Traffic Safety Facts
Research Note

NHTSA
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Early Estimate of Motor Vehicle Traffic Fatalities in 2008

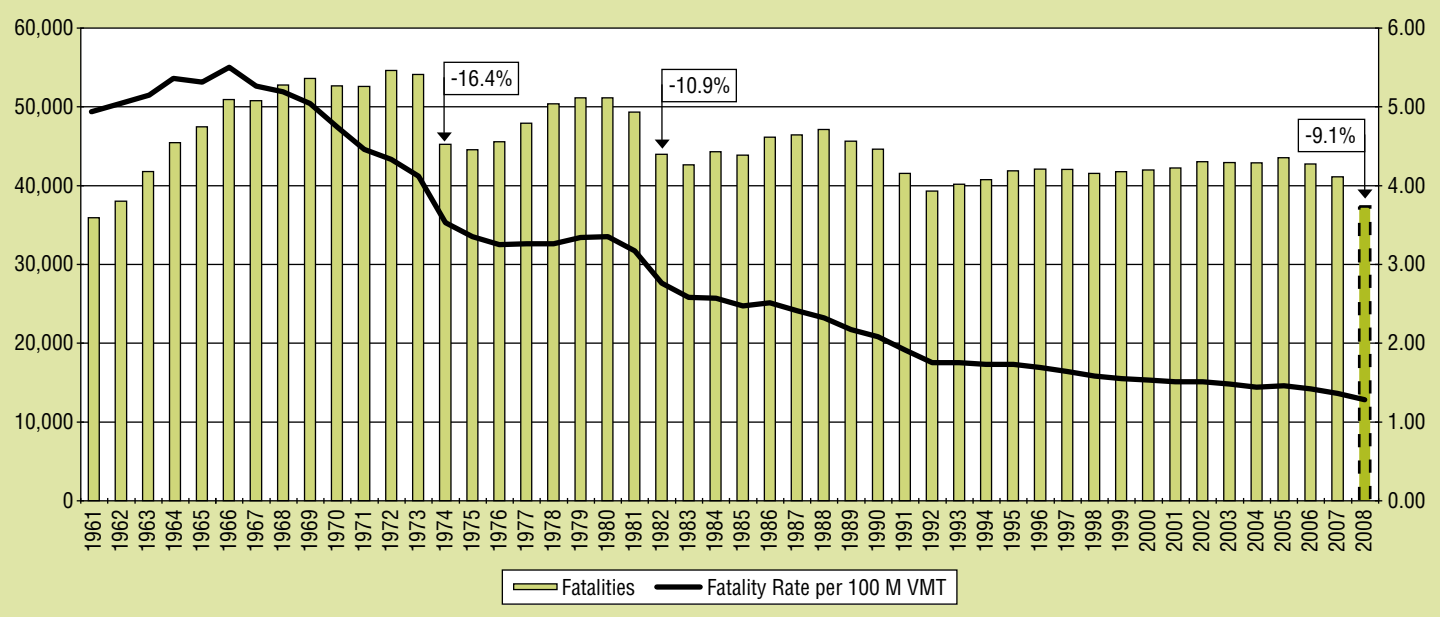
Summary

Based on a statistical projection, in 2008 fatalities in motor vehicle traffic crashes are estimated to have dropped to 37,313 – a 9.1-percent decline from the 41,059 fatalities reported in 2007. The actual count of fatalities will be reported in August 2009. Preliminary data reported by the Federal Highway Administration shows that vehicle miles traveled (VMT) in 2008 dropped by about 3.6 percent to 2,922 billion miles. The fatality rate, computed per 100 million VMT, dropped from 1.36 in 2007 to 1.28 in 2008. Figure 1 depicts the trend of fatalities and the fatality rate from 1966. If these projections are realized, fatalities and the fatality rate will be the lowest on record (since 1961). Also, the projected decline in 2008 will represent the third-largest decline, both in the number and percentage, on record (since 1961). The largest decline since 1961 was 16.4 percent in 1974, followed by a 10.9-percent decline in 1982.

Month-to-Month Comparisons with 2007

As shown in Figures 2 and 3, declines in fatalities have been estimated for each month in 2008 although the extent of the decline each month has fluctuated. Fatalities declined in both January (-6.9%) and February (-1.7%), with the most significant decline for the year estimated for March (-18.3%). Declines from April through July ranged from 9.3 percent in June to 14.7 percent in July before narrowing significantly in August (-2.3%), possibly due to a large portion of the Labor Day holiday travel period falling in August this year. Fatalities are estimated to have declined by about 13 percent in September before narrowing during the last three months with declines of about 6.5 percent in October and November and 3.5 percent in December. Also shown in Figure 3 are the corresponding month-to-month declines in vehicle miles of travel (VMT) in 2008 as compared to 2007, as estimated by the Federal Highway Administration (FHWA) in its December 2008 Traffic Volume Trends publication.

Figure 1: Reported Fatalities and Fatality Rates per 100 Million VMT From 1961-2007* and Projected Fatalities in 2008



*1961-1974 - National Center for Health Statistics, HEW and State Accident Summaries (Adjusted to 30-Day Traffic Deaths by NHTSA), 1975-2007 NHTSA Fatality Analysis Reporting System (FARS), 2008 Statistical Projections

Figure 2: Reported Fatalities in 2007 and Projected Fatalities in 2008, January to December

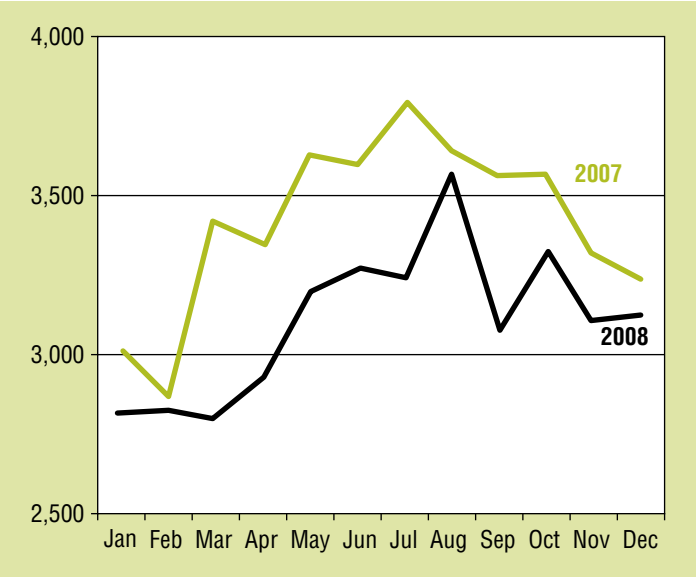
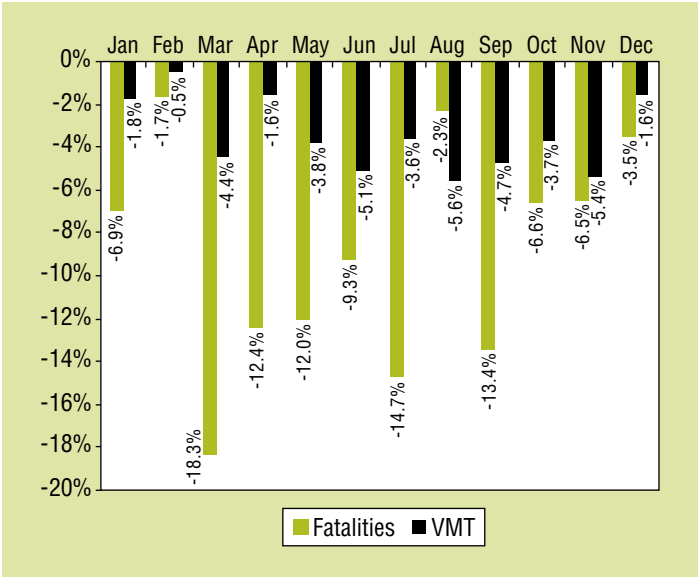


Figure 3: Percentage Change in Projected Traffic Fatalities and VMT in 2008, as Compared to 2007



As shown in Table 1, an estimated 37,313 fatalities occurred in 2008. A month-by-month comparison with the 2007 fatality counts shows that August is the month with the highest fatalities (3,569), while March has the lowest fatalities (2,797). Also shown in Table 1 are the fatality rates per 100 million VMT, as reported by FHWA. In 2008, the estimated fatality rate was 1.28, as compared to 1.36 for 2007. In 2008, the fatality rate for March was the lowest during the year at 1.13 and peaked in August at 1.39. The fatalities as well as the fatality rates are subject to change as FHWA revises its VMT estimates and NHTSA revises its estimates of fatalities based on data that is being continually reported and updated.

Table 1: National Estimate of Fatalities and Fatality Rate in 2008 and Its Comparison With Fatality Counts and Rates From FARS in 2007

Month	Fatalities from FARS in 2007*	Estimate of fatalities for 2008	Difference (08-07) (%)	2007 fatality rate per 100 million VMT	2008 fatality rate per 100 million VMT**
Jan	3,028	2,820	-6.9%	1.30	1.23
Feb	2,876	2,828	-1.7%	1.32	1.30
Mar	3,424	2,797	-18.3%	1.32	1.13
Apr	3,351	2,937	-12.4%	1.33	1.18
May	3,631	3,197	-12.0%	1.36	1.24
June	3,608	3,273	-9.3%	1.36	1.30
July	3,800	3,243	-14.7%	1.42	1.26
Aug	3,653	3,569	-2.3%	1.35	1.39
Sept	3,562	3,084	-13.4%	1.45	1.31
Oct	3,569	3,335	-6.6%	1.36	1.32
Nov	3,322	3,107	-6.5%	1.35	1.34
Dec	3,235	3,123	-3.5%	1.34	1.32
Total	**41,059**	**37,313**	**-9.1%**	**1.36****	**1.28****

*FARS annual file in 2007
**Based on December 2008 Traffic Volume Trends from FHWA

Regional Differences

As discussed in the methodology section later on this note, the statistical procedures employed in these projections were generated for each Region (NHTSA administrative Regions, see Figure 4) and were collated back together to create the national estimate. This allows for the comparison of regional estimates in 2008 with the 2007 counts, as depicted in the map in Figure 4.

Figure 4: Percentage Change in Estimated Fatalities in 2008 From 2007 Fatality Counts, by NHTSA Region

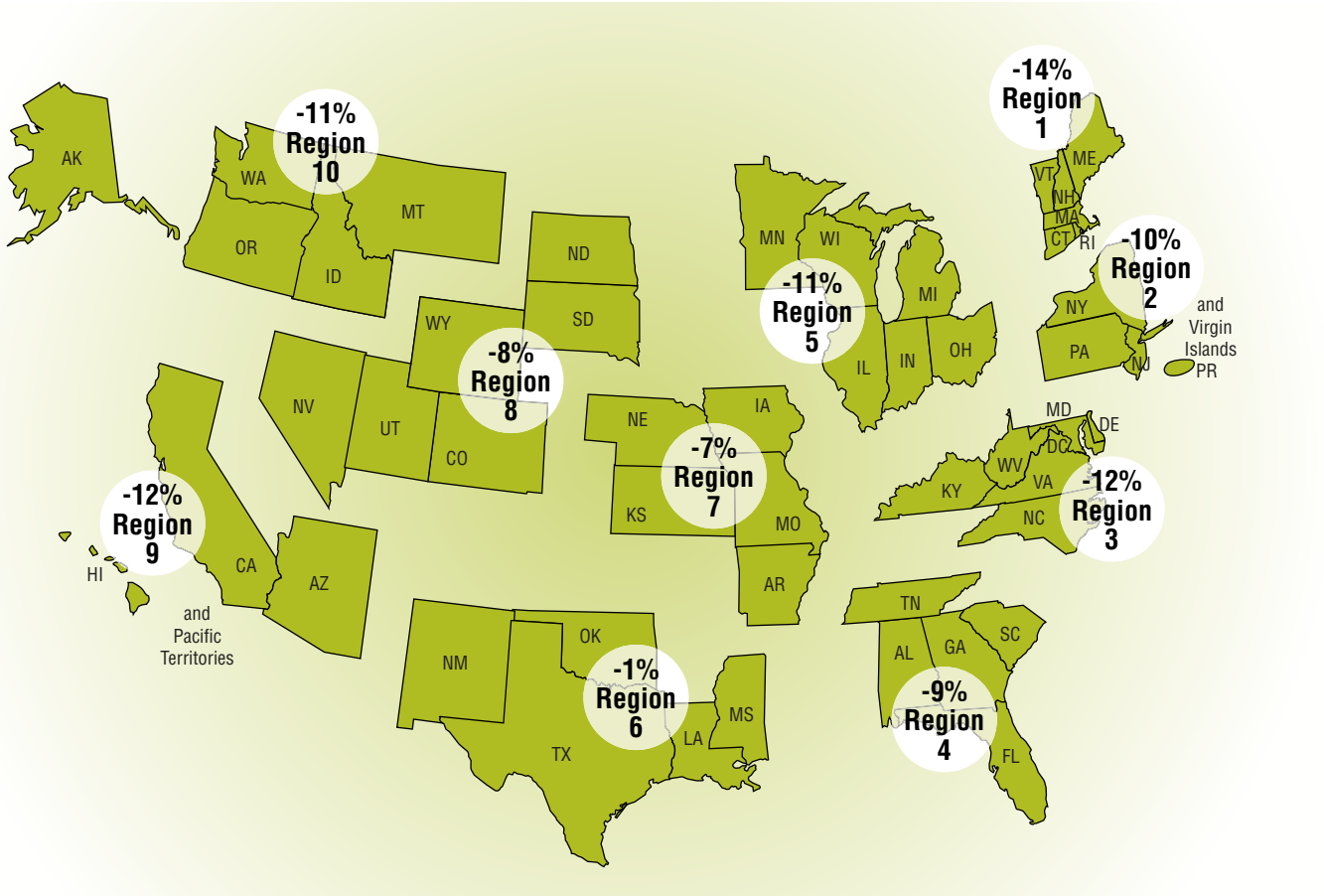


Table 2 depicts the counts and estimates underlying the percentage changes shown in Figure 4. While all 10 Regions experienced declines in 2008 as compared to 2007, the magnitude of the declines varied. The States in Region 1 (CT, MA, ME, NH, RI and VT) collectively had the largest decline, estimated at about 14 percent, followed by Regions 3, 5, 9, and 10 with declines between 11 to 12 percent. Among other regions, Region 2 had a decline of about 10 percent, Region 4 had approximately a 9-percent decline and Regions 7 and 8 had declines of 7 and 8 percent respectively. Region 6 had the smallest decline, of about 1 percent.

Table 2: Estimate of Fatalities in 2008 and Its Comparison With Fatality Counts From FARS in 2007, by NHTSA Region

NHTSA Region	Fatalities from FARS in 2007*	Estimate of fatalities of 2008	Difference (08-07) (%)
Region 1	1,141	978	-14.3%
Region 2	3,548	3,191	-10.1%
Region 3	4,772	4,188	-12.2%
Region 4	8,241	7,470	-9.4%
Region 5	5,752	5,101	-11.3%
Region 6	6,399	6,310	-1.4%
Region 7	2,759	2,566	-7.0%
Region 8	1,633	1,504	-7.9%
Region 9	5,178	4,549	-12.1%
Region 10	1,636	1,457	-10.9%
Total	**41,059**	**37,313**	**-9.1%**

*FARS annual file in 2007

Data

The data used in this analysis are from several sources such as the Fatality Analysis Reporting System (FARS), FastFARS, Monthly Fatality Counts (MFC), and Motor Gasoline Consumption (MGC). 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 result in the death of a person (occupant of a vehicle or a nonoccupant) within 30 days of the crash. The FARS final files from January 2003 to December 2006 and FARS Annual Report file in 2007 are used. The FastFARS 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 by electronically transmitting the data. 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 December 2008 are used. MFCs are reported mid-month for all prior months of the year. The MGC is an estimate of total gasoline that was sold or delivered by the prime supplier (average consumption per day [unit: 1,000 gallons]). This information is provided by the Energy Information Administration for every State and the District of Columbia. The MGCs from January 2003 to November 2008 are used.

Methodology

FastFARS operated in prototype mode in 2006 and 2007 and in production mode in 2008. While the timeliness and accuracy of FastFARS has considerably improved since its inception in 2006, there still remain under-reporting and other non-response problems in various States. The fatality counts from MFC are updated every month and become stable after a certain time. Similarly, the fatality counts from FastFARS are continuously updated due to real-time notification and stabilize after a certain lag time. However, historically FastFARS and MFC produce marginally different monthly fatality counts from FARS even after they become stable. Also, the difference of FastFARS and MFC from FARS fluctuates over time. To address this issue, NHTSA has developed a statistical procedure that is a combination of adjusting the fatality data reported through FastFARS and MFC and modeling the adjusted data to estimate fatalities. Details of the adjustment procedure and the statistical model will be provided in a companion Research Note. In order to estimate the traffic fatality counts for each month of 2008, Time Series Cross-Section Regression (TSCSR) was applied to analyze the data with both cross-sectional values (by NHTSA region) and time series, where the relationship among FARS, MFC, FastFARS, and MGC was used by including MGC and the adjusted MFC and FastFARS values as predictor variables. In the model, MGC as a predictor variable depicted a statistically insignificant relationship to fatalities when the adjusted MFC and FastFARS were in the model and hence MGC was dropped from the model.

These estimates will continue to be updated monthly as more data gets reported to NHTSA, and final estimates may vary from those provided in this document. The actual monthly traffic fatality counts for 2008 from FARS will be available in August 2009. Also, the confidence intervals around these estimates will be presented in a companion Research Note.

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