



Early Estimate of Motor Vehicle Traffic Fatalities for the First Quarter of 2020

Summary

A statistical projection of traffic fatalities for the first quarter of 2020 shows that an estimated 7,780 people died in motor vehicle traffic crashes. This represents a decrease of about 1 percent as compared to 7,850 fatalities that were projected to have occurred in the first quarter of 2019, as shown in Table 1. Preliminary data reported by the Federal Highway Administration (FHWA) shows that vehicle miles traveled (VMT) in the first 3 months of 2020 decreased by about 40.1 billion miles, or about a 5.4 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 2020 increased to 1.10 fatalities per 100

million VMT, up from the projected rate of 1.05 fatalities per 100 million VMT in the first quarter of 2019. The actual counts for 2019 and 2020 and the ensuing percentage change from 2019 to 2020 will be further revised as the annual reporting FARS files for 2019 are available later this year, as well as when the final file for 2019 and the annual reporting file for 2020 are available next year. These estimates will be further refined when the projections for the first 6 months of 2020 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 Previous Year					
2008	8,459 [-9.6%]	9,435 [-11.1%]	9,947 [-10.0%]	9,582 [-6.4%]	37,423 [-9.3%]
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	8,189 [-1.3%]	9,290 [-1.8%]	9,856 [-2.2%]	9,225 [-4.2%]	36,560 [-2.4%]
2019 [†]	7,850 [-4.1%]	9,200 [-1.0%]	9,870 [+0.1%]	9,200 [-0.3%]	36,120 [-1.2%]
2020 [†]	7,780 [-0.9%]	—	—	—	—
Fatality Rate per 100 Million VMT					
2008	1.22	1.25	1.33	1.32	1.26
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	1.15	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	1.10	1.17	1.14	1.13
2019 [†]	1.05	1.08	1.15	1.12	1.10
2020 [†]	1.10	—	—	—	—

[†]2019 and 2020 statistical projections and rates based on these projections.
Fatalities: 2008-2017 FARS Final File, 2018 FARS Annual Report File.
VMT: FHWA March 2020 Traffic Volume Trends for 2019 & 2020 VMT

To examine the effect of national COVID-19 pandemic quarantines and shelter-in-place started in mid-March 2020 on traffic fatalities, VMT, and fatality rate per 100 million VMT, the quarterly data is split into monthly ones for 2019-2020.

Table 2 shows an increase of fatality rate per 100 million VMT in March 2020 despite a 10-percent drop in traffic fatalities as compared to March 2019.

Table 2: Fatalities, VMT, Fatality Rate by Month or Quarter in 2020, and the Percentage Change in Fatalities From the Corresponding Month or Quarter in 2019

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 and Percentage Change in Fatalities for the Corresponding Month and Quarter From 2019																
2019†	2,650	2,400	2,800	7,850	2,840	3,200	3,160	9,200	3,310	3,310	3,250	9,870	3,150	3,050	3,000	9,200
2020†	2,650 0%	2,600 8.3%	2,530 -9.6%	7,780 -0.9%	—	—	—	—	—	—	—	—	—	—	—	—
Fatality Rate per 100 Million Vehicle Miles of Travel (VMT)/VMT (in Billion)**																
2019†	1.07 248.3	1.06 226.7	1.03 271.6	1.05 746.6	1.01 281.6	1.12 286.2	1.12 281.4	1.08 849.2	1.12 295.7	1.15 286.8	1.19 271.9	1.15 854.4	1.11 284.1	1.17 260.5	1.10 274.1	1.12 818.7
2020†	1.04 253.6	1.12 232.0	1.14 221.0	1.10 706.6	—	—	—	—	—	—	—	—	—	—	—	—

†2019 and 2020 statistical projections and rates based on these projections.

*February 29, 2020, was a leap day.

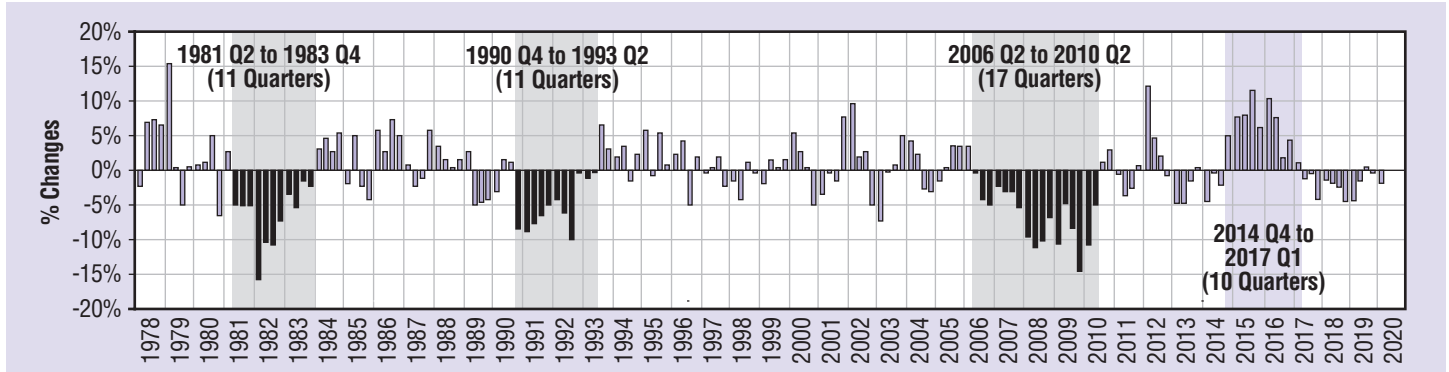
**According to the estimates of VMT reported by FHWA, VMT increased by 2.1% in January, 2.3% in February and declined significantly (down 18.6%) in March, as compared to the corresponding monthly VMTs in 2019.

VMT: FHWA March 2020 Traffic Volume Trends for 2019 & 2020 VMT

Figure 1 shows the historical trend of the percentage change in fatalities every quarter from the same quarter in the previous year, going back to 1978. NHTSA has fatality data going back to 1975, and the shading in the chart depicts the years during which there were significant number 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. Also, more recently, a significant increase in fatalities occurred over 10 consecutive quarters ending after the first quarter of 2017.

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



Discussion

The National Highway Traffic Safety Administration is continuing to gather and finalize data on crash fatalities for 2018 and 2019 using information from police crash reports and other sources. It is too soon to speculate on the contributing factors or potential implications of any changes in deaths on our roadways. The final file for 2018 as well as the annual report file for 2019 will be available in late fall of 2020 which usually results in the revision of fatality totals and the ensuing rates and percentage changes. NHTSA has already reported that fatalities increased in 2018 compared to 2017 in the following categories: large-truck occupants, pedestrians, and pedalcyclists (*2018 Fatal Motor Vehicle Crashes: Overview*, Report No. DOT HS 812 826).

From 2012 to 2014, since recording a significant increase of 11.8 percent during the first quarter of 2012, the magnitude of the increases steadily declined during each subsequent quarter. Fatalities are reported to have increased by about 4.7 percent in the second quarter and by about 2.1 percent in the third quarter of 2012. Subsequently, beginning with the fourth quarter of 2012, fatalities have declined in 7 out of 8 quarters (2013 Q4 was a slight increase) until the 4.9-percent increase reported for the fourth quarter of 2014. Fatalities increased 10 consecutive quarters beginning with the fourth quarter of 2014, until the 1.1-percent decline seen in the second quarter of 2017. The second quarter of 2019 represents the seventh consecutive quarter with year-to-year decreases in fatalities since the fourth quarter of 2017. The fourth quarter of 2019 represents the eleventh consecutive quarter with year-to-year decreases in fatality rate since the second quarter of 2017.

Data

The data used in this analysis comes from several sources: NHTSA's Fatality Analysis Reporting System (FARS), FastFARS (FF), and Monthly Fatality Counts (MFC); 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 2017 and FARS Annual Report file in 2018 are used. The FF program is designed as an Early Fatality Notification System to capture fatality counts from States more rapidly and in real time. It aims to provide near-real-time notification of fatality counts from all jurisdictions reporting to FARS. The MFC data provides monthly fatality counts by State through sources that are independent from the FastFARS or FARS systems. MFCs from January 2003 up to April 2020 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 (TSCSR) 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 FF, 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 2020 is the same as the one used by NHTSA to project the decrease in the fatalities for the whole of 2019 (*Early Estimates of Motor Vehicle Traffic Fatalities in 2019*, Report No. DOT HS 812 946).



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