



Early Estimate of Motor Vehicle Traffic Fatalities for the First Quarter of 2022

Summary

A statistical projection of traffic fatalities for the first quarter of 2022 shows that an estimated 9,560 people died in motor vehicle traffic crashes. This represents an increase of about 7.0 percent as compared to 8,935 fatalities projected to have occurred in the first quarter of 2021, as shown in Table 1. This also represents the highest number of fatalities in Q1 since 2002. Preliminary data reported by the Federal Highway Administration (FHWA) shows that vehicle miles traveled (VMT) in the first 3 months of 2022 increased by about 40.2 billion miles, or about a 5.6 percent increase. Also shown in Table 1 are the fatality rates per 100 million VMT, by quarter. The fatality rate for the first quarter of 2022 increased to 1.27 fatalities per 100 million VMT, up from the projected rate of 1.25 fatalities per 100 million VMT

in the first quarter of 2021. For the NHTSA Region 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 quarter of 2022 as compared to the first quarter of 2021. Also, 32 States and the District of Columbia are projected to have experienced increases in fatalities. The actual counts for 2021 and 2022 and the ensuing percentage changes from 2021 to 2022 will be further revised as the annual reporting FARS files for 2021 are available later this year, as well as when the Final File for 2021 and the Annual Reporting File for 2022 are available next year. These estimates will be further refined when the projections for the first 6 months of 2022 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 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%]
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	7,832 [-4.5%]	9,193 [-1.4%]	9,994 [+0.6%]	9,336 [-0.4%]	36,355 [-1.3%]
2020	7,893 [+0.8%]	9,141 [-0.6%]	11,315 [+13.2%]	10,475 [+12.2%]	38,824 [+6.8%]
2021†	8,935 [+13.2%]	11,135 [+21.8%]	11,780 [+4.1%]	11,065 [+5.6%]	42,915 [+10.5%]
2022†	9,560 [+7.0%]	—	—	—	—
Fatality Rate per 100 Million Vehicle Miles Traveled (VMT)					
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	1.09	1.18	1.14	1.11
2020	1.08	1.43	1.44	1.40	1.34
2021†	1.25	1.34	1.37	1.35	1.33
2022†	1.27	—	—	—	—

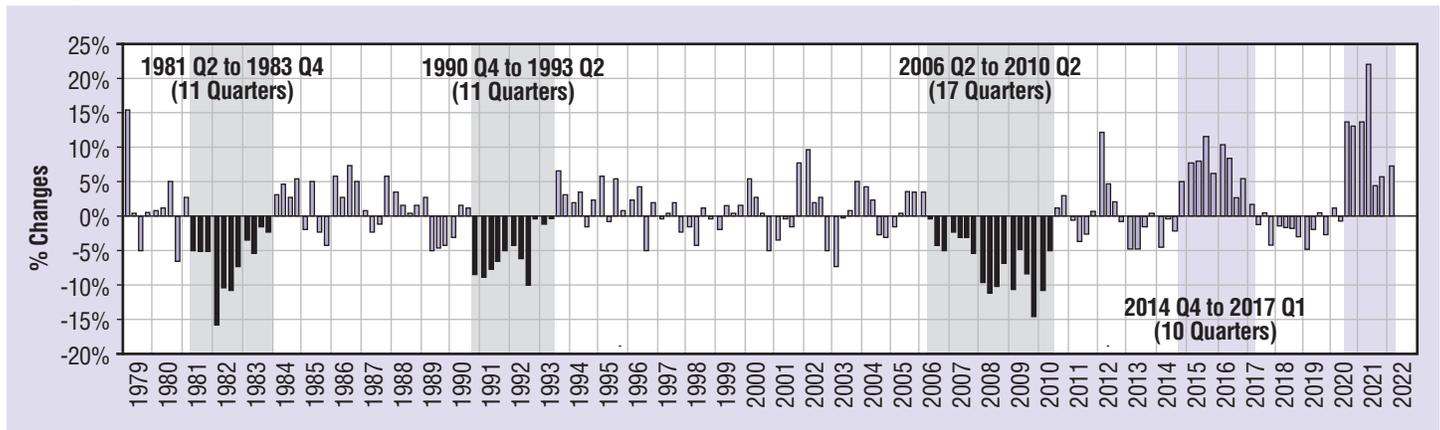
†2021 and 2022 statistical projections and rates based on these projections.

Sources: Fatalities: 2011–2019 FARS Final File, 2020 FARS Annual Report File; VMT: FHWA March 2022 Traffic Volume Trends for 2021 and 2022 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. As of the first quarter of 2022, there have been 7 consecutive quarters of increases since the third quarter of 2020. 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 Compared to the Fatalities in the Same Quarter During the Previous Year



Sources: 1979–2019 FARS Final File, 2020 FARS Annual Report File. 2021 and 2022 statistical projections.

The quarterly projections of fatalities, fatality rates, and VMT are further split into monthly estimates for 2021 and 2022, as shown in Table 2. February has the greatest increase in fatalities (15.7%) for the quarter. The fatality

rate per 100 million VMT shows a marginal decrease in January but an increase in February and March, as compared to the corresponding month in 2021.

Table 2: Fatalities, VMT, Fatality Rate by Month or Quarter in 2022, and the Percentage Change in Fatalities and VMT From The Corresponding Month or Quarter in 2021

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 2022 and Percentage Change in Fatalities for the Corresponding Month and Quarter From 2021																
2021 [†]	3,130	2,585	3,220	8,935	3,570	3,775	3,790	11,135	3,875	4,040	3,865	11,780	4,085	3,555	3,425	11,065
2022 [†]	3,220 2.9%	2,990 15.7%	3,350 4.0%	9,560 7.0%	—	—	—	—	—	—	—	—	—	—	—	—
Fatality Rate per 100 Million Vehicle Miles Traveled (VMT)/VMT (in Billion) and Percentage Change in VMT																
2021 [†]	1.35 231.0	1.21 213.0	1.20 269.4	1.25 713.4	1.38 259.2	1.33 284.3	1.32 286.9	1.34 830.4	1.31 296.5	1.41 287.4	1.39 278.0	1.37 861.9	1.43 285.8	1.33 267.7	1.28 268.4	1.35 821.9
2022 [†]	1.34 240.5 4.1%	1.27 235.8 10.7%	1.21 277.4 3.0%	1.27 753.7 5.6%	—	—	—	—	—	—	—	—	—	—	—	—

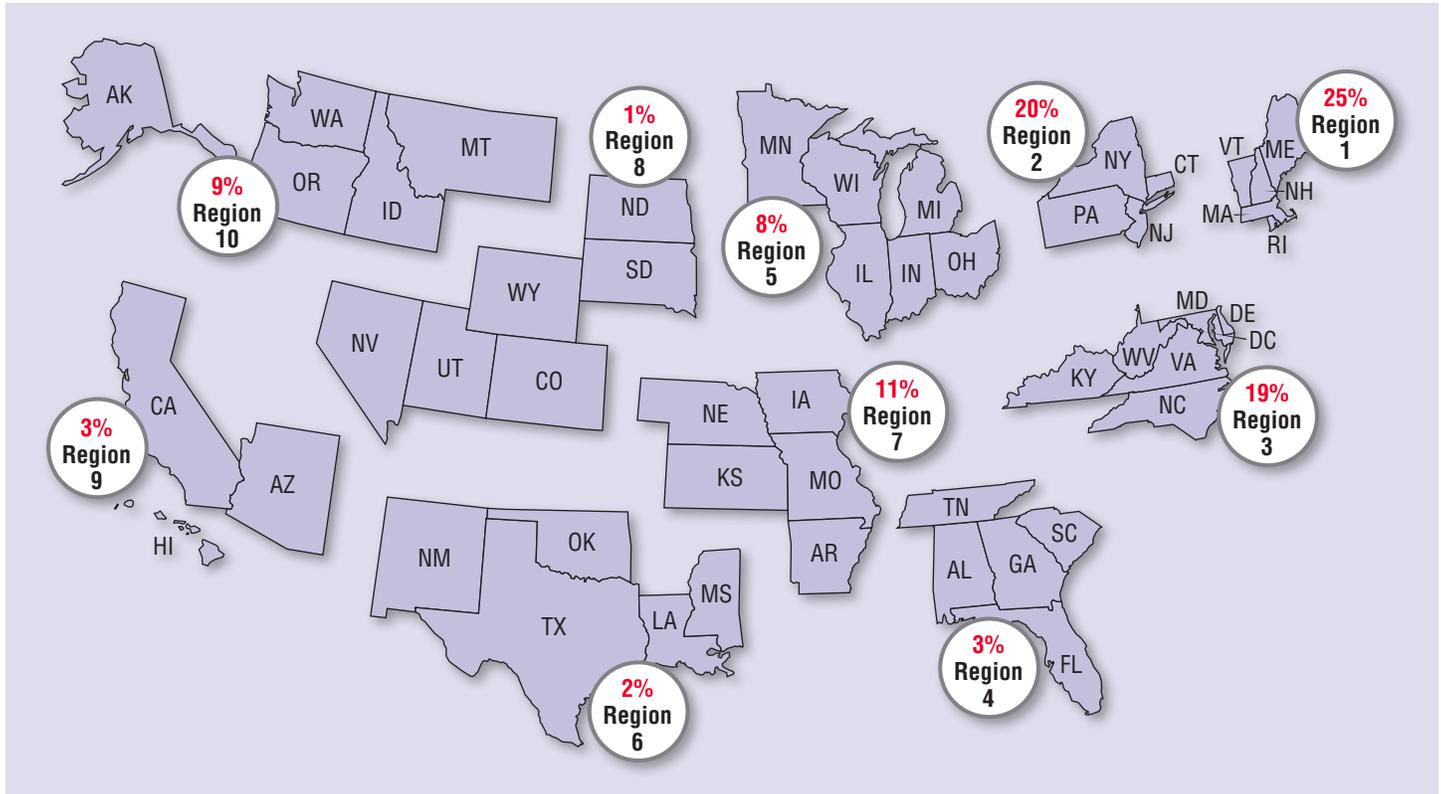
[†]2021 and 2022 Statistical projections and rates based on these projections.
Sources: VMT: FHWA March 2022 Traffic Volume Trends for 2020 and 2022 VMT.

Regional Differences

The statistical procedures used 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 2022 with the projected 2021 counts. Figure 2 shows the percentage change in estimated fatalities in the first quarter of 2022 from the projected fatalities in the same quarter of 2021 by NHTSA Region; all 10 Regions experienced increases.

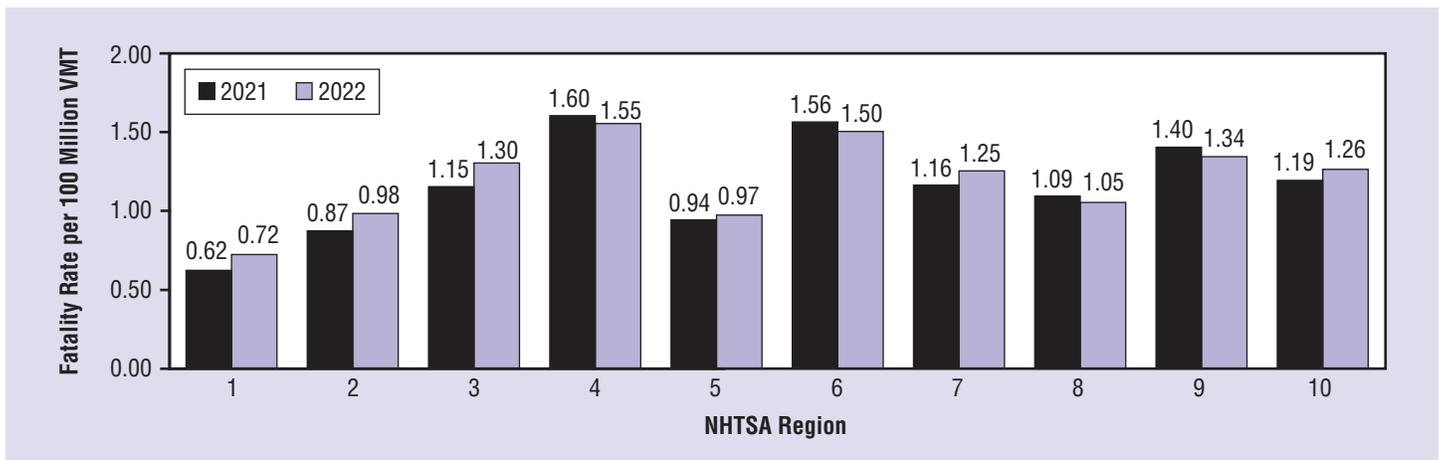
Figure 3 shows the comparison of the estimated fatality rate per 100 million VMT in the first quarter of 2022 with the projected fatality rate per 100 million VMT in the same quarter of 2021, by NHTSA Region; 6 of the 10 Regions presented increases. These estimates by NHTSA Region shown in Figures 2 and 3 are subject to change as fatality counts for 2021 and 2022 are reported.

Figure 2: Percentage Change in Estimated Fatalities in First Quarter of 2022 From Projected Same Quarter of 2021 Fatality Counts, by NHTSA Region



Sources: 2021 and 2022 statistical projections. Puerto Rico is not included in Region 2.

Figure 3: Comparison of Estimated Fatality Rate in First Quarter of 2022 With Projected Fatality Rate in the First Quarter of 2021, by NHTSA Region



Source: FHWA March 2022 Traffic Volume Trends for 2021 and 2022 VMT. Puerto Rico is not included in Region 2.

State Differences

Given the significant interest in the traffic safety community in estimated changes at the State level to assess emerging trends, NHTSA has developed a methodology in the third quarter of 2021 to generate such State-level estimates based on the most recent distribution of the 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 the first quarter of 2022 with the projected fatality counts in the

first quarter of 2021 and the percentage change in 2022 from 2021; 32 States and the District of Columbia are projected to have experienced increases in fatalities in 2022 as compared to 2021, while 2 States remained unchanged and 16 States and Puerto Rico are projected to have had decreases. These estimates by State shown in Table 3 are subject to change as fatality counts for 2021 and 2022 are reported.

Table 3: Estimated Fatalities in the First Quarter of 2022, and the Percentage Change in Estimated Fatalities From the Projected Fatalities in the First Quarter of 2021, by State

State	2021	2022	Percent Change	State	2021	2022	Percent Change
Alabama	226	205	-9.3%	Nebraska	45	71	57.8%
Alaska	12	14	16.7%	Nevada	83	86	3.6%
Arizona	277	241	-13.0%	New Hampshire	22	22	0.0%
Arkansas	136	126	-7.4%	New Jersey	131	140	6.9%
California	1,018	1,079	6.0%	New Mexico	91	106	16.5%
Colorado	123	137	11.4%	New York	170	240	41.2%
Connecticut	53	91	71.7%	North Carolina	334	399	19.5%
Delaware	19	39	105.3%	North Dakota	24	14	-41.7%
District of Columbia	8	10	25.0%	Ohio	268	233	-13.1%
Florida	988	1,040	5.3%	Oklahoma	127	125	-1.6%
Georgia	420	472	12.4%	Oregon	119	133	11.8%
Hawaii	24	37	54.2%	Pennsylvania	236	240	1.7%
Idaho	41	35	-14.6%	Rhode Island	14	7	-50.0%
Illinois	225	276	22.7%	South Carolina	262	250	-4.6%
Indiana	175	214	22.3%	South Dakota	32	24	-25.0%
Iowa	48	69	43.8%	Tennessee	279	278	-0.4%
Kansas	89	91	2.2%	Texas	1,014	1,063	4.8%
Kentucky	162	163	0.6%	Utah	64	74	15.6%
Louisiana	203	200	-1.5%	Vermont	9	15	66.7%
Maine	23	33	43.5%	Virginia	170	226	32.9%
Maryland	110	130	18.2%	Washington	116	156	34.5%
Massachusetts	68	91	33.8%	West Virginia	53	53	0.0%
Michigan	212	215	1.4%	Wisconsin	86	120	39.5%
Minnesota	75	64	-14.7%	Wyoming	24	18	-25.0%
Mississippi	189	162	-14.3%	U.S. Total *	8,935	9,560	7.0%
Missouri	184	201	9.2%	Puerto Rico	82	60	-26.6%
Montana	52	34	-34.6%				

*Unrounded States’ Fatalities Estimate Summation (Puerto Rico is not included).
Sources: 2021 and 2022 statistical projections.

Discussion

During the COVID-19 pandemic, there were marked increases in fatalities and the fatality rate per 100 million VMT in 2020. The increased trend of fatalities in 2020 have continued into 2021 and the first quarter of 2022. The increased trend of the fatality rate per 100 million VMT in 2020 has continued into the first quarter of 2021, but decreased in the second, third, and fourth quarters of 2021, and increased again in the first quarter of 2022. NHTSA is continuing to gather and finalize data on crash fatalities for 2021 and 2022 using information from police crash reports and other sources. The Final File for 2020 as well as the Annual Report File for 2021 will be available in late fall of 2022 that 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 2019 and FARS Annual Report File in 2020 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 2022 are used. MFCs are reported mid-month for all prior months of the year. In order to estimate the traffic fatality counts for 2022, the Time Series Cross-Section Regression (TSCSR) procedure 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 ($F_Est_{st|mr}$) are calculated. Each State receives a proportion of the projected fatality counts for the Region using the most recent relative proportion of fatalities in each State st for Region r and month m found in the Early Notification data. This can be expressed as $F_Est_{st|mr} = (F_{st|mr} / \sum_{all\ States\ in\ r} F_{st|mr}) \times F_Est_{mr}$, where $F_{st|mr}$ is the latest fatal count in the Early Notification data for State st in Region r and month m . That is, the inflation rate for all States within a region is assumed to be the same as the inflation rate of that region. For example, the estimated motor vehicle traffic 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, regional, and State-level estimates for the first quarter of 2022 is the same as the one used by NHTSA to project the increase in the fatalities for 2021 (*Early Estimates of Motor Vehicle Traffic Fatalities in 2021*, Report No. DOT HS 813 283).

September 2022 Revisions: NHTSA revised the estimates of traffic fatalities for the first quarter of 2022, first published in July 2022. NHTSA discovered unique issues with the input of 2022 data from its Early Notification (EN) and Monthly Fatality Count (MFC) systems in calculating these projections. The data input issues affected the inflation factors computed and applied to the overall State fatality totals to account for underreporting. Therefore, the projections for two of the Regions (NHTSA Regions 3 and 9) were revised. Projected deaths during the first quarter of 2022 for Region 3 were revised lower, while projections for Region 9 were revised higher. There were minor changes to the projections for the other Regions. Consequently, this did not result in a revision of the projected fatalities for the Nation as a whole.

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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/>



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