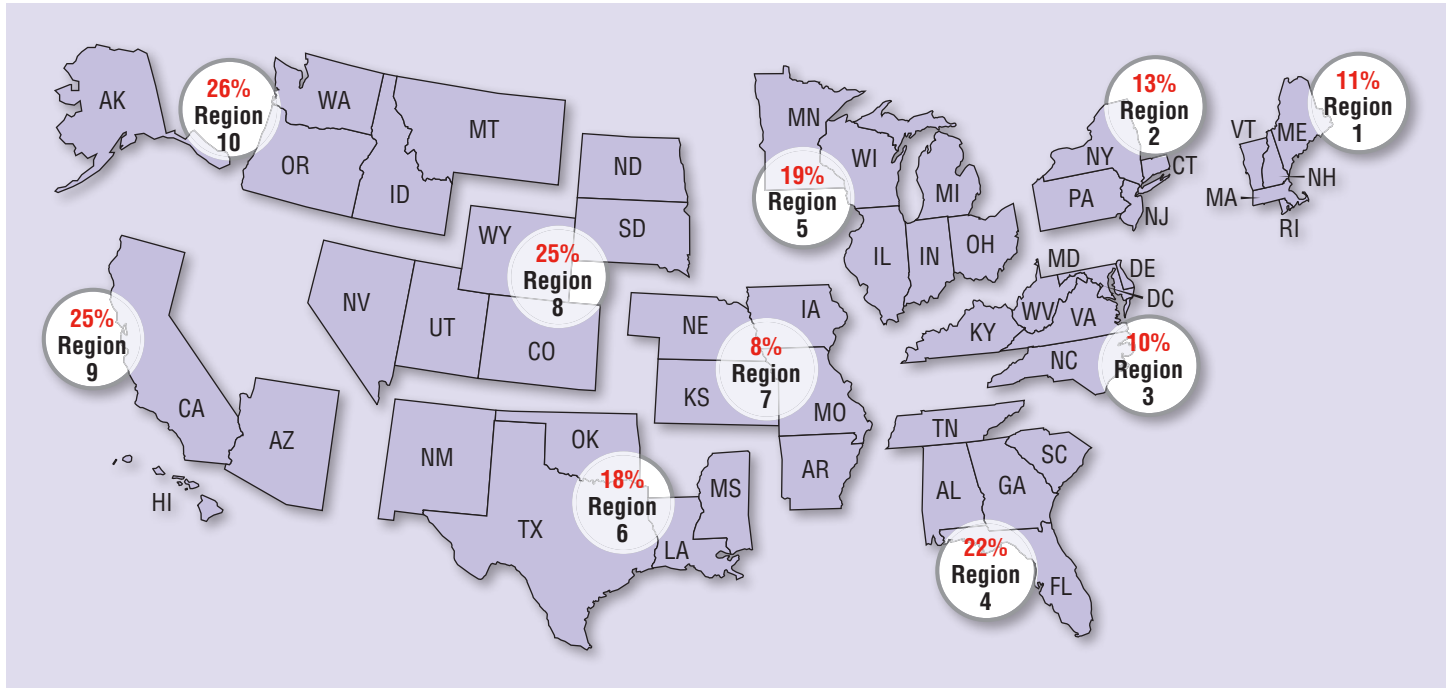
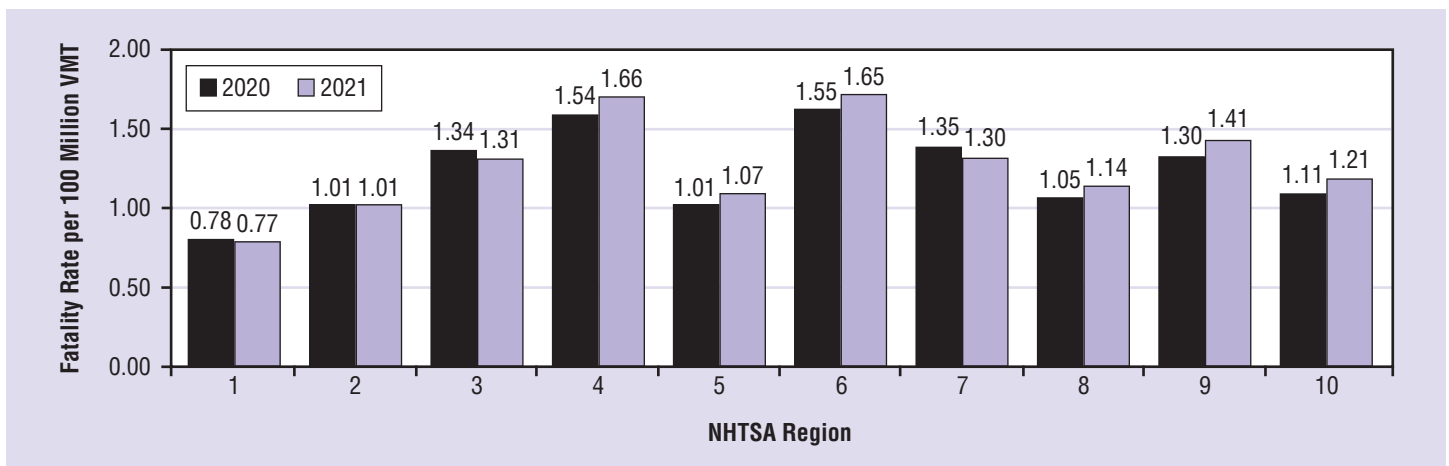


Figure 3: Comparison of Estimated Fatality Rate in the First Half of 2021 With Estimated Fatality Rate in the First Half of 2020, by NHTSA Region



Source: FHWA June 2021 Traffic Volume Trends for 2020 and 2021 VMT

Discussion

During the COVID-19 pandemic, there were marked increases in fatalities and the fatality rate per 100 million VMT in 2020. This increased trend in fatalities has continued into the first half of 2021 (the degree of increase has greatly reduced in June). The increased trend in fatality rate per 100 million VMT continued into the first quarter of 2021, but this fatality rate has already decreased in the second quarter of 2021 compared to 2020 (June is the month with the greatest decrease). NHTSA is continuing to gather and finalize data on crash fatalities for 2020 and 2021 using information from police crash reports and other sources. The annual report files for 2020 and 2021 will be available in late fall of this year and 2022, respectively, which usually results in the revision of fatality totals and the ensuing fatality rates and percentage changes.

Data and Method

The data used in this analysis comes from several sources: NHTSA's FARS, Early Notification (EN) data, and Monthly Fatality Counts (MFC) (the EN and MFC data are not available to the public); and from FHWA's VMT estimates. FARS is a census of fatal traffic crashes in the 50 States, the District of Columbia, and Puerto Rico. To be included in FARS, a crash must involve a motor

vehicle traveling on a trafficway and must result in the death of at least one person (occupant of a vehicle or a nonoccupant) within 30 days of the crash. FARS final files from January 2003 to December 2018 and FARS Annual Report file in 2019 are used. The EN program is designed as an Early Fatality Notification System to capture fatality counts from States more rapidly and provide near-real-time notification of fatality counts from all jurisdictions reporting to FARS. The MFC data provide monthly fatality counts by State through sources that are independent from the EN or FARS systems. MFCs from January 2003 up to June 2021 are used. MFCs are reported mid-month for all prior months of the year. In order to estimate the traffic fatality counts for 2020, time series crosssection regression was applied to analyze the data with both cross sectional values (by NHTSA Region) and time series (by month), to model the relationship among FARS, MFC, and EN, the details of which are available in a Research Note (*Statistical Methodology to Make Early Estimates of Motor Vehicle Traffic Fatalities*, Report No. DOT HS 811 123). The methodology used to generate the estimates for 2021 is the same as the one used by NHTSA to project the increase in the fatalities for the whole of 2020 (*Early Estimates of Motor Vehicle Traffic Fatalities in 2020*, Report No. DOT HS 813 115).

The suggested APA format citation for this document is:

National Center for Statistics and Analysis. (2021, October). *Early estimate of motor vehicle traffic fatalities for the first half (January–June) of 2021* (Crash•Stats Brief Statistical Summary. Report No. DOT HS 813 199). National Highway Traffic Safety Administration.



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For questions regarding the information presented in this report, please contact NCSARequests@dot.gov. This Crash•Stats and other general information on traffic safety can be found at <https://crashstats.nhtsa.dot.gov/>