Chapter 5

Safety Performance

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Summary

This chapter describes the safety of highway and transit facilities across the United States. It looks at the number of fatalities and injuries from several different perspectives. For highway safety, this chapter examines fatalities and injuries on different functional systems; the causes of highway-related fatalities; fatalities and injuries by different vehicle groups; and the distribution of crashes by age of passengers. For transit safety, this chapter examines injuries and fatalities by mode and passenger miles of travel.

This chapter describes safety statistics. It does not describe the various programs used by the U.S. Department of Transportation and its partners to increase highway and transit safety. These programs are examined comprehensively in Chapter 20.

Exhibit 5-1 compares key data in this chapter with corresponding safety measures in the 1999 Conditions and Performance Report.

Exhibit 5-1

Comparison of Safety Statistics with Those in the 1999 C&P Report

	1997 DATA		
HIGHWAY SAFETY	**1999 REPORT**	**REVISED**	**2000 DATA**
Number of Fatalities	42,013		41,821
Fatality Rate per 100,000 People	15.69		15.23
Fatality Rate per 100 Million VMT	1.6		1.5
Number of Injuries	3,348,000		3,189,000
Injury Rate per 100,000 People	1,250		1,161
Injury Rate per 100 Million VMT	131		116
TRANSIT SAFETY			
Number of Fatalities	275		292
Fatalities per 100 Million PMT	0.73		0.69
Number of Injuries	56,535		57,457
Injuries per 100 Million PMT	151		135
Number of Incidents	62,009		60,638
Incidents per 100 Million PMT	165		142

Highway fatalities decreased slightly between 1997 and 2000, dropping from 42,013 to 41,821. Although the number of fatalities has fallen sharply since 1966, when Federal legislation first addressed highway safety, there was an increase in the annual number of fatalities between 1994 and 2000. This was largely due to an increase in highway-related fatalities on rural roads.

In 2000, the fatality rate per 100,000 people was 15.23, a decrease from the 1997 fatality rate of 15.69. Similarly, the fatality rate per 100 million VMT dropped from 1.6 in 1997 to 1.5 in 2000. This drop coincided with a significant increase in the number of Vehicle Miles Traveled.

The number of injuries declined from about 3.35 million in 1997 to 3.19 million in 2000. The injury rate per 100,000 people declined from 1,250 in 1997 to 1,161 in 2000, and the injury rate per 100 million VMT dropped from 131 in 1997 to 116 in 2000.

Transit's safety record has continued to improve since 1997. While the total number of fatalities on transit systems increased from 275 in 1997 to 292 in 2000, the fatality rate per 100 million passenger miles traveled (PMT) declined from 0.73 in 1997 to 0.69 in 2000. As with fatalities, total injuries on transit vehicles increased between 1997 and 2000 from 56,535 to 57,457, but the number of injuries per 100 PMT declined from 151 in 1997 to 135 in 2000. Incidents per 100 million PMT declined from 165 to 142 over this same period, and in spite of the increase in transit travel, the total number of incidents declined from 62,009 (1997) to 60,638 (2000).

Highway Safety Performance

This section describes highway safety performance. It includes a look at fatalities and injuries on highway functional systems, across vehicle types, and among different segments of the population. It also examines the causes and costs of fatal crashes.

Statistics in this section are drawn from the Fatality Analysis Reporting System (FARS). FARS is maintained by the National Highway Traffic Safety Administration (NHTSA), which has a cooperative agreement with an agency in each State to provide information on all qualifying crashes in that State. Police accident reports, death certificates, and other documents provide data that are tabulated daily and included in the FARS.

NHTSA publishes an annual Traffic Safety Facts report that comprehensively describes safety characteristics on the surface transportation network.

Overall Fatalities and Injuries

Exhibit 5-2 describes the considerable improvement in highway safety since Federal legislation first addressed the issue in 1966. That year, the fatality rate was 5.5 per 100 million VMT. By 2000, the fatality rate had declined to 1.5 per 100 million VMT. The 2000 fatality rate, in fact, was the lowest on record, and is close to the target of 1.4 per 100 million VMT identified for FY 2003 in the FHWA Performance Plan. This plummeting fatality rate occurred even as the number of licensed drivers grew by more than 88 percent.

The number of traffic deaths also decreased between 1966 and 2000. In 1966, there were 50,894; by 2000, that number had dropped to 41,821. The number of fatalities, however, has not dropped as consistently as the fatality rate. Fatalities reached their highest point in 1973 (54,052), then declined sharply following the implementation of a national speed limit. Fatalities reached their lowest point in 1992 (39,250), but slightly increased between 1992 and 2000. Exhibits 5-3 and 5-4 compare the number of fatalities with fatality rates between 1980 and 2000.

The injury rate also declined between 1988 and 2000, the years for which statistics are available. In 1988, the injury rate was 169 per 100 million VMT; by 2000, the number had dropped to 116 per 100 million VMT (the target in the FHWA Performance Plan for FY 2003 is 107 per 100 million VMT). The number of injuries also decreased between 1988 and 2000, from 3,416,000 to 3,348,000; however, like the number of fatalities, injuries increased between 1992 and 2000.

Exhibits 5-5 and 5-6 describe the number of fatalities and fatality rates by rural and urban functional system between 1994 and 2000. These exhibits are important in describing the recent increase in fatalities and the distinction between fatalities and the fatality rate.

The overall number of fatalities grew between 1994 and 2000, largely because of deaths on rural roads. Between 1994 and 2000, the number of fatalities on rural roads grew from 23,879 to 25,342; at the same time, the number of fatalities declined from 16,837 to 16,479 on urban roads. The fatality rate, however, declined on both rural and urban roads. Although the absolute number of fatalities increased, the fatality rate dropped because there was a significant increase in the number of vehicle miles traveled.

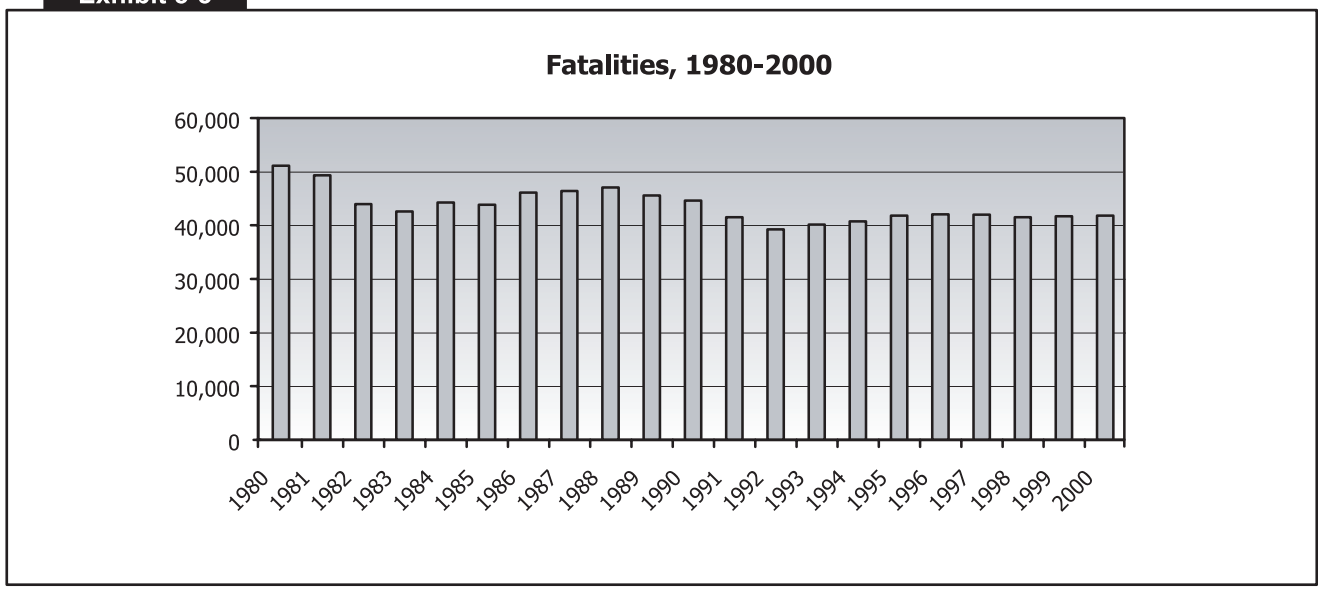
Exhibit 5-2

Summary of Fatality and Injury Rates, 1966-2000

YEAR	FATALITIES	RESIDENT POPULATION (THOUSANDS)	FATALITY RATE PER 100,000 POPULATION	LICENSED DRIVERS (THOUSANDS)	FATALITY RATE PER 100 MILLION VMT	INJURED	INJURY RATE PER 100,000 POPULATION	INJURY RATE PER 100 MILLION VMT
1966	50,894	196,560	25.89	100,998	5.5			
1967	50,724	198,712	25.53	103,172	5.3			
1968	52,725	200,706	26.27	105,410	5.2			
1969	53,543	202,677	26.42	108,306	5.0			
1970	52,627	205,052	25.67	111,543	4.7			
1971	52,542	207,661	25.30	114,426	4.5			
1972	54,589	209,896	26.01	118,414	4.3			
1973	54,052	211,909	25.51	121,546	4.1			
1974	45,196	213,854	21.13	125,427	3.5			
1975	44,525	215,973	20.62	129,791	3.4			
1976	45,523	218,035	20.88	134,036	3.2			
1977	47,878	220,239	21.74	138,121	3.3			
1978	50,331	222,585	22.61	140,844	3.3			
1979	51,093	225,055	22.70	143,284	3.3			
1980	51,091	227,225	22.48	145,295	3.3			
1981	49,301	229,466	21.49	147,075	3.2			
1982	43,945	231,664	18.97	150,234	2.8			
1983	42,589	233,792	18.22	154,389	2.6			
1984	44,257	235,825	18.77	155,424	2.6			
1985	43,825	237,924	18.42	156,868	2.5			
1986	46,087	240,133	19.19	159,486	2.5			
1987	46,390	242,289	19.15	161,816	2.4			
1988	47,087	244,499	19.26	162,854	2.3	3,416,000	1,397	169
1989	45,582	246,819	18.47	165,554	2.2	3,284,000	1,330	157
1990	44,599	249,439	17.88	167,015	2.1	3,231,000	1,295	151
1991	41,508	252,127	16.46	168,995	1.9	3,097,000	1,228	143
1992	39,250	254,995	15.39	173,125	1.7	3,070,000	1,204	137
1993	40,150	257,746	15.58	173,149	1.7	3,149,000	1,222	137
1994	40,716	260,327	15.64	175,403	1.7	3,266,000	1,255	139
1995	41,817	262,803	15.91	176,628	1.7	3,465,000	1,319	143
1996	42,065	265,229	15.86	179,539	1.7	3,483,000	1,314	140
1997	42,013	267,784	15.69	182,709	1.6	3,348,000	1,250	131
1998	41,501	270,248	15.36	184,980	1.6	3,192,000	1,181	121
1999	41,717	272,691	15.30	187,170	1.6	3,236,000	1,187	120
2000	41,821	274,634	15.23	190,625	1.5	3,189,000	1,161	116

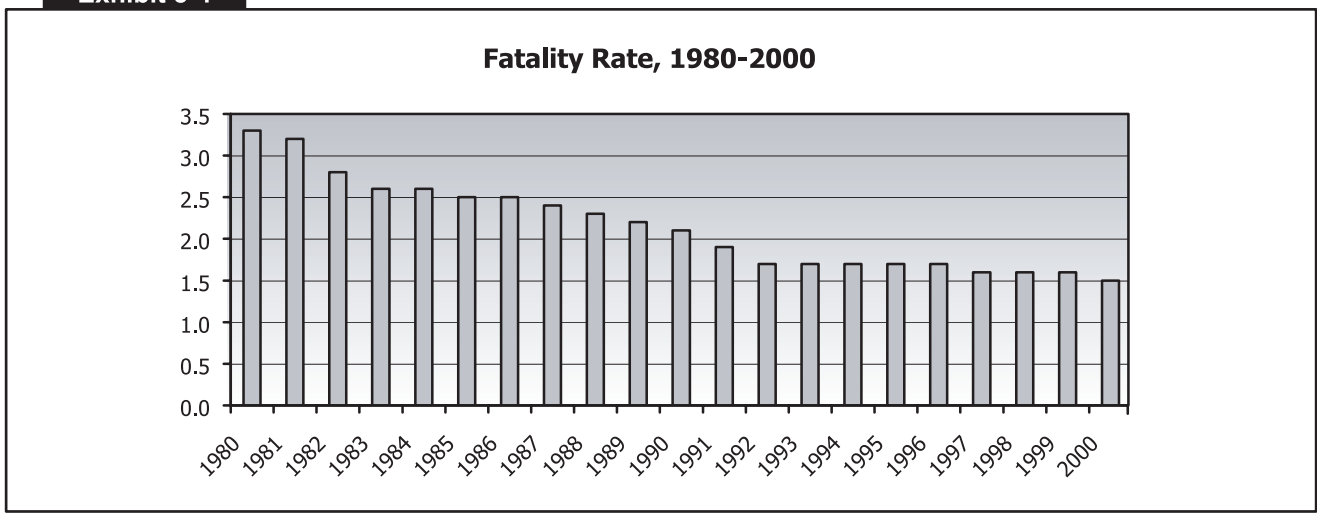
Source: Fatality Analysis Reporting System.

Exhibit 5-3



Source: Fatality Analysis Reporting System.

Exhibit 5-4



Source: Fatality Analysis Reporting System.

The split between urban and rural functional systems shows other differences. Fatality rates declined on every urban functional system between 1994 and 2000. Urban interstate highways were the safest functional system, with a 0.6 fatality rate in 2000. Other freeways and expressways, however, recorded the sharpest decline in fatality rates. The fatality rate for other freeways and expressways in 2000 was about 39 percent lower than in 1994.

Fatality rates remained constant or slightly decreased on rural functional systems between 1994 and 2000; however, rural Interstates registered a slight increase. The rural Interstate fatality rate in 2000 was double that of urban Interstates. Travel speeds tend to be higher on rural Interstates than urban Interstates, making it more likely that crashes would occur.

Exhibit 5-5

Fatalities by Functional System, 1994-2000

FUNCTIONAL SYSTEM	1994	1995	1996	1997	1998	1999	2000
Rural Areas (under 5,000 in population)							
Interstate	2,577	2,676	2,967	3,083	3,167	3,300	3,429
Other Principal Arterial	5,143	4,999	5,329	5,471	5,485	5,385	5,236
Minor Arterial	4,230	4,436	4,246	4,345	4,300	4,352	4,319
Major Collector	6,156	6,262	6,062	6,004	5,956	5,933	5,783
Minor Collector	1,603	1,609	1,576	1,748	1,788	1,792	1,879
Local	4,170	4,587	4,461	4,513	4,548	4,855	4,696
Subtotal Rural	**23,879**	**24,569**	**24,641**	**25,164**	**25,244**	**25,617**	**25,342**
Urban Areas (5,000 and over in population)							
Interstate	2,159	2,192	2,338	2,304	2,299	2,372	2,507
Other Freeway and Expressway	1,929	1,819	1,549	1,303	1,291	1,373	1,422
Other Principal Arterial	4,986	5,075	5,568	5,450	5,322	5,107	5,157
Minor Arterial	3,602	3,757	3,678	3,542	3,359	3,227	3,335
Collector	1,224	1,221	1,217	1,169	1,044	1,039	1,036
Local	2,937	3,184	3,074	3,081	2,942	2,982	3,022
Subtotal Urban	**16,837**	**17,248**	**17,424**	**16,849**	**16,257**	**16,100**	**16,479**
Total Highway Fatalities	**40,716**	**41,817**	**42,065**	**42,013**	**41,501**	**41,717**	**41,821**

Source: Fatality Analysis Reporting System.

Exhibit 5-6

Fatality Rates by Functional System, 1994-2000 (per 100 Million VMT)

FUNCTIONAL SYSTEM	1994	1995	1996	1997	1998	1999	2000	ANNUAL RATE OF CHANGE 2000/1993
Interstate	1.2	1.2	1.3	1.3	1.3	1.3	1.3	1.2%
Other Principal Arterial	2.5	2.3	2.4	2.4	2.3	2.2	2.1	-2.4%
Minor Arterial	2.8	2.9	2.7	2.7	2.6	2.6	2.5	-1.6%
Major Collector	3.4	3.4	3.2	3.0	2.9	2.9	2.8	-2.7%
Minor Collector	3.3	3.2	3.2	3.3	3.3	3.1	3.2	-0.4%
Local	4.0	4.4	4.1	3.9	3.8	3.9	3.7	-1.0%
Subtotal Rural	**2.6**	**2.6**	**2.6**	**2.5**	**2.4**	**2.4**	**2.3**	**-1.7%**
Interstate	0.7	0.6	0.7	0.6	0.6	0.6	0.6	-1.7%
Other Freeway and Expressway	1.3	1.2	1.0	0.8	0.8	0.8	0.8	-6.3%
Other Principal Arterial	1.4	1.4	1.5	1.4	1.4	1.3	1.3	-1.0%
Minor Arterial	1.3	1.3	1.2	1.2	1.1	1.0	1.0	-3.6%
Collector	1.0	1.0	1.0	0.9	0.8	0.8	0.8	-3.0%
Local	1.5	1.6	1.5	1.4	1.3	1.3	1.3	-1.9%
Subtotal Urban	**1.2**	**1.2**	**1.1**	**1.1**	**1.0**	**1.0**	**1.0**	**-2.5%**
Total Highway Fatality Rate	**1.7**	**1.7**	**1.7**	**1.6**	**1.6**	**1.6**	**1.5**	**-1.7%**

Source: Fatality Analysis Reporting System.

Only a small percentage of crashes are severe enough to kill passengers. Exhibit 5-7 describes the number of crashes by severity between 1994 and 2000. In 2000, about 67 percent of crashes resulted in property damage only.

Exhibit 5-7

Crashes by Severity, 1994-2000

YEAR	CRASH SEVERITY						TOTAL CRASHES	
	FATAL		INJURY		PROPERTY DAMAGE ONLY			
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
1994	36,254	0.6	2,123,000	32.7	4,336,000	66.8	**6,496,000**	100.0
1995	37,241	0.6	2,217,000	33.1	4,446,000	66.4	**6,699,000**	100.0
1996	37,494	0.6	2,238,000	33.1	4,494,000	66.4	**6,770,000**	100.0
1997	37,324	0.6	2,149,000	32.4	4,438,000	67	**6,624,000**	100.0
1998	37,107	0.6	2,029,000	32	4,269,000	67.4	**6,335,000**	100.0
1999	37,140	0.6	2,054,000	32.7	4,188,000	66.7	**6,279,000**	100.0
2000	**37,409**	**0.6**	**2,070,000**	**32.4**	**4,286,000**	**67.0**	**6,394,000**	100.0

Source: Fatality Analysis Reporting System.

Safety belt use has been an important cause for the drop in fatalities and injuries since the 1960s. This trend is described extensively in Chapter 20.

Cost of Highway Crashes

Although the number of highway crashes has dropped sharply over the past three decades, highway safety remains a significant public health problem. Crashes also have significant economic impacts. Exhibit 5-8 describes economic costs, including medical bills and property damage, by crash type.

Exhibit 5-8

Average Cost by Crash Type ($2000 converted from $1998)

Rural	$113,216
Urban	$42,745
Alcohol-Related	$202,272
No Alcohol	$48,875
Pedestrian	$375,347
Pedalcyclist	$108,987
Other	$52,280
Combination Trucks	$106,154
Medium/Heavy Single Trucks	$67,769
Light Trucks	$56,223
Motorcycles	$219,484
Passenger Van	$52,592
Passenger Cars	$51,600

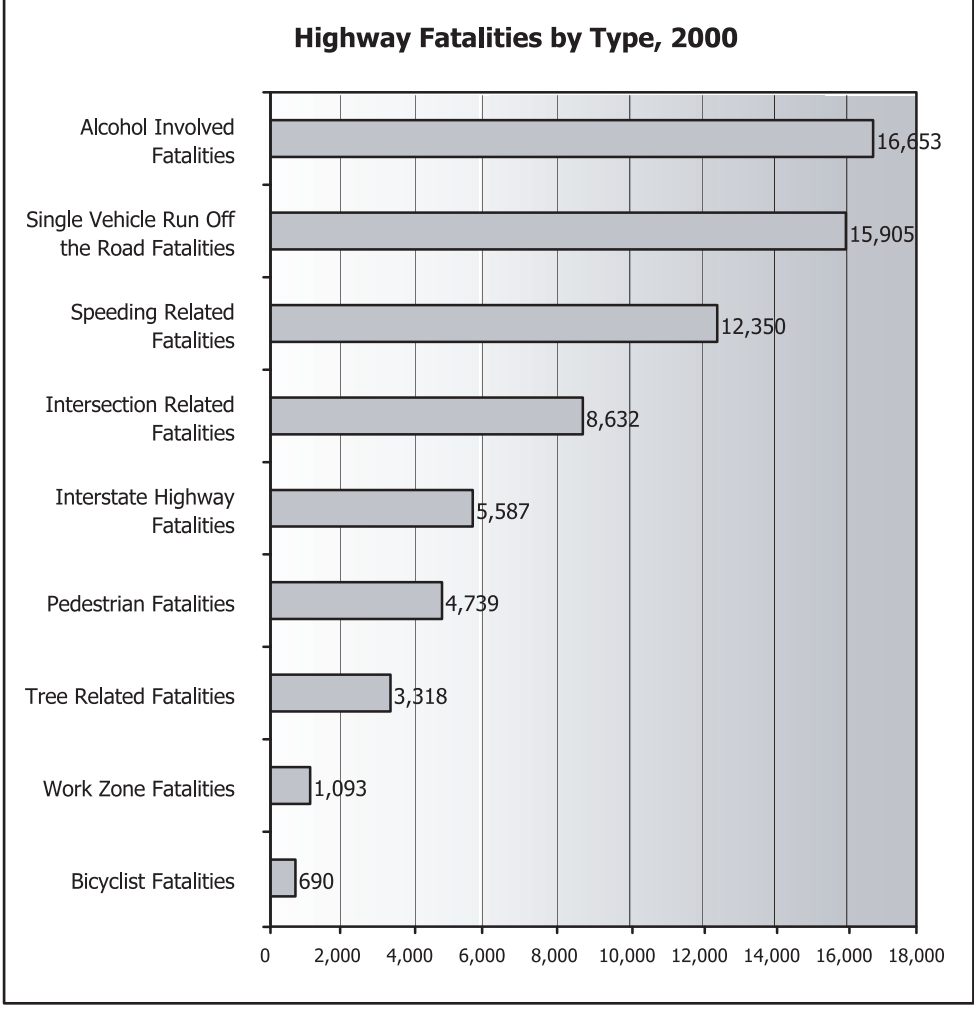
Source: FHWA Office of Research, Development, and Technology.

Types of Highway Fatalities

Exhibit 5-9 describes the types of highway fatalities in 2000. The three most common fatalities were related to alcohol-impaired driving, single vehicle run off the road crashes, and speeding. Many of the fatalities shown in Exhibit 5-9 involve a combination of factors—speeding and alcohol, for example—so these should not necessarily be viewed in isolation; in other words, the exhibit counts multiple factors.

Alcohol-impaired driving is a serious public safety problem in the United States. NHTSA estimates that alcohol was involved in 40 percent of fatal crashes and 8 percent of all crashes in 2000. The 16,653 fatalities in 2000 represent an average of one alcohol-related fatality every 32 minutes.

Exhibit 5-9



Source: Fatality Analysis Reporting System.

Exhibit 5-10 describes the number of fatalities attributable to alcohol between 1993 and 2000. The number of fatalities dropped from 17,473 in 1993 to 16,653 in 2000, although the pattern of alcohol-related fatalities has been uneven—declining between 1995 and 1999, then increasing between 1999 and 2000.

There are three main groups involved in alcohol-impaired driving. The largest group, 21- to 34-year-old young adults, was responsible for 31 percent of all fatal crashes in 2000. Recent studies show that these drivers tend to have much higher levels of intoxication than other age groups. Chronic drunk drivers are another large group. Fatally injured drivers with a blood alcohol concentration greater than 0.10 grams per deciliter were six times as likely to have a prior conviction for driving while intoxicated than fatally injured sober drivers. Finally, underage drinkers are disproportionately overrepresented in impaired driving statistics. Not only are they relatively new drivers, but they are also inexperienced drinkers.

The second largest category of highway fatalities involves single vehicle run off the road crashes. In 2000, 15,905 fatalities

Exhibit 5-10

Alcohol-Related Fatalities, 1993-2000

1993	1994	1995	1996	1997	1998	1999	2000
17,473	16,580	17,247	17,218	16,189	16,020	15,976	16,653

Source: Fatality Analysis Reporting System.

occurred when drivers lost control and ran off the road.

Q. What is the distribution of speed-related fatalities among functional systems?

A. About 13.9 percent of fatalities were on Interstates, 38.7 percent were on other arterial roads, 24.3 percent were on collector roads, and 23.1 percent were on local roads.

Another type of highway fatality is related to speeding. In 2000, over 12,000 lives were lost in speeding-related crashes, and over 700,000 people were injured. Although much of the public concern about speed-related crashes focuses on high-speed roadways, speeding is a safety concern on all roads. Almost half of speed-related fatalities occur on lower functional systems.

The estimated annual economic costs of speed-related crashes exceeded $24.4 billion in 2000. That included $10.3 billion in fatalities, $13.3 billion in injuries, and $3.8 billion in property damage.

For drivers involved in fatal crashes, young males are most likely to speed. The relative proportion of speeding-related crashes to all crashes decreases with increasing driver age. In 2000, 34 percent of male drivers between the ages of 15 to 20 who were involved in fatal crashes were speeding at the time of the crash.

Research completed by NHTSA shows the correlation between speeding and alcohol consumption in fatal crashes. In 2000, 23 percent of underage *speeding* drivers involved in fatal crashes were intoxicated. By contrast, only 10 percent of underage *nonspeeding* drivers involved in fatal crashes were intoxicated.

Many speeding crashes also occur during bad weather. Speeding was a factor in 27 percent of the fatal crashes that occurred on dry roads in 2000 and in 34 percent of those that occurred on wet roads. Speeding was a factor in 48 percent of the fatal crashes that occurred when there was snow or slush on the road and in 60 percent of those that occurred on icy roads.

A fourth type of highway fatality occurs at intersections. Half of all urban crashes and one-third of rural crashes occur at intersections. Older drivers and pedestrians are particularly at risk at intersections; half of the fatal crashes for drivers aged 80 years and older and about 30 percent of pedestrian deaths among people aged 65 and older occured at intersections.

A growing safety problem involves crashes in construction and maintenance work zones. The number of fatalities in work zones increased from 868 in 1999 to 1,093 in 2000. Speeding was involved in 27 percent of these fatalities.

Crashes by Vehicle Type

Exhibit 5-11 describes the number of occupant fatalities by vehicle type from 1993 to 2000. The number of occupant fatalities that involved passenger cars decreased from 21,566 in 1993 to 20,492 in 2000. Occupant fatalities involving light and large trucks, motorcycles, and other vehicles all increased during this period. Exhibit 5-12 describes the number of occupant injuries by vehicle type from 1993 to 2000.

Exhibit 5-11

Fatalities for Vehicle Occupants by Type of Vehicle, 1993-2000

TYPE OF VEHICLE	1993	1994	1995	1996	1997	1998	1999	2000
Passenger Cars	21,566	21,997	22,423	22,505	22,199	21,194	20,862	20,492
Light Trucks	8,511	8,904	9,568	9,932	10,249	10,705	11,265	11,418
Large Trucks	605	670	648	621	723	742	759	741
Motorcycles	2,449	2,320	2,227	2,161	2,116	2,294	2,483	2,862
Other Vehicles	425	409	392	455	420	409	447	714
Total	**33,556**	**34,300**	**35,258**	**35,674**	**35,707**	**35,344**	**35,816**	**36,227**

Source: Fatality Analysis Reporting System.

Exhibit 5-12

Injuries for Vehicle Occupants by Type of Vehicle, 1993-2000

TYPE OF VEHICLE	1993	1994	1995	1996	1997	1998	1999	2000
Passenger Cars	2,265,000	2,364,000	2,469,000	2,458,000	2,341,000	2,201,000	2,138,000	2,052,000
Light Trucks	601,000	631,000	722,000	761,000	755,000	763,000	847,000	887,000
Large Trucks	32,000	30,000	30,000	33,000	31,000	29,000	33,000	31,000
Motorcycles	59,000	57,000	57,000	55,000	53,000	49,000	50,000	58,000
Other Vehicles	4,000	4,000	4,000	4,000	6,000	4,000	7,000	10,000
Total	**2,961,000**	**3,086,000**	**3,282,000**	**3,311,000**	**3,186,000**	**3,046,000**	**3,075,000**	**3,038,000**

Source: Fatality Analysis Reporting System.

The number of occupant fatalities in light trucks increased sharply between 1993 and 2000. Fatalities in these vehicles increased from 8,511 in 1993 to 11,418 in 2000, or an average annual increase of 4.9 percent. There were 887,000 light truck occupants injured in 2000.

The number of occupant fatalities in large trucks increased 22.5 percent from 605 in 1993 to 741 in 2000. There were 31,000 large truck occupants injured in 2000. These statistics, however, tell only part of the story. Large trucks are overrepresented in fatal crashes. Large trucks represent 4 percent of the Nation's registered vehicles, 7 percent of traffic volume, and 13 percent of all fatal crashes.

Q. How safe are highway-rail grade crossings?

A. Crashes at highway-rail grade crossings declined from 648 in 1990 to 369 in 2000—a 43 percent drop. While crashes are extremely rare, the results are likely to be catastrophic when they occur. Several States continue to experience problems at crossings.

The number of motorcyclists who died in crashes increased 16.9 percent from 2,449 in 1993 to 2,862 in 2000. There were 58,000 motorcycle injuries in 2000. Exhibit 5-13 describes the number of motorcycle occupants killed or injured per registered vehicle between 1993 and 2000.

Exhibit 5-13

Motorcycle Occupants Killed or Injured Per Registered Vehicle, 1993-2000

YEAR	REGISTERED VEHICLE	MOTORCYCLE OCCUPANTS KILLED	MOTORCYCLE OCCUPANTS INJURED
1993	3,977,856	2,449	59,000
1994	3,756,555	2.32	57,000
1995	3,897,191	2,227	57,000
1996	3,871,599	2,161	55,000
1997	3,826,383	2,116	53,000
1998	3,879,450	2,294	49,000
1999	4,152,433	2,483	50,000
2000	4,346,068	2,862	58,000

Source: Fatality Analysis Reporting System.

Motorcycle crashes are frequently speed-related. In 2000, for instance, about 38 percent of all motorcycle fatalities were speed-related. Speed was two times more likely to be a factor in fatal motorcycle crashes than in passenger car or light truck crashes. Studies have also shown that alcohol was more likely to have been a factor in motorcycle crashes than passenger car or light truck crashes.

Crashes by Age Group

Another important way of examining highway crashes is by demographic segment. Exhibit 5-14 describes the number of drivers, by age, involved in fatal crashes in 2000.

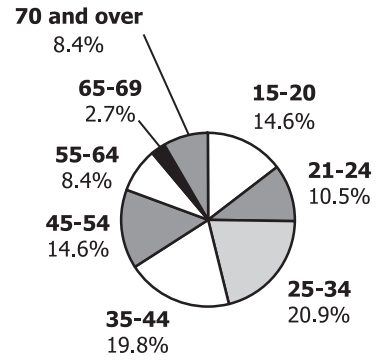
Drivers between the ages of 15 and 20 constitute 8.7 percent of the driving population, but 14.6 percent of total fatalities. In 2000, almost 30 percent of the drivers killed in this age group had been drinking. Drivers in the next oldest age category, those between 21 and 24 years, made up 5.2 percent of the driving population and 10.5 percent of the total number of fatal crashes.

On the other end of the spectrum, drivers aged 70 and older were involved in 8.4 percent of fatal crashes in 2000. Older drivers have a low fatality rate per capita, but a high fatality rate per mile driven. In fact, drivers over 85 have the highest fatality rate on a per mile driven basis of all drivers—over nine times as high as the rate for drivers who are 25 to 69 years old.

This is largely due to the nature of driving among many older Americans. Older drivers tend to take shorter trips. They usually avoid driving during bad weather and at night; in 2000, for instance, 81 percent of fatalities

Exhibit 5-14

Age of Drivers Involved in Fatal Crashes, 2000



Source: Fatality Analysis Reporting System.

involving older Americans occurred during the daytime. Older drivers involved in fatal crashes also had the lowest proportion of intoxication of all adult drivers. In two-vehicle fatal crashes involving an older driver and a younger driver, the vehicle driven by the older person was more than three times as likely to be the one that was struck.

There were 18.5 million drivers aged 70 and older in 1999, a 39 percent increase from the number in 1989. The proportion of older drivers will continue to increase over the next two decades, presenting the Nation with new public safety challenges.

Transit Safety

Public transit in the United States has been and continues to be a highly safe mode of transportation. This is evidenced by information on three indicators of transit safety—***incidents, injuries, and fatalities***—collected by the National Transit Database. These data are reported by transit operators for directly operated services and exclude information on purchased (contracted) transit.

Reportable transit safety incidents include all collisions and any other type of occurrence (e.g., derailment) that results in injury or death, or fire or property damage in excess of $1,000. Property damage includes damage to transit vehicles and facilities and to other non-transit vehicles that are involved in the incident. Injuries and fatalities include those suffered by riders as well as by pedestrians, bicyclists, and people in other vehicles. Injuries and fatalities may occur while traveling on transit or while boarding, alighting, or waiting for transit vehicles to arrive.

Incidents, injuries, and fatalities in absolute terms and per 100 million passenger miles traveled (PMT) for all transit modes are provided in Exhibit 5-15. In absolute terms, transit incidents were 36 percent lower in 2000 than in 1990 and 2 percent lower than in 1997. Injuries in 2000 were 7 percent higher than in 1990, and 2 percent higher than in 1997; fatalities in 2000 were 11 percent lower than in 1990, and 6 percent higher than in 1997. When adjusted for changes in the level transit usage, incidents per 100 million PMT fell from 251 in 1990, to 165 in 1997, to 142 in 2000, a decrease of 14 percent between 1997 and 2000. Injuries per 100 million PMT increased from 148 in 1990, to 151 in 1997, decreasing to 135 in 2000, a decrease of 11 percent between 1997 and 2000. Fatalities per 100 million PMT decreased from 0.89 in 1990, to 0.73 in 1997, to .69 in 2000, a decrease of 6 percent between 1997 and 2000.

Exhibit 5-15

Annual Transit-Related Incidents, Injuries, and Fatalities, 1990-2000
Directly Operated Service

	INCIDENTS		INJURIES		FATALITIES	
YEAR	TOTAL	PER 100 MILLION PMT	TOTAL	PER 100 MILLION PMT	TOTAL	PER 100 MILLION PMT
1990	91,773	251	53,844	148	325	0.89
1991	87,346	245	51,625	145	296	0.83
1992	73,795	210	54,518	155	277	0.79
1993	66,233	192	53,057	154	270	0.78
1994	71,429	200	58,794	164	318	0.89
1995	62,938	176	57,589	161	274	0.77
1996	59,709	165	55,643	154	265	0.73
1997	62,009	165	56,535	151	275	0.73
1998	60,367	153	56,369	143	286	0.73
1999	59,781	146	56,416	138	299	0.73
2000	60,638	142	57,457	135	292	0.69

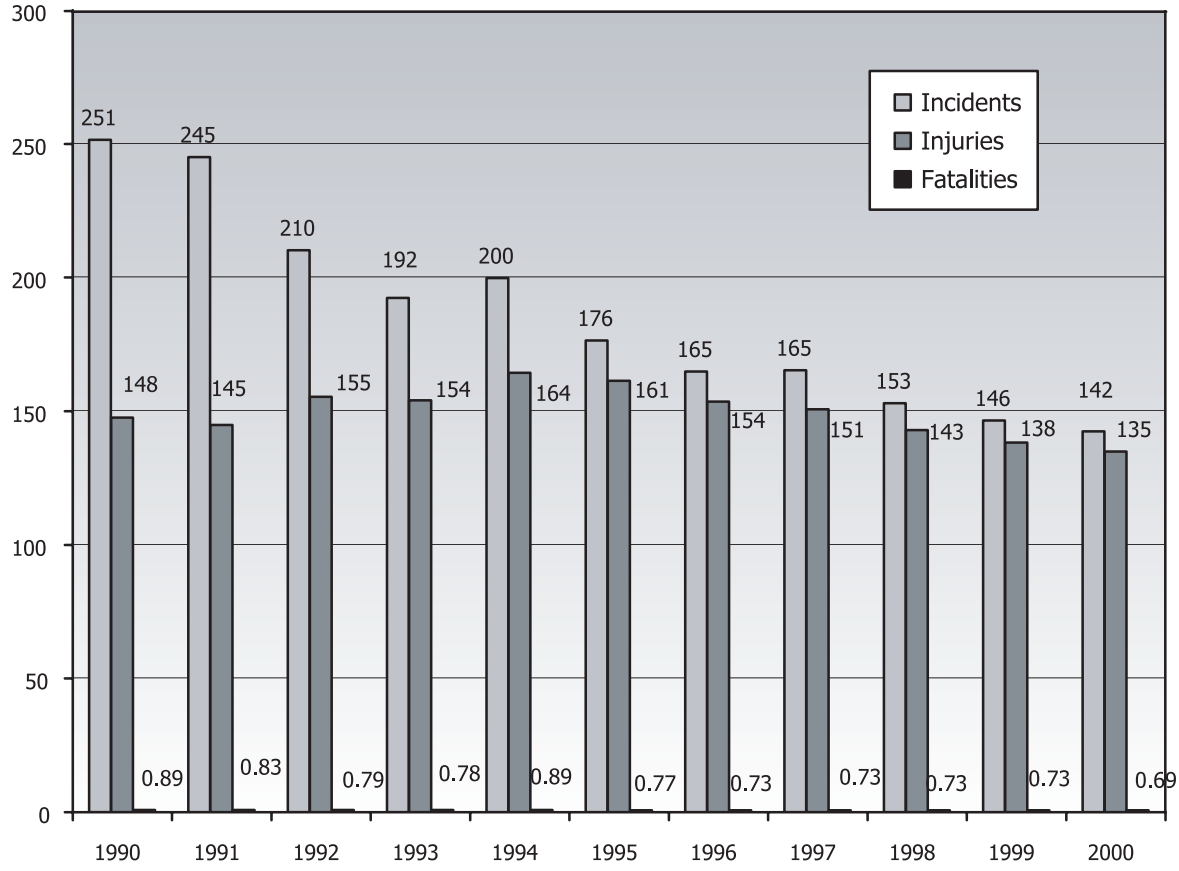
Note: includes all modes (MB, TB, HR, CR, LR, DR, AG, VP, CC, FB, IP, JT) and all incidents, injuries and fatalities including those not directly associated with the operation of transit vehicles (suicides, personal casualties in parking lots and stations)

Source: National Transit Database/Safety Management Information Statistics

Annual safety information from 1990 through 2000 is shown in Exhibit 5-16.

Exhibit 5-16

Transit-Related Incidents, Injuries and Fatalities per 100 Million Passenger Miles Traveled, 1990-2000



Source: National Transit Database/Safety Management Information Statistics.

Exhibit 5-17 shows incident, injury, and fatality annual rates per 100 PMT for the five largest transit modes. These rates span the averages for all modes as reported in Exhibit 5-15. Changes in occurrences on bus, heavy rail, and commuter rail modes, which combined accounted for 96 percent of total PMT in 2000, have the largest effect on the averages reported in Exhibit 5-15. The information provided in Exhibit 5-17 is graphed in Exhibits 5-18, 5-19 and 5-20.

Transit vehicles that share the roadway with other non-transit vehicles have higher incident and injury rates than transit vehicles that travel on fixed guideways. Incident and injury rates have consistently been the highest for demand response vehicles. Buses consistently have had incident and injury rates above rail transit modes, but substantially below demand response vehicles. Incidents and injury rates have been the lowest for commuter rail vehicles.

Although buses have relatively high incident and injury rates, bus fatality rates have tended to be lower than those on other transit modes. Heavy rail also has had low fatality rates. Fatality rates for commuter and light rail have, on average, been higher than fatality rates for heavy rail. Demand response vehicles have widely fluctuating fatality rates often well above those for other types of transit services. *[See Exhibits 5-18, 5-19 and 5-20].*

Exhibit 5-17

Transit-Related Incidents, Injuries, and Fatalities
Annual Rates Per 100 Million Passenger Miles by Mode, 1990-2000
Directly Operated Service Only (Purchased Transportation not included)

INCIDENTS

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Bus	409	378	314	277	296	264	252	242	243	232	235
Heavy Rail	114	142	144	147	150	136	119	126	110	95	92
Commuter Rail	51	47	47	33	42	38	34	44	30	31	24
Light Rail	282	257	217	168	170	148	141	115	101	99	99
Demand Response	1,790	1,435	946	766	801	785	964	627	633	757	881

INJURIES

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Bus	224	218	237	233	257	254	248	234	240	232	230
Heavy Rail	89	89	97	103	109	106	96	102	90	75	78
Commuter Rail	34	33	37	24	32	31	27	34	21	22	20
Light Rail	221	189	181	139	142	152	168	106	96	107	100
Demand Response	709	611	581	511	549	627	662	482	551	646	817

FATALITIES

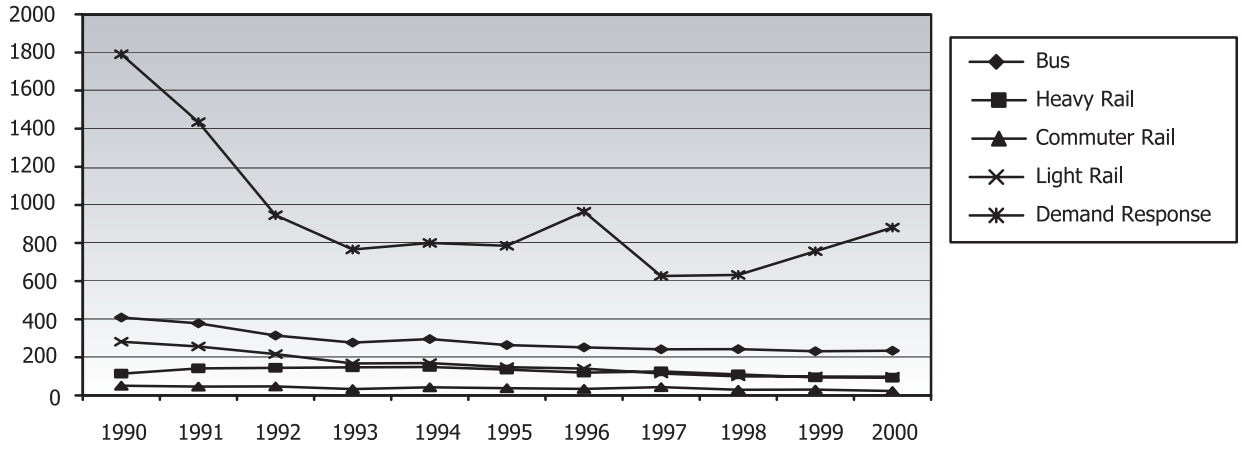
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Bus	0.63	0.50	0.59	0.51	0.65	0.50	0.63	0.65	0.64	0.57	0.51
Heavy Rail	0.98	0.95	0.85	0.81	0.80	0.75	0.64	0.64	0.44	0.65	0.56
Commuter Rail	1.44	1.34	1.17	1.35	1.52	1.21	1.01	1.13	1.16	1.16	0.99
Light Rail	0.88	1.97	1.00	2.13	1.56	1.75	0.63	0.29	2.06	1.43	2.24
Demand Response	0.00	2.95	0.00	1.57	1.52	4.04	8.26	3.00	2.07	0.48	3.77

Note: includes all incidents, injuries and fatalities including those not directly associated with the operation of transit vehicles (suicides, personal casualties in parking lots and stations).

Source: National Transit Database/Safety Management Information Statistics.

Exhibit 5-18

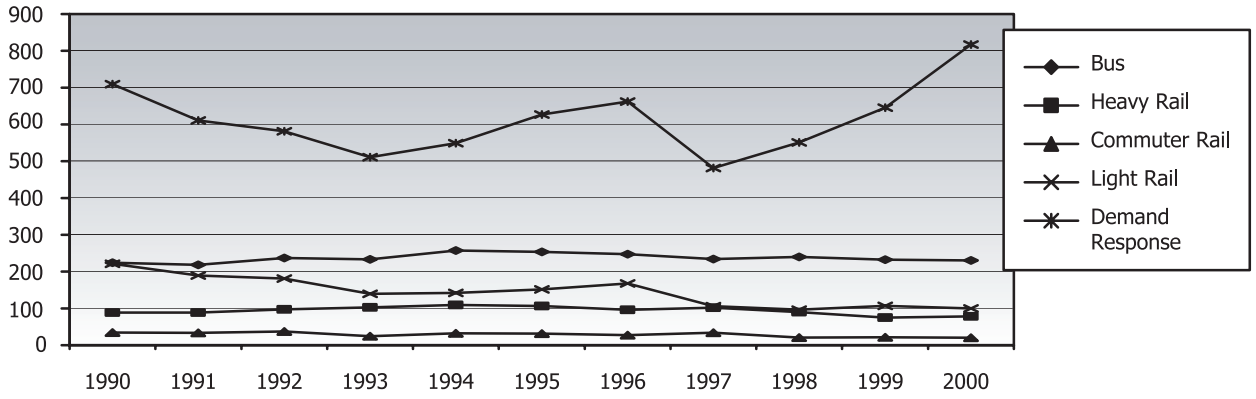
Transit-Related Incident Rates per 100 Million Passenger Miles Traveled By Mode, 1990-2000



Source: National Transit Database/Safety Management Information Statistics.

Exhibit 5-19

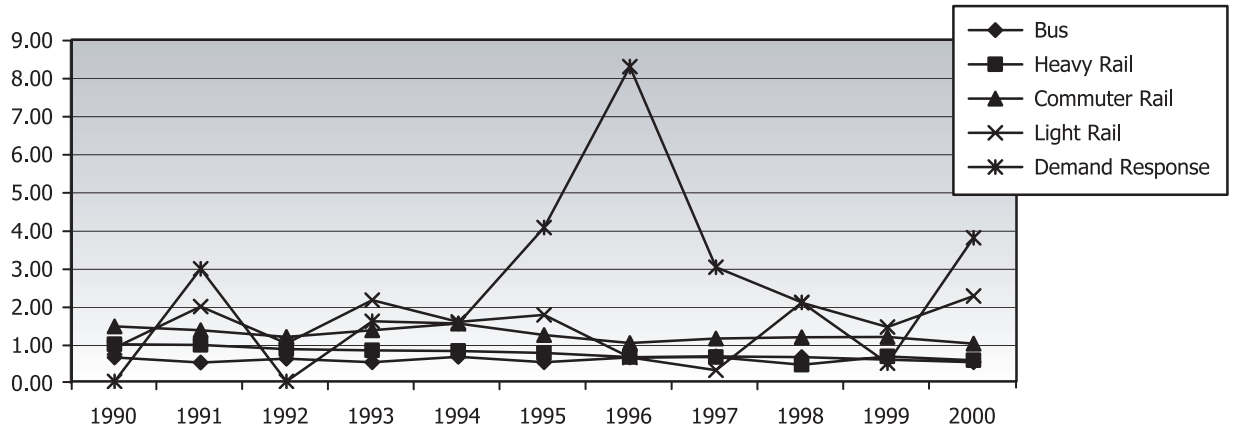
Transit-Related Injuries per 100 Million Passenger Miles Traveled By Mode, 1990-2000



Source: National Transit Database/Safety Management Information Statistics.

Exhibit 5-20

Transit-Related Fatalities per 100 Million Passenger Miles Traveled By Mode, 1990-2000



Source: National Transit Database/Safety Management Information Statistics.