



2001 Motor Vehicle Traffic Crashes Injury and Fatality Estimates Early Assessment

Judith Hilton and Umesh Shankar*

Introduction

Early Assessment estimates based on NHTSA's *Fatality Analysis Reporting System* and the *NASS General Estimates System* revealed that approximately 41,730 persons were killed and 3,031,000 persons injured on the nation's public roads and highways in the year 2001. This report contains these and other Early Assessment estimates and compares them with estimates in the 2000 Annual Files.

Early Assessment estimates are based on data from sources, which are incomplete or preliminary at this time. Early Assessment estimates for 2001 will be superceded during the summer of 2002 by fatality counts and estimates of those injured from the completed NCSA Annual Report Files and revised exposure data.

Methodology

Fatality estimates in this report are based on the incomplete 2001 FARS Early Assessment (EA) File and the 2000 Annual Report File. Since the degree of completion in the EA File differs from state to state and earlier months are more likely to be complete, each state was assigned a cut-off month representing the last month for which the 2001 file appeared to be sufficiently

complete. A chi-square test using the two files was applied to determine the cut-off month for each state. For the months after the cut-off, data were used from the 2000 Annual Report File. The resulting database was then inflated to totals that were computed from the available Monthly Fatality Counts (MFC)** as follows: Ratios are computed, for each month and region, for the number of 2001 fatalities to 2000 fatalities. This is done by using the set of states that have, historically, had virtually all cases entered by the time the Early Assessment analysis is begun. These ratios are applied to the 2000 Annual Report file to get the "control" totals with which to inflate the hybrid database.

Non-fatal crash and injury estimates were obtained using the fully completed first three quarters of the National Automotive Sampling System General Estimates System (NASS GES) 2001 data file and extrapolating data from the final quarter of the 2000 file. The extrapolation was accomplished by calculating a crash ratio between the first half of the 2001 file and the

***Judith Hilton** is a Program Analyst and **Umesh Shankar** is a Mathematical Statistician in the Mathematical Analysis Division, National Center for Statistics and Analysis, NHTSA.

** The monthly fatality counts are compiled independently by the individual states and have no variables other than the number of fatalities by month.

first half of the 2000 file, and then multiplying the weights for the last quarter of 2000 by this ratio and appending this data to the 2001 file in place of the missing data. Normally the ratio would be calculated using the first three quarters of each data year; however the third quarter of the 2001 file appeared to be atypical, possibly as a result of the events of September 11th and was not used. Since the NASS GES is a sample survey, all estimates based on this file are subject to sampling and non-sampling errors and the sampling variability should be taken into account when interpreting year-to-year differences. (refer to *Traffic Safety Facts 2000 Appendix C* for estimates of standard errors). NASS GES estimates have been rounded to the nearest thousand. All

calculations, (sums, differences and percents of change) were computed before the rounding and may not appear to correspond to rounded numbers shown in the tables.

Exposure data sources, shown in Table 1, include: 1) Projected Vehicle Miles of Travel (VMT) from The Federal Highway Administration's *December 2001 Traffic Volume Report*; 2) Registered Vehicles from NHTSA's revision of Federal Highway Administration estimates; and, 3) Population Data from the U.S. Census Bureau's website <http://eire.census.gov/popest/data/national/populartables>. Population figures used are Census Bureau Estimates for July 1, 2000 and July 1, 2001.

Table 1			
Exposure Data by Year and Percent Change			
2001 Early Assessment			
Exposure	2000	2001	Change
Vehicle Miles Traveled	2,749,803 M	2,778,015 M	1.0%
Registered Vehicles	217,028,324	220,934,834	1.8%
Population	282,124,631	284,796,887	0.9%

Although it is too early to gauge the effects on fatality and injury rates due to the disruption caused by the attacks of September 11th, a comparison of FHWA monthly reporting of VMT for 1999, 2000 and 2001 shows VMT for September 2001 dipping below the level for September in the previous two years, and then jumping above the previous two years for the final quarter.

Principal Findings

Crashes, Injuries and Fatalities

An estimated 41,730 people lost their lives in motor vehicle traffic crashes during the year 2001. This represents a small decrease, only two tenths of a percent, from the 41,821 fatalities reported in 2000 (see Table 2). In the same time frame measures of exposure increased; population by .9%, registered vehicles by 1.8% and Vehicle Miles Traveled by 1.0%. Using these data, fatality rates dropped by about 1.2% per both VMT and Population, and 2.0% per registered vehicles. The number of non-fatal, police reported crashes is estimated at 6,320,000 for the year 2001. This represents a decrease of 36,000 crashes or about half a percent over 2000. Of

these non-fatal crashes, the number of injury crashes decreased by almost 3 percent while the number of injured persons fell by 5 percent. On the other hand, the number of

Property Damage Only (PDO) crashes went up by half a percent. As shown in Table 2 injury rates for the three measures of exposure also dropped relative to 2000.

Table 2 Crashes and Number of Persons Killed and Injured Rates by Year for Vehicle Miles Traveled, Population and Registered Vehicles 2001 Early Assessment								
	2000				2001			
	Number	Rate			Number	Rate		
		100M VMT	100K Pop	100K Reg Veh		100M VMT	100K Pop	100K Reg Veh
Fatal Crashes	37,409	---	---	---	37,299	---	---	---
Persons Killed	41,821	1.52	14.8	19.3	41,730	1.50	14.7	18.9
Non-fatal Crashes	6,356,000	---	---	---	6,320,000	---	---	---
Persons Injured	3,189,000	116	1,130	1,469	3,031,000	109	1,064	1,372

Sources: NHTSA, NCSA: FARS, NASS GES; FHWA; Census Bureau

Trends

The number of persons killed per 100 million VMT continued to decline in 2001. The steady decrease from 1988 is shown in Figure 1.

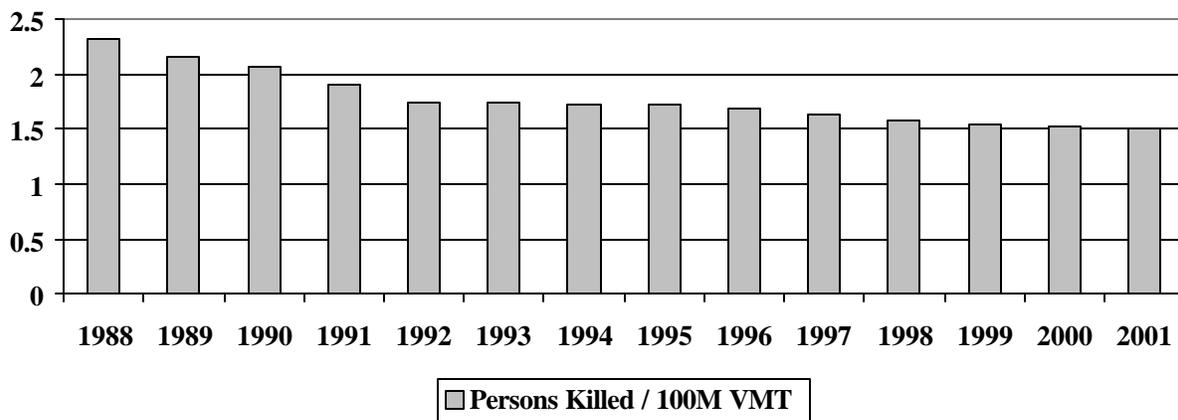


Figure 1

Figure 2 shows the downward trend since 1995 for persons injured per 100 million VMT.

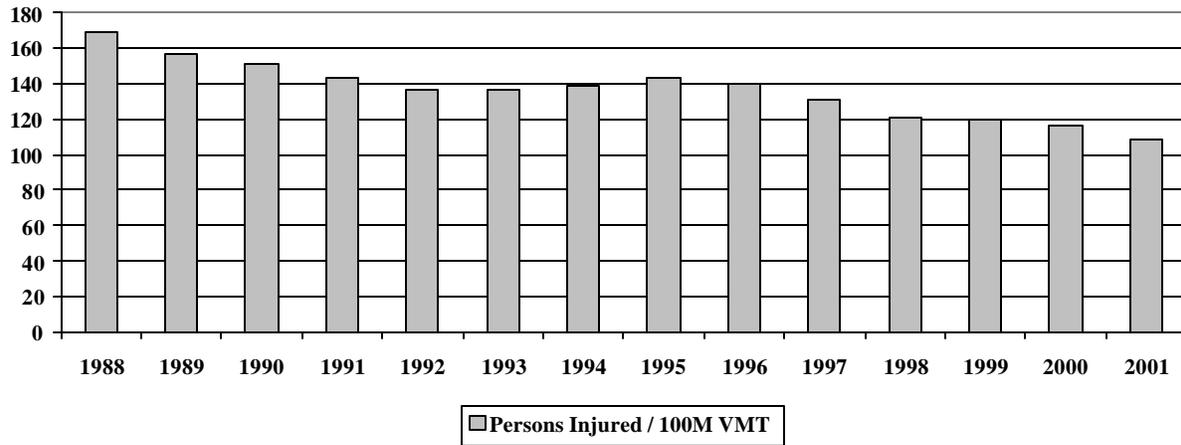


Figure 2

Alcohol

Although the total number of fatalities appears to have decreased slightly in 2001, the number of those killed in crashes with one or more drinking drivers and/or pedestrians remained virtually unchanged from the 2000 level. However, the number of persons injured in alcohol related crashes

declined by more than 9% in the same time period for all manner of involvements. All told, the percent of all fatalities that were alcohol related remained at 40% for 2001. It should be mentioned that while all Early Assessment estimates are preliminary, those relating to alcohol are particularly vulnerable due to the lateness of many BAC test results.

	2000	2001	Change
Killed			
Persons Killed	16,653	16,652	0.0%
Percent of All Fatalities	40%	40%	
Drivers	10,216	10,218	0.0%
Passengers	3,892	3,881	-0.3%
All Occupants	14,108	14,099	-0.1%
Non-occupants	2,545	2,553	0.3%
Injured			
Persons Injured	310,000	281,000	-9.4%
Drivers	201,000	183,000	-8.8%
Passengers	98,000	86,000	-11.4%
All Occupants	298,000	269,000	-9.7%
Non-occupants	12,000	11,000	-3.5%

Source: NHTSA, NCSA: FARS, NASS GES

Vehicle Occupants

Occupant fatalities increased only slightly for light trucks and vans (1.3%) but climbed by more than 7% for motorcycles. For all other

vehicle types, the number of occupant fatalities fell. The number of injured occupants rose for large trucks (5.3%) and motorcycles (2.0%) and declined for all other vehicle types.

Table 4			
Vehicle Occupants Killed and Injured by Vehicle Type and Year			
2001 Early Assessment			
Vehicle Type	2000	2001	Change
Killed			
Occupants Killed	36,249	36,206	-0.1%
Passenger Cars	20,492	20,269	-1.1%
Light Trucks and Vans	11,418	11,564	1.3%
Large Trucks	741	696	-6.1%
Motorcycles	2,862	3,067	7.2%
Other/Unknown	736	610	-17%
Injured			
Occupants Injured	3,055,000	2,923,000	-4.3%
Passenger Cars	2,052,000	1,965,000	-4.2%
Light Trucks and Vans	887,000	840,000	-5.3%
Large Trucks	31,000	32,000	5.3%
Motorcycles	58,000	59,000	2.0%
Other	28,000	27,000	-3.7%

Source: NHTSA, NCSA: FARS, NASS GES

Special mention should be made of motorcyclist fatalities for not only is the number increasing but motorcyclist fatalities as a percent of all fatalities is also increasing. Additionally, the rate of motorcyclist

fatalities per 100K population has increased in the last year from 1.01 to 1.08. VMT for motorcycles and registered motorcycles data are not yet available.

Table 5					
Total Fatalities vs. Motorcyclist Fatalities					
By Year, 1997-2001					
Fatalities	1997	1998	1999	2000	2001
Total	42,013	41,501	41,717	41,821	41,730
Change	---	-512	+216	+104	-91
Motorcyclists	2,116	2,294	2,483	2,862	3,067
Change	---	+178	+189	+379	+205
Percent of All Fatalities	5.0	5.5	6.0	6.8	7.3

Source: NHTSA, NCSA: FARS, NASS GES

In Figure 3 a definite upward trend in the number of motorcyclists killed is shown beginning in 1998 and after a 9-year decline from 1988 to 1997.

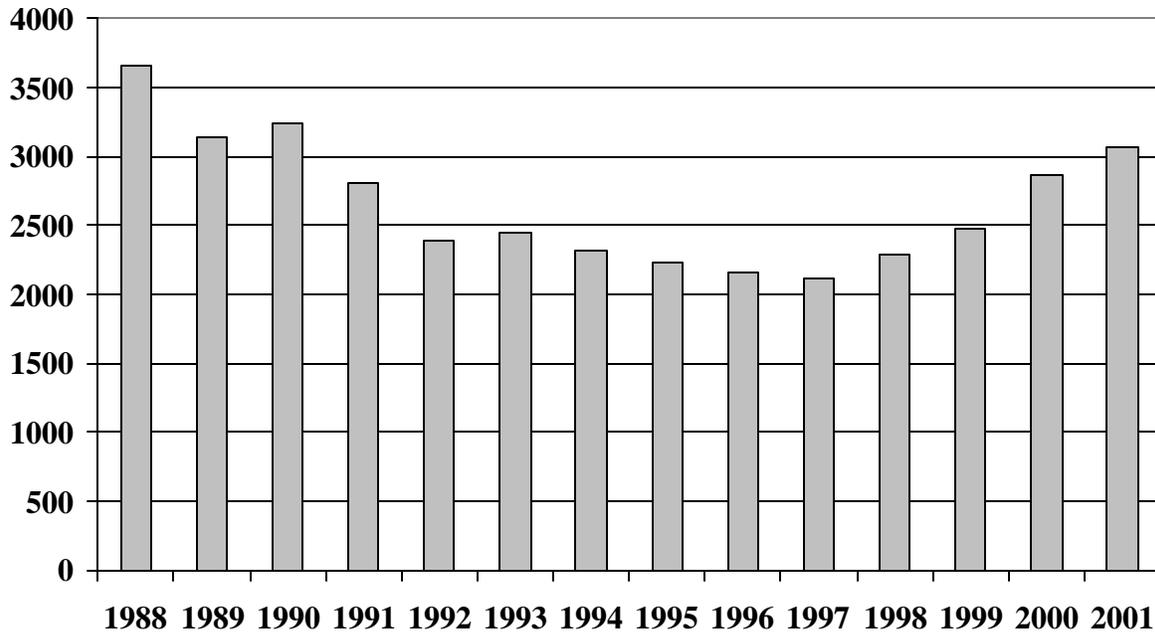


Figure 3

The percent of unrestrained passenger vehicle occupants killed (60% of all fatally injured occupants whose restraint use was known) was

virtually unchanged from 2000 to 2001. Restraint Used is defined as any use of any kind of a seat belt or a properly used child safety seat.

Table 6				
Passenger Vehicle Occupant Fatalities by Restraint Use*				
Restraint Use	2000		2001	
Persons Killed	31,910	100%	31,833	100%
Restraint Used	12,660	40%	12,825	40%
No Restraint Used	19,250	60%	19,008	60%

*Restraint use for about 8% of passenger vehicle occupants is unknown. These unknowns were distributed proportionally to the known use categories in this table.

Source: NHTSA, NCSA: FARS

Children and Youth

Tables 7 and 8 give the breakdown of occupant and non-occupant young people killed and injured for the age groups “Under 5 Years” and “5 to 15 Years”. Most of the

drop in the number of very young children killed accrued to non-occupants (about 19% fewer than in 2000). In addition, the number of those injured in this age group fell substantially.

Table 7			
Children, Under Age 5, Killed or Injured by Role			
2001 Early Assessment			
Role	2000	2001	Percent Change
Killed	706	668	-5.4%
Occupants	539	532	-1.3%
Non-occupants	167	136	-18.8%
Injured	71,000	65,000	-8.6%
Occupants	67,000	61,000	-8.8%
Non-occupants	3,000	3,000	-4.6%

Source: NHTSA, NCSA: FARS, NASS GES

Contrastingly, most of the decline in the number of fatalities for those 5 through 15 was due to the drop in the number of occupant fatalities. This was also true for the

numbers of injured persons in this age group. The percent drop from 2000 was more than 5% for both killed and injured.

Table 8			
Children and Youth, 5-15, Killed or Injured by Role			
2001 Early Assessment			
Role	Year		Percent Change
	2000	2001	
Killed	2,105	1,990	-5.5%
Occupants	1,533	1,425	-7.1%
Non-Occupants	572	566	-1.1%
Injured	261,000	246,000	-5.8%
Occupants	218,000	205,000	-6.0%
Non-occupants	43,000	41,000	-4.3%

Source: NHTSA, NCSA: FARS, NASS GES

The number of crashes involving young drivers (ages 16-20) has decreased just slightly, the greatest amount of the decrease seen in the number of Injury crashes (-3.9%).

Correspondingly, the fatality count in crashes with young drivers has declined almost imperceptibly.

Table 9			
Crash Types and Persons Killed in Crashes with Young Drivers			
2001 Early Assessment			
Crashes and Persons Killed	2000	2001	Change
Total Crashes	1,683,000	1,656,000	-1.6%
Fatal	7,607	7,547	-0.8%
Injury	569,000	547,000	-3.9%
Property Damage Only	1,106,000	1,101,000	-0.5%
Persons Killed	8,811	8,791	-0.2%
Young Drivers (16-20)	3,502	3,505	0.1%
Passengers of Young Drivers	2,418	2,429	0.5%
Others	2,891	2,857	-1.2%

Source: NHTSA, NCSA: FARS, NASS GES

Non-motorists

Statistics for non-motorists changed very little from 2000 to 2001. The large percents

of change shown for “Others”, both killed and injured, are not significant due to the small numbers.

Table 10			
Non-motorists Killed or Injured, by Role			
Early Assessment 2001			
Role	Year		Change
	2000	2001	
Persons Killed	5,572	5,524	-0.9%
Pedestrians	4,739	4,698	-0.9%
Pedalcyclists	690	701	1.6%
Others	143	125	-12.5%
Persons Injured	134,000	133,000	-1.0%
Pedestrians	78,000	77,000	-0.4%
Pedalcyclists	51,000	46,000	-9.3%
Others	5,000	9,000	71%

Source: FARS, NASS GES

Large Truck Crashes

The number of fatalities in crashes involving large trucks has declined again for 2001 (down from 5,211 in 2000 to 5,192) though only by four tenths of a percent. Most of the drop was for occupants of the large trucks themselves rather than for other vehicle occupants (historically, the vast majority of

large truck-related deaths). The number of non-motorists killed in these crashes actually increased by 8%, 443 up from 410. The number of large truck occupants injured in multi-vehicle crashes went up sharply (14%) but again the number is very small in comparison with the number of other vehicle occupants injured and is probably negligible.

Table 11			
Persons Killed and Injured in Large Truck Related Crashes by Type			
Early Assessment 2001			
Type	Year		Change
	2000	2001	
Killed			
All Large Truck Related Fatalities	5,211	5,192	-0.4%
Truck Occupants	741	696	-6.1%
Single Vehicle Crash	480	464	-3.4%
Multi-vehicle Crash	261	232	-11.0%
Other Vehicle Occupants	4,060	4,053	-0.2%
Non-occupants	410	443	8.0%
Injured			
All Large Truck Related Injured	140,000	131,000	-6.1%
Truck Occupants	31,000	32,000	5.3%
Single Vehicle Crash	16,000	16,000	-2.4%
Multi-vehicle Crash	14,000	16,000	14.1%
Other Vehicle Occupants	106,000	96,000	-9.3%
Non-occupants	3,000	3,000	-9.6%

Source: FARS, NASS GES

In summary, estimates for fatalities and injuries in 2001 do not differ significantly from the 2000 figures. The most notable exception is the climbing number of motorcyclist fatalities.

For additional copies of this research note, please call (202) 366-4198 or fax your request to (202) 366-3189. For questions regarding the data reported in this research, contact Judith Hilton [202-366-5361]. Internet users may access this research note and other general information on highway traffic safety at:

<http://www-nrd.nhtsa.dot.gov/departments/nrd-30/nca/AvailInf.html>

U.S. Department
of Transportation
**National Highway
Traffic Safety
Administration**
400 Seventh Street, S.W., NRD-30
Washington, D.C. 20590

