U.S. Department of Transportation
National Highway Traffic Safety Administration

TRAFFIC SAFETY FACTS
Crash • Stats

NHTSA

DOT HS 813 149 A Brief Statistical Summary August 2021

Early Estimate of Motor Vehicle Traffic Fatalities for the First Quarter of 2021

Summary

A statistical projection of traffic fatalities for the first quarter of 2021 shows that an estimated 8,730 people died in motor vehicle traffic crashes. This represents an increase of about 10.5 percent as compared to 7,900 fatalities that were projected to have occurred in the first quarter of 2020, as shown in Table 1. Preliminary data reported by the Federal Highway Administration (FHWA) show that vehicle miles traveled (VMT) in the first 3 months of 2021 decreased by about 14.9 billion miles, or about a 2.1-percent decrease. Also shown in Table 1 are the fatality rates per 100 million VMT, by quarter. The fatality rate for the first quarter of 2021 increased to 1.26 fatalities per 100 million VMT, up from the projected rate of 1.12 fatalities per 100 million VMT in the first quarter of 2020. For the regional differences in the first quarter of 2021, 8 of the 10 NHTSA Regions are estimated to have increases in fatalities and the fatality rate per 100 million VMT as compared to the same quarter of 2020. The actual counts for 2020 and 2021 and the ensuing percentage changes from 2020 to 2021 will be further revised as the annual reporting FARS files for 2020 are available later this year, as well as when the final file for 2020 and the annual reporting file for 2021 are available next year. These estimates will be further refined when the projections for the first 6 months of 2021 are released in late September.

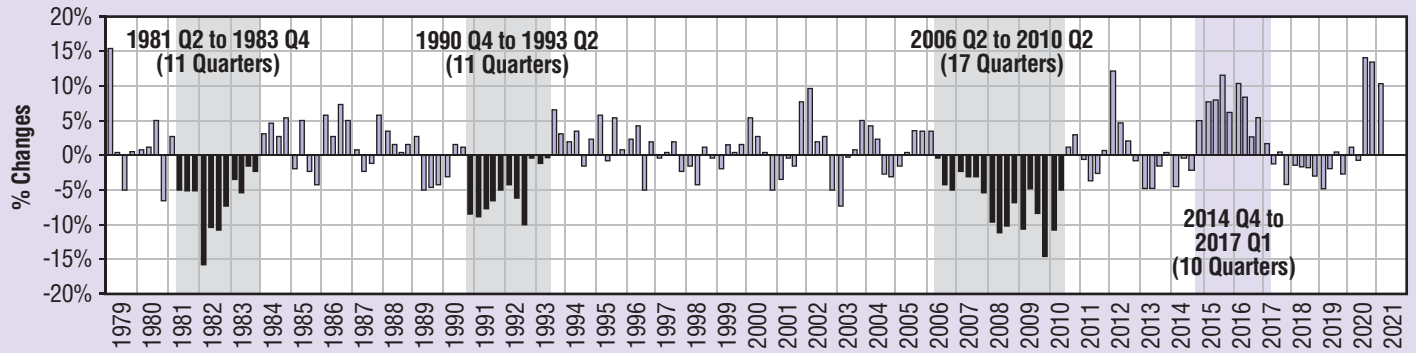
Table 1: Fatalities and Fatality Rate by Quarter, Full Year, and the Percentage Change From the Corresponding Quarter or Full Year in the Previous Year

Quarter	1st Quarter (Jan–Mar)	2nd Quarter (Apr–Jun)	3rd Quarter (Jul–Sep)	4th Quarter (Oct–Dec)	Total (Full Year)
Fatalities and Percentage Change in Fatalities for the Corresponding Quarter From the Prior Year					
2009	7,552 [-10.7%]	8,975 [-4.9%]	9,104 [-8.5%]	8,252 [-13.9%]	33,883 [-9.5%]
2010	6,755 [-10.6%]	8,522 [-5.0%]	9,226 [+1.3%]	8,496 [+3.0%]	32,999 [-2.6%]
2011	6,726 [-0.4%]	8,227 [-3.5%]	8,984 [-2.6%]	8,542 [+0.5%]	32,479 [-1.6%]
2012	7,521 [+11.8%]	8,612 [+4.7%]	9,171 [+2.1%]	8,478 [-0.7%]	33,782 [+4.0%]
2013	7,166 [-4.7%]	8,207 [-4.7%]	9,024 [-1.6%]	8,496 [+0.2%]	32,893 [-2.6%]
2014	6,856 [-4.3%]	8,179 [-0.3%]	8,799 [-2.5%]	8,910 [+4.9%]	32,744 [-0.5%]
2015	7,370 [+7.5%]	8,823 [+7.9%]	9,805 [+11.4%]	9,486 [+6.5%]	35,484 [+8.4%]
2016	8,154 [+10.6%]	9,563 [+8.4%]	10,078 [+2.8%]	10,011 [+5.5%]	37,806 [+6.5%]
2017	8,301 [+1.8%]	9,460 [-1.1%]	10,081 [+0.0%]	9,631 [-3.8%]	37,473 [-0.9%]
2018	8,203 [-1.2%]	9,323 [-1.4%]	9,934 [-1.5%]	9,375 [-2.7%]	36,835 [-1.7%]
2019	7,816 [-4.7%]	9,172 [-1.6%]	9,953 [+0.2%]	9,155 [-2.3%]	36,096 [-2.0%]
2020†	7,900 [+1.1%]	9,120 [-0.6%]	11,305 [+13.6%]	10,355 [+13.1%]	38,680 [+7.2%]
2021†	8,730 [+10.5%]	—	—	—	—
Fatality Rate per 100 Million Vehicle Miles Traveled (VMT)					
2009	1.09	1.16	1.17	1.12	1.15
2010	0.98	1.09	1.18	1.14	1.11
2011	0.98	1.09	1.18	1.17	1.10
2012	1.08	1.12	1.21	1.16	1.14
2013	1.04	1.07	1.17	1.16	1.10
2014	0.99	1.03	1.11	1.17	1.08
2015	1.03	1.08	1.20	1.21	1.15
2016	1.11	1.16	1.23	1.27	1.19
2017	1.12	1.13	1.21	1.20	1.17
2018	1.10	1.11	1.18	1.15	1.14
2019	1.05	1.08	1.17	1.12	1.11
2020†	1.12	1.46	1.49	1.41	1.37
2021†	1.26	—	—	—	—

Sources: Fatalities: 2009–2018 FARS Final File, 2019 FARS Annual Report File; VMT: FHWA March 2021 Traffic Volume Trends for 2020 and 2021 VMT
†2020 and 2021 statistical projections and rates based on these projections.

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 quarter of 2021 showed the significant increases in fatalities as compared to the corresponding quarters of 2019 and 2020.

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. 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 2021. The fatality rate per 100 million VMT shows an increase during January–March 2021 as compared to the corresponding month in 2020 (the degree of increase decreased with the month).

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†	3,050 14.4%	2,530 -5.4%	3,150 23.0%	8,730 10.5%	—	—	—	—	—	—	—	—	—	—	—	—
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	1.50 247.4	1.46 626.0	1.45 260.1	1.51 252.7	1.50 247.2	1.49 760.0	1.46 259.2	1.47 233.8	1.28 244.1	1.40 737.1
2021†	1.37 223.3 -11.3%	1.23 205.3 -12.2%	1.20 263.0 19.0%	1.26 691.6 -2.1%	—	—	—	—	—	—	—	—	—	—	—	—

†2020 and 2021 statistical projections and rates based on these projections.
**VMT: FHWA March 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 projected 2020 counts. Figure 2 shows the estimated percentage changes in fatalities by NHTSA Region; 8 of 10 NHTSA Regions experienced increases during 2021 as compared to projected totals during 2020.

Figure 3 shows the comparison of estimated fatality rate per 100 million VMT in 2021, with projected 2020 fatality rate per 100 million VMT by NHTSA Region; 8 of 10 NHTSA Regions also presented increases in fatality rate per 100 million VMT during 2021. These estimates by NHTSA Region shown in Figures 2 and 3 are subject to change as fatality counts for 2020 and 2021 are reported.

Figure 2: Percentage Change in Estimated Fatalities in First Quarter of 2021 From Projected Same Quarter of 2020 Fatality Counts, by NHTSA Region

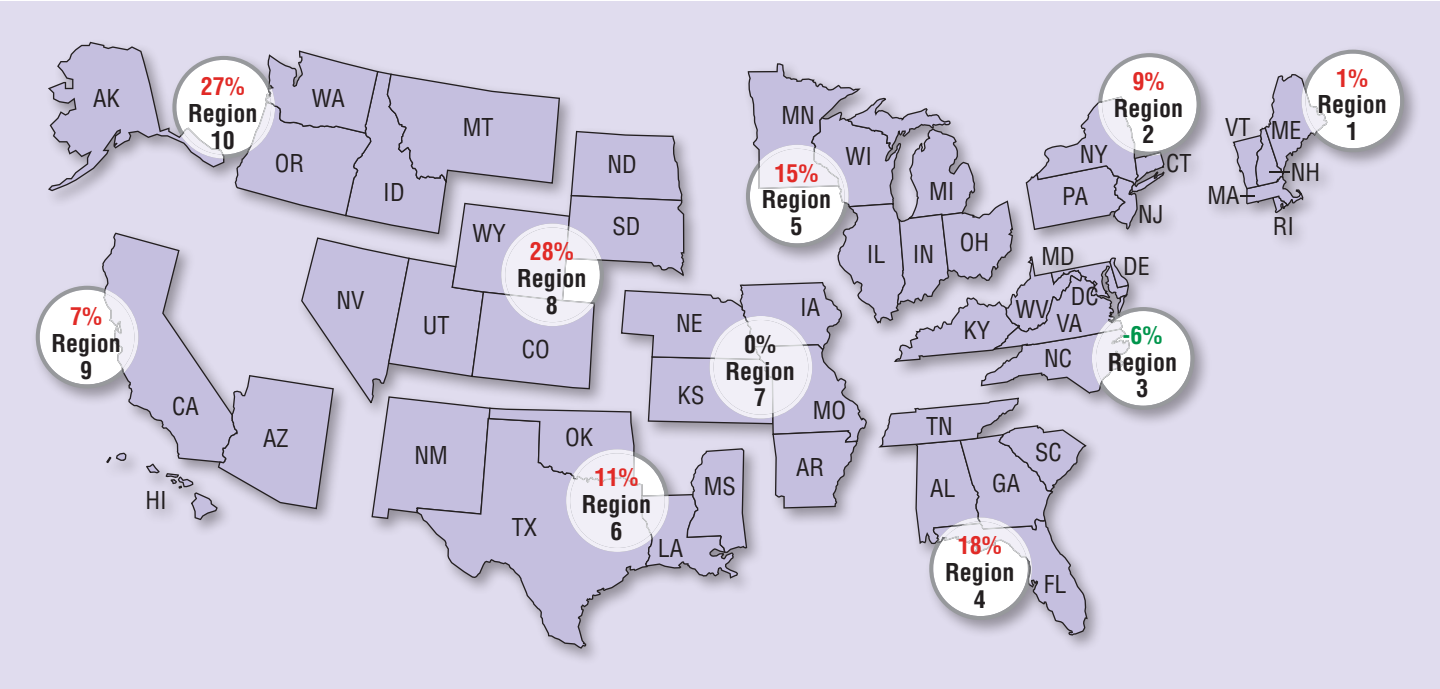
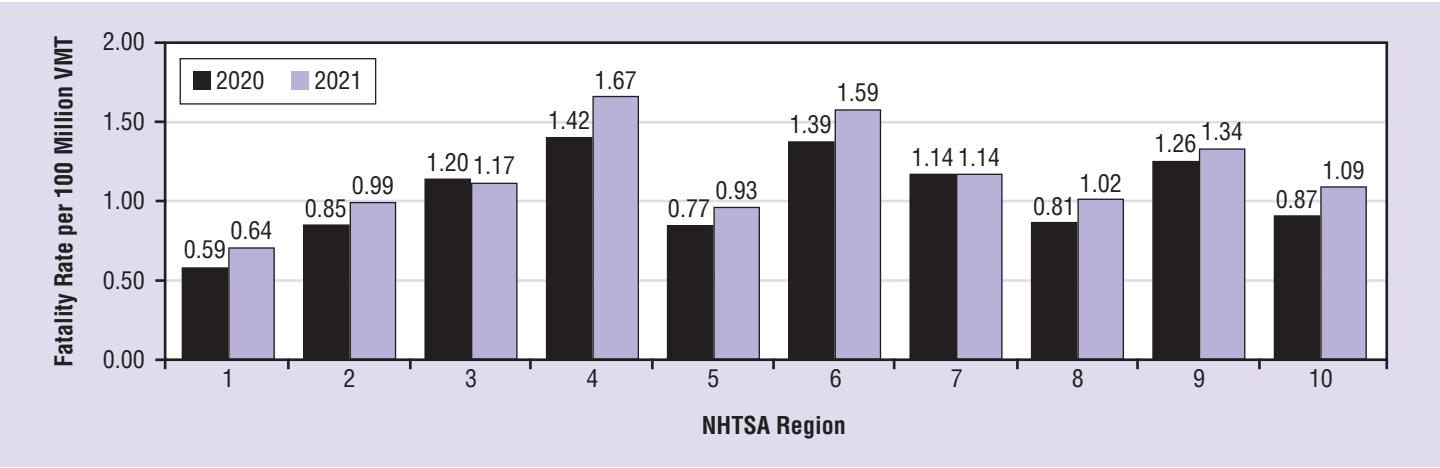


Figure 3: Comparison of Estimated Fatality Rate in First Quarter of 2021 With Projected Fatality Rate in the First Quarter of 2020, by NHTSA Region



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

Discussion

Due to the impact of the COVID-19 pandemic in 2020, there were marked increases in fatalities and the fatality rate per 100 million VMT in 2020. This trend has continued into 2021. In the first quarter of 2021 the increased fatalities (10.5%) combined with the decreased VMT (-2.1%) also resulted in a large increase of the fatality rate per 100 million VMT (1.26), as compared to the fatality rate 1.12 in the first quarter of 2020. NHTSA is continuing to gather and finalize data on crash fatalities for 2019 and 2020 using information from police crash reports and other sources. The final file for 2019 as well as the annual report file for 2020 will be available in late fall of 2021 that 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 come from several sources: NHTSA's Fatality Analysis Reporting System (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 March 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 cross-section 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).

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