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

TRAFFIC SAFETY FACTS
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NHTSA

DOT HS 813 240 | A Brief Statistical Summary | February 2022

Early Estimate of Motor Vehicle Traffic Fatalities for the First 9 Months (January–September) of 2021

Summary

A statistical projection of traffic fatalities for the first 9 months of 2021 shows that an estimated 31,720 people died in motor vehicle traffic crashes nationwide. This represents an increase of about 12.0 percent as compared to 28,325 fatalities that were projected in the first 9 months of 2020, as shown in Table 1. This also represents the highest number of fatalities during the first 9 months of the year since 2006 and the highest percentage increase during the first 9 months in the recorded history of data in the Fatality Analysis Reporting System (FARS). Preliminary data reported by the Federal Highway Administration (FHWA) show that vehicle miles traveled (VMT) in the first 9 months of 2021 increased by about 244.0 billion miles, or about a 11.7-percent increase as compared to the first 9 months of 2020. Also shown in Table 1 are the fatality rates per 100 million VMT, by quarter. The fatality rate for the first 9 months of 2021 increased to 1.36 fatalities per 100 million VMT, marginally up from the projected rate of 1.35 fatalities per 100 million VMT in the first 9 months of 2020. The fatality rate in Q2 and Q3 declined, which represents the second consecutive decline in year-to-year quarterly fatality rate since Q4 of 2019. For the NHTSA Region differences, 9 of the 10 Regions are estimated to have increases in fatalities, and 5 of the 10 Regions are estimated to have increases in the fatality rate per 100 million VMT in the first 9 months of 2021 as compared to the corresponding 9 months of 2020. Also, most States experienced increases. 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 and final files for 2020, and the annual report file for 2021 are available next year. These estimates may be further refined when the projections for the whole of 2021 are released in late April 2022.

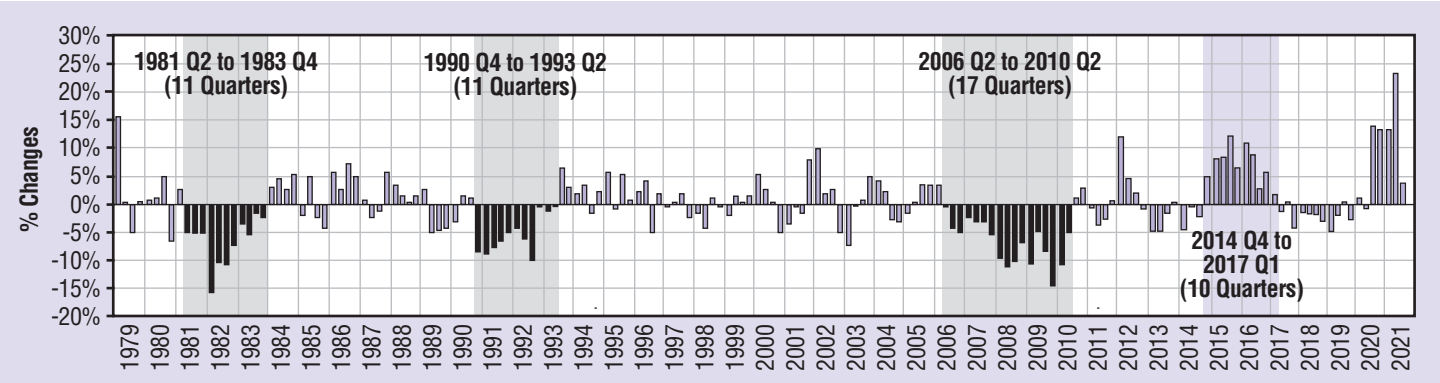
Table 1: Fatalities and Fatality Rate by Quarter, First 9 Months, Full Year, and the Percentage Change From the Corresponding Quarter, First 9 Months or Full Year in the Previous Year

Year	1st Quarter (Jan–Mar)	2nd Quarter (Apr–Jun)	3rd Quarter (Jul–Sep)	4th Quarter (Oct–Dec)	Total (Full Year)	1st 9 Months (Jan-Sep)
Fatalities and Percentage Change in Fatalities for the Corresponding Quarter, 1st 9 Months, and Total From the Previous Year						
2011	6,726 [-0.4%]	8,227 [-3.5%]	8,984 [-2.6%]	8,542 [+0.5%]	32,479 [-1.6%]	23,937 [-2.3%]
2012	7,521 [+11.8%]	8,612 [+4.7%]	9,171 [+2.1%]	8,478 [-0.7%]	33,782 [+4.0%]	25,304 [+5.7%]
2013	7,166 [-4.7%]	8,207 [-4.7%]	9,024 [-1.6%]	8,496 [+0.2%]	32,893 [-2.6%]	24,397 [-3.6%]
2014	6,856 [-4.3%]	8,179 [-0.3%]	8,799 [-2.5%]	8,910 [+4.9%]	32,744 [- 0.5%]	23,834 [-2.3%]
2015	7,370 [+7.5%]	8,823 [+7.9%]	9,805 [+11.4%]	9,486 [+6.5%]	35,484 [+8.4%]	25,998 [+9.1%]
2016	8,154 [+10.6%]	9,563 [+8.4%]	10,078 [+2.8%]	10,011 [+5.5%]	37,806 [+6.5%]	27,795 [+6.9%]
2017	8,301 [+1.8%]	9,460 [-1.1%]	10,081 [+0.0%]	9,631 [-3.8%]	37,473 [-0.9%]	27,842 [+0.2%]
2018	8,203 [-1.2%]	9,323 [-1.4%]	9,934 [-1.5%]	9,375 [-2.7%]	36,835 [-1.7%]	27,460 [-1.4%]
2019	7,816 [-4.7%]	9,172 [-1.6%]	9,953 [+0.2%]	9,155 [-2.3%]	36,096 [-2.0%]	26,941 [-1.9%]
2020†	7,900 [+1.1%]	9,120 [-0.6%]	11,305 [+13.6%]	10,355 [+13.1%]	38,680 [+7.2%]	28,325 [+5.1%]
2021†	8,905 [+12.7%]	11,065 [+21.3%]	11,750 [+3.9%]	—	—	31,720 [+12.0%]
Fatality Rate per 100 Million Vehicle Miles Traveled (VMT)						
2011	0.98	1.09	1.18	1.17	1.10	1.09
2012	1.08	1.12	1.21	1.16	1.14	1.14
2013	1.04	1.07	1.17	1.16	1.10	1.09
2014	0.99	1.03	1.11	1.17	1.08	1.05
2015	1.03	1.08	1.20	1.21	1.15	1.11
2016	1.11	1.16	1.23	1.27	1.19	1.17
2017	1.12	1.13	1.21	1.20	1.17	1.16
2018	1.10	1.11	1.18	1.15	1.14	1.13
2019	1.04	1.08	1.17	1.12	1.11	1.10
2020†	1.12	1.46	1.49	1.41	1.37	1.35
2021†	1.29	1.36	1.41	—	—	1.36

†2020 and 2021 statistical projections and rates based on these projections.
Sources: Fatalities: 2011-2018 FARS final file, 2019 FARS annual report file; VMT: FHWA September 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 quarterly percentage increase 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 monthly estimates for 2020 and 2021. Stay-at-home measures started in mid-March 2020, followed by the first full month of stay-at-home measures in April (the smallest VMT in this month). In May some States began to reopen selectively while almost all States partially reopened by June. After June States continued to adapt their local and statewide COVID-19 guidelines and assess specific reopening and 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-September 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-September (2nd and 3rd quarter) of 2021, 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†	3,110 16.7%	2,580 -3.6%	3,215 25.6%	8,905 12.7%	3,530 52.8%	3,760 21.5%	3,775 1.6%	11,065 21.3%	3,880 2.9%	4,020 5.2%	3,850 3.6%	11,750 3.9%	—	—	—	—
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	1.16 221.0	1.12 706.6	1.39 165.8	1.46 212.4	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%	1.25 205.6 -12.1%	1.22 262.6 18.8%	1.29 691.4 -2.2%	1.37 257.3 55.2%	1.37 273.7 28.9%	1.34 282.5 14.5%	1.36 813.5 30.2%	1.34 290.1 11.5%	1.47 273.8 8.3%	1.44 266.7 7.9%	1.41 830.6 9.3%	—	—	—	—

†2020 and 2021 statistical projections and rates based on these projections.
Sources: VMT: FHWA September 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 Region estimates in 2021 with the projected 2020 counts. Figure 2 shows the percentage change in estimated fatalities in the first 9 months of 2021 from the projected fatalities in the same period of 2020 by NHTSA Region; 9 of the 10 Regions experienced increases. Figure 3 shows the comparison of the estimated fatality rate per 100 million VMT in the first 9 months of 2021 with the estimated fatality rate per 100 million VMT in the same 9 months of 2020, by NHTSA Region; 5 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 next year.

Figure 2: Percentage Change in Estimated Fatalities in First 9 Months of 2021 From Estimated Fatalities in the Same 9 Months of 2020, by NHTSA Region

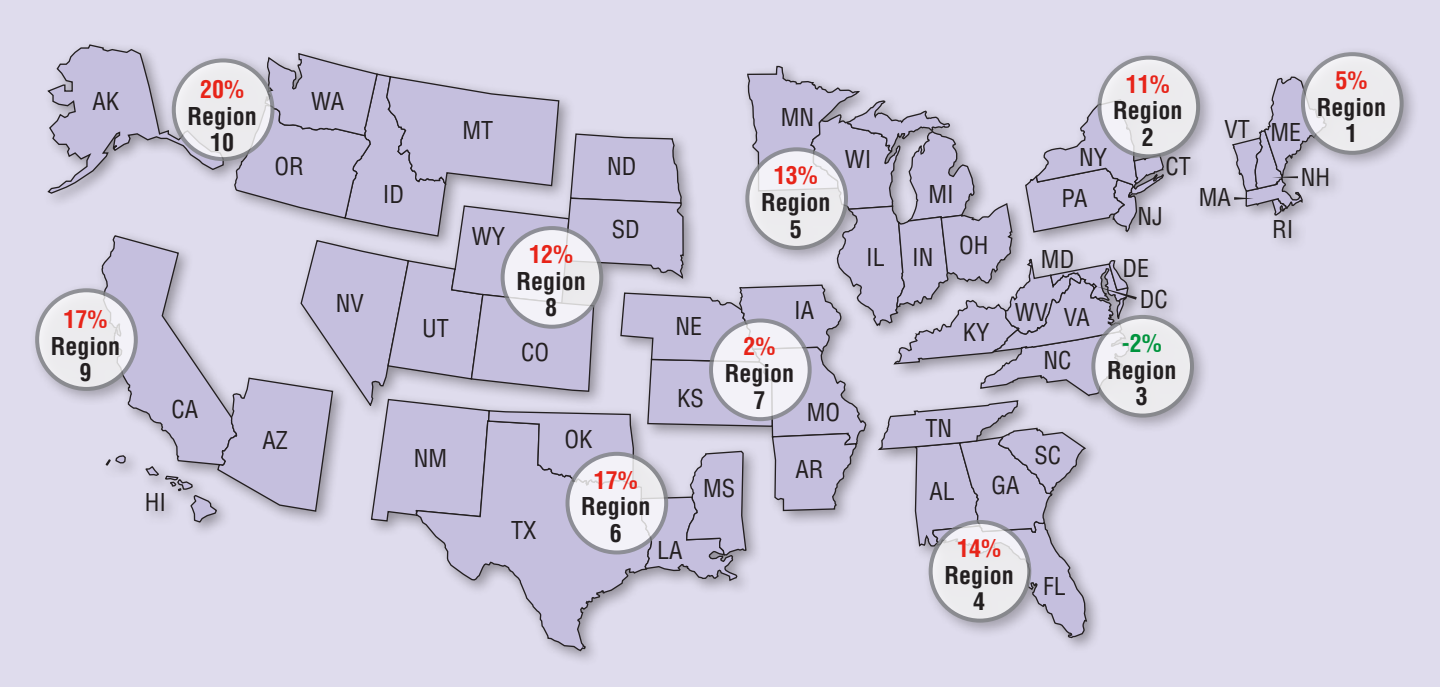
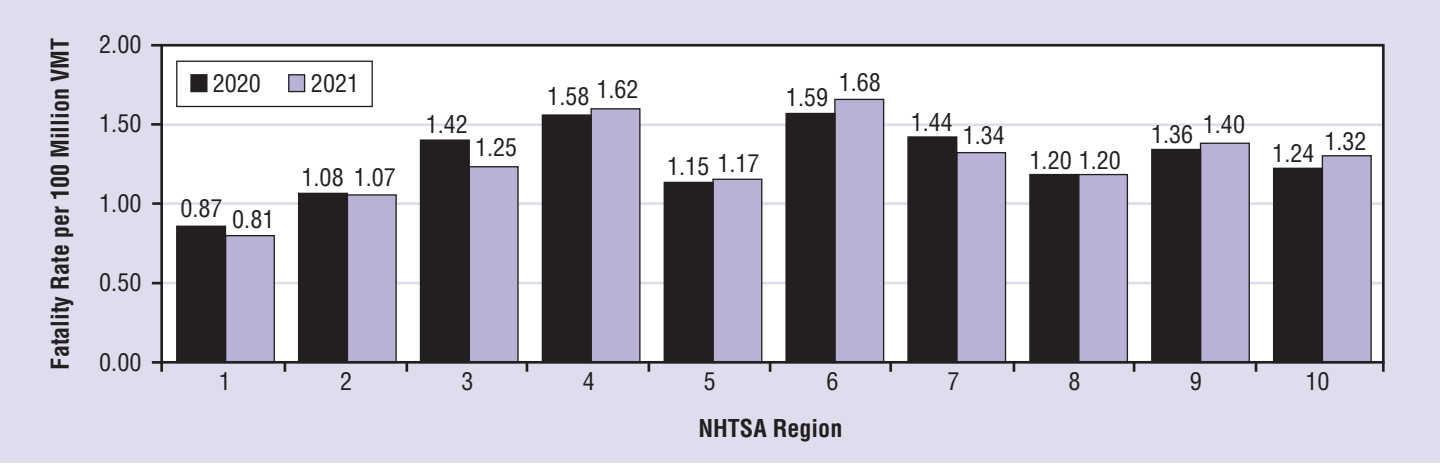


Figure 3: Comparison of Estimated Fatality Rate in the First 9 Months of 2021 With Estimated Fatality Rate in the First 9 Months of 2020, by NHTSA Region



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

State Differences

Given the significant changes in fatalities in 2020 and 2021, there has been significant interest in the traffic safety community in estimated changes at the State level to assess emerging trends. Subsequently, NHTSA has developed a methodology to generate such State-level estimates based on the distribution of estimated fatalities by State in a NHTSA Region and the month (see "*Data and Methodology*" section for more details). Table 3 shows the comparison of State's estimate in 2021 with the projected 2020 fatality counts and the percentage change in the first 9 months of 2021 from the same period of 2020; thirty-eight States are projected to have experienced increases in fatalities during the first 9 months of 2021 as compared to the corresponding period in 2020 while 2 States remained unchanged and 10 States and the District of Columbia are projected to have decreases. These estimates by State shown in Table 3 are subject to change as the FARS annual report files for 2020 and 2021 are available next year.

Table 3: Estimated Fatalities in the First 9 Months of 2021, and the Percentage Change in Estimated Fatalities From the Corresponding Estimate in 2020, by State

State	2020†	2021†	Percent Change	State	2020†	2021†	Percent Change
Alabama	664	731	10.1%	Montana	151	179	18.5%
Alaska	53	51	-3.8%	Nebraska	185	151	-18.4%
Arizona	744	881	18.4%	Nevada	223	290	30.0%
Arkansas	491	507	3.3%	New Hampshire	79	87	10.1%
California	2,770	3,246	17.2%	New Jersey	416	496	19.2%
Colorado	469	492	4.9%	New Mexico	301	360	19.6%
Connecticut	216	253	17.1%	New York	765	811	6.0%
Delaware	92	88	-4.3%	North Carolina	1,190	1,202	1.0%
District of Columbia	29	28	-3.4%	North Dakota	72	89	23.6%
Florida	2,417	2,839	17.5%	Ohio	903	1,039	15.1%
Georgia	1,185	1,330	12.2%	Oklahoma	477	518	8.6%
Hawaii	60	68	13.3%	Oregon	341	441	29.3%
Idaho	151	206	36.4%	Pennsylvania	823	903	9.7%
Illinois	839	993	18.4%	Rhode Island	53	49	-7.5%
Indiana	639	699	9.4%	South Carolina	776	851	9.7%
Iowa	247	264	6.9%	South Dakota	102	118	15.7%
Kansas	321	308	-4.0%	Tennessee	885	1,015	14.7%
Kentucky	580	562	-3.1%	Texas	2,751	3,365	22.3%
Louisiana	605	692	14.4%	Utah	204	229	12.3%
Maine	128	110	-14.1%	Vermont	55	54	-1.8%
Maryland	424	368	-13.2%	Virginia	631	639	1.3%
Massachusetts	258	298	15.5%	Washington	424	467	10.1%
Michigan	795	882	10.9%	West Virginia	192	198	3.1%
Minnesota	294	369	25.5%	Wisconsin	463	463	0.0%
Mississippi	560	560	0.0%	Wyoming	98	92	-6.1%
Missouri	731	789	7.9%	**Total‡**	**28,325**	**31,720**	**12.0%**

†2020 and 2021 statistical projections based on these projections.
‡Unrounded State's fatalities estimate summation.

Discussion

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 9 months of 2021 (the degree of increase has greatly reduced during June-September). The increased trend in fatality rate per 100 million VMT continued into the first quarter of 2021, but the fatality rate has decreased in the second and third quarters of 2021 compared to 2020. 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 next year, which usually results in the revision of fatality totals and the ensuing fatality rates and percentage changes.

Data and Methodology

The data used in this analysis come 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 September 2021 are used. MFCs are reported mid-month for all prior months of the year. In order to estimate the traffic fatality counts for 2021, 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). Furthermore, after the projected fatality counts for NHTSA Region (r) and the month (m), F_Est_{mr}, are obtained, the estimated fatality counts for a State (st) in Region r and the month m, $F\_Est_{st|mr}$, can be calculated in term of the distribution of the fatalities by State st in Region r and the month m ($F_{st|mr}$): $F\_Est_{st|mr} = (F_{st|mr} / \sum_{all\ States\ in\ r} F_{st|mr}) \times F\_Est_{mr}$. For example, the estimated fatalities for Arizona in Region 9 (AZ, CA, HI) and the month m is: $F\_Est_{AZ|m9} = (F_{AZ|m9} / (F_{AZ|m9} + F_{CA|m9} + F_{HI|m9})) \times F\_Est_{m9}$.

The methodology used to generate the national and regional 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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