



TRAFFIC SAFETY FACTS

Research Note

DOT HS 811 856

November 2013

2012 Motor Vehicle Crashes: Overview

Motor vehicle crashes and fatalities increased in 2012 after six consecutive years of declining fatalities on our nation's highways. The nation lost 33,561 people in crashes on roadways during 2012, compared to 32,479 in 2011. The increase in crashes, and the resulting fatalities and injuries, can be seen across many crash characteristics—vehicle type, alcohol impairment, location of crash, etc.—and does not seem to be associated with any one particular issue. In fact, crashes associated with some traditional risk factors, fell in 2012. For example, young drivers involved in fatal crashes continued to decline, as they have since 2005. Despite the general downward trend in overall fatalities in recent years, pedestrian and motorcycle fatalities have shown an upward trend. This was again the case in 2012, as motorcycle and pedestrian fatalities increased by 7 and 6 percent, respectively.

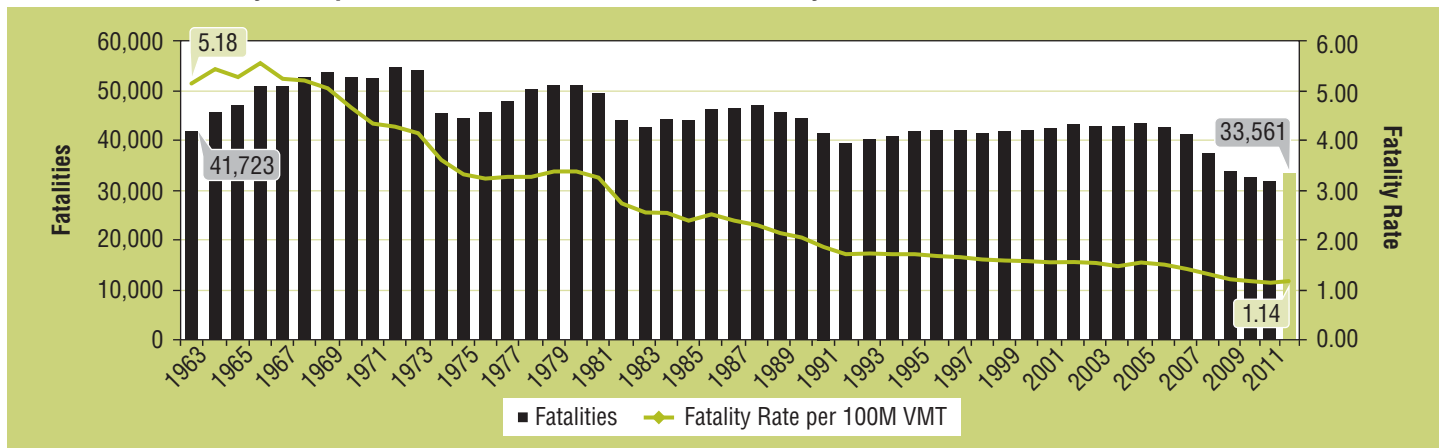
- The nation saw 1,082 more fatalities from motor vehicle crashes in 2012 than in 2011—a 3.3-percent increase.
- Much of the increase in fatalities, 72 percent (778/1,082), occurred in the first quarter (Jan-Mar) of 2012. And of that first quarter increase, over half of the increase was from non-occupant and motorcyclist fatalities. This quarter was also the warmest first quarter in history.

- The number of injured people, which has seen subtle fluctuation in recent years, experienced the first statistically significant increase since 1995. In 2012, there was an increase of 145,000 people injured in motor vehicle crashes over 2011.
- While motor vehicle crash fatalities increased by 3.3 percent overall, the number of people who died in alcohol-impaired-driving crashes increased by 4.6 percent. In 2012, 10,322 people lost their lives in alcohol-impaired-driving crashes.

Overall Statistics

In 2012, 33,561 people died in motor vehicle traffic crashes in the United States—the first increase in fatalities since 2005, when there were 43,510 fatalities (see Figure 1). This was a 3.3-percent increase in the number of people killed, from 32,479 in 2011, according to NHTSA's Fatality Analysis Reporting System (FARS). In 2012, an estimated 2.36 million people were injured in motor vehicle traffic crashes, compared to 2.22 million in 2011 according to NHTSA's National Automotive Sampling System (NASS) General Estimates System (GES), an increase of 6.5 percent. While there have been several statistically significant decreases in the estimated number of people injured annually, this is the first statistically significant increase since 1995 (Figure 2).

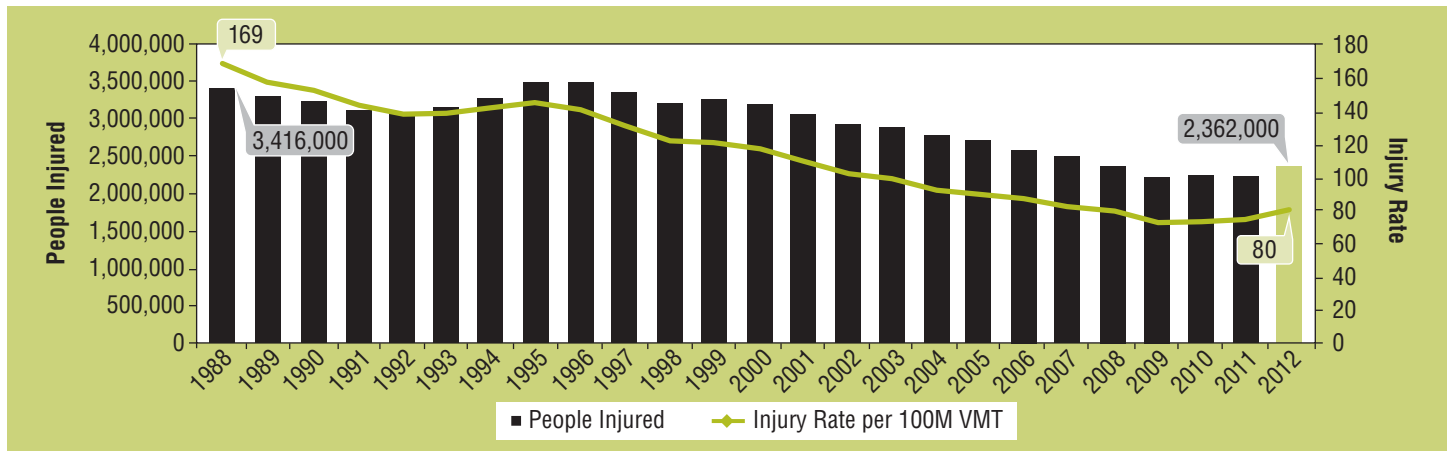
Figure 1
Fatalities and Fatality Rate per 100 Million Vehicle Miles Traveled by Year



Source: 1963–1974: National Center for Health Statistics, HEW, and State Accident Summaries (Adjusted to 30-Day Traffic Deaths by NHTSA); FARS 1975–2011 (Final), 2012 Annual Report File (ARF); Vehicle Miles Traveled (VMT): Federal Highway Administration.

Figure 2

People Injured and Injury Rate per 100 Million Vehicle Miles Traveled by Year



Source: NASS GES 1988–2012; Vehicle Miles Traveled (VMT): Federal Highway Administration.

Fatality and Injury Rates

The fatality rate per 100 million vehicle miles traveled (VMT) increased 3.6 percent to 1.14 in 2012 (Table 1). The overall injury rate increased by 6.7 percent from 2011 to 2012. The 2012 rates are based on VMT estimates from the Federal Highway Administration's (FHWA) August 2013 Traffic Volume Trends (TVT). Overall 2012 VMT increased by 0.3 percent from 2011 VMT—from 2,946 billion to 2,954 billion. VMT data will be updated when FHWA releases the 2012 Annual Highway Statistics.

Table 1

Fatality and Injury Rates per 100 Million VMT

	2011	2012	Change	% Change
Fatality Rate	1.10	1.14	0.04	3.6%
Injury Rate	75	80	5	6.7%

Source: FARS, GES, and FHWA VMT (August 2013 TVT)

Occupants and Nonoccupants

Motor vehicle crash fatalities and injuries increased in 2012, as shown in Table 2 below. Total fatalities increased by 3.3 percent and increased among all person type categories. The estimated number of people injured increased by 6.5 percent, a statistically significant change from 2011.

There were 351 more passenger vehicle occupant fatalities (+1.6%) in 2012 than in 2011, the first increase since 2002. Fatalities in passenger cars increased 2.1 percent and in light trucks 1.0 percent. Large-truck occupant fatalities increased for a third year after a large drop in fatalities from 2008 to 2009. In 2012, there was an 8.9-percent increase in large-truck occupant fatalities and an 8.7-percent increase in large-truck occupants injured from 2011. Motorcyclist fatalities increased in 2012 to 4,957, accounting for 15 percent of total fatalities for the year. Injured motorcyclists increased by an estimated 12,000 in 2012, a statistically significant difference. Among nonoccupants, pedestrian fatalities increased by 6.4 percent while pedalcyclist fatalities increased by 6.5 percent from 2011 to 2012.

Table 2

Occupants and Nonoccupants Killed and Injured in Traffic Crashes

Description	Killed				Injured			
	2011	2012	Change	% Change	2011	2012	Change	% Change
Total*	32,479	33,561	1,082	3.3%	2,217,000	2,362,000	145,000	6.5%
Occupants								
Passenger Vehicles	21,316	21,667	351	1.6%	1,968,000	2,091,000	123,000	6.3%
Passenger Cars	12,014	12,271	257	2.1%	1,240,000	1,328,000	88,000	7.1%
Light Trucks	9,302	9,396	94	1.0%	728,000	762,000	34,000	4.7%
Large Trucks	640	697	57	8.9%	23,000	25,000	2,000	8.7%
Motorcycles	4,630	4,957	327	7.1%	81,000	93,000	12,000	15%
Nonoccupants								
Pedestrians	4,457	4,743	286	6.4%	69,000	76,000	7,000	10%
Pedalcyclists	682	726	44	6.5%	48,000	49,000	1,000	2.1%
Other/Unknown	200	223	23	—	9,000	10,000	1,000	—

Source: Fatalities—FARS 2011 (Final), 2012 (ARF), Injured—NASS GES 2011, 2012 Annual Files

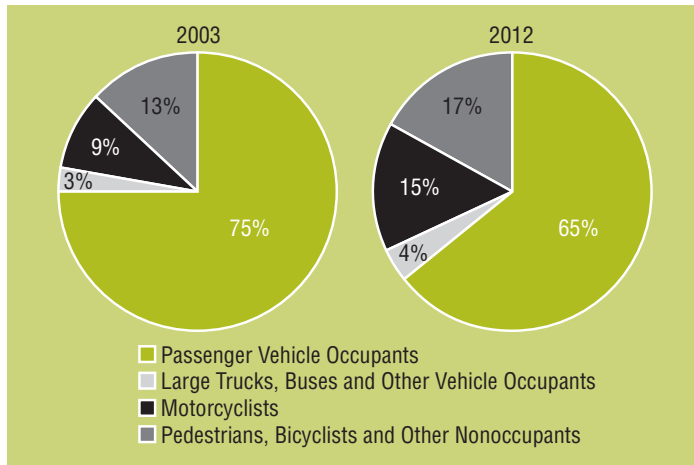
*Total includes occupants of buses and other/unknown occupants not shown in table.

Changes in injury estimates shown in **bold** are statistically significant.

Change in Composition of Fatalities

The composition of the fatalities in 2003 and 2012 is shown in Figure 3. There were major changes in proportions of fatalities among passenger vehicles (75% down to 65%), motorcyclists (up from 9% to 15%) and nonoccupants (up from 13% to 17%). Much of this shift is because of the large decrease in the number of passenger vehicle occupant fatalities (down by more than 10,000 over the 10-year period). However, there has also been a large increase (1,243 more) in the number of motorcyclist fatalities during the same time period.

Figure 3
Composition of Fatalities, 2003 and 2012



Quarterly Data

In order to gain insight into the increases in fatalities, quarterly data for 2011 and 2012 is shown in the top half of Table 3. In 2012 there were 1,082 more fatalities than in 2011, and 778 of

these—72 percent— occurred during the first three months. Furthermore, even though these are winter months, the largest percentage increases occurred for motorcyclists and nonoccupants. According to the National Oceanic and Atmospheric Administration's (NOAA) National Climate Data Center, 2012 was the warmest first quarter on record, going back to 1897 (www.ncdc.noaa.gov/cag). This may explain some of the increase in fatalities in 2012, especially the number and pattern of those during January through March.

Notice that quarterly fluctuations in each category follow similar patterns in both 2011 and 2012. For example, in each year, the numbers of pedalcyclist fatalities increases from the first quarter through the third quarter, then decreases in the fourth quarter. These patterns of increasing and decreasing fatalities from one quarter to another are the same for both 2011 and 2012.

Looking to the bottom half of Table 3, notice that except for large truck occupants, fatalities in each type had the greatest percent increase from 2011 to 2012 in the first quarter, a much smaller percent change in the second quarter, nearly no change in the third quarter, and a small increase or, in some cases, a decrease in the fourth quarter. Large-truck occupant fatalities show a different pattern, but given that the number of fatalities is relatively small in comparison, this variability is not unexpected.

Alcohol-Impaired-Driving Fatalities

Alcohol-impaired-driving fatalities increased by 4.6 percent in 2012 (Table 4), accounting for 31 percent of overall fatalities. An alcohol-impaired-driving fatality is defined as a fatality in a crash involving a driver or motorcycle rider (operator) with

Table 3
Quarterly Fatalities by Occupant and Nonoccupant Type

	Quarter	Passenger Vehicle Occupants	Motorcyclists	Large Truck Occupants	Pedestrians	Pedalcyclists	Total
2011	Jan–Mar	4,756	582	130	1,014	114	6,726
	Apr–Jun	5,275	1,506	159	891	179	8,227
	Jul–Sep	5,518	1,759	190	1,053	225	8,984
	Oct–Dec	5,767	783	161	1,499	164	8,542
2012	Jan–Mar	5,098	748	138	1,217	150	7,504
	Apr–Jun	5,405	1,649	175	958	189	8,583
	Jul–Sep	5,595	1,759	198	1,119	223	9,127
	Oct–Dec	5,569	801	186	1,449	164	8,347
Changes from 2011 to 2012							
Number	Jan–Mar	342	166	8	203	36	778
	Apr–Jun	130	143	16	67	10	356
	Jul–Sep	77	0	8	66	-2	143
	Oct–Dec	-198	18	25	-50	0	-195
Percent	Jan–Mar	7.2%	28.5%	6.2%	20.0%	31.6%	11.6%
	Apr–Jun	2.5%	9.5%	10.1%	7.5%	5.6%	4.3%
	Jul–Sep	1.4%	0.0%	4.2%	6.3%	-0.9%	1.6%
	Oct–Dec	-3.4%	2.3%	15.5%	-3.3%	0.0%	-2.3%

Source: FARS 2011 (Final), 2012 (ARF)

a BAC of .08 g/dL or greater. The number of alcohol-impaired drivers in fatal crashes increased for most vehicle types, with the largest increase among drivers of large trucks (86%). Note that the number of large-truck drivers is small relative to the other vehicle types, making it subject to greater variability.

Table 4
Total and Alcohol-Impaired (AI) Driving Fatalities*

	2011	2012	Change	% Change
Total Fatalities	32,479	33,561	1,082	3.3%
AI Driving Fatalities	9,865	10,322	457	4.6%
Alcohol-Impaired Drivers in Fatal Crashes by Vehicle Type				
Passenger Car	4,103	4,104	1	0.0%
Light Truck - Van	256	267	11	4.3%
Light Truck - Utility	1,410	1,483	73	5.2%
Light Truck - Pickup	1,877	1,946	69	3.7%
Motorcycles	1,397	1,390	-7	-0.5%
Large Trucks	43	80	37	86%

Source: FARS 2011 (Final), 2012 (ARF)

*See definition in text.

Crash Type

The number of motor vehicle crashes, by crash type and severity, is presented in Table 5. The total number of police-reported traffic crashes increased by 3.1 percent from 2011 to 2012. The estimated increase in injury crashes is statistically significant; this is the first time this has happened since 1995. Because FARS data is a census of fatal crashes, no significance testing is required.

Table 5
Number of Crashes, by Crash Type

Crash Type	2011	2012	Change	% Change
Fatal Crashes	29,867	30,800	933	3.1%
Non-Fatal Crashes	5,308,000	5,584,000	276,000	5.2%
Injury Crashes	1,530,000	1,634,000	104,000	6.8%
Property-Damage-Only	3,778,000	3,950,000	172,000	4.6%
Total Crashes	5,338,000	5,615,000	277,000	5.2%

Source: FARS 2011 (Final), 2012 (ARF)

Bold figures are statistically significant.

Restraint Use and Time of Day

Among fatally injured passenger vehicle occupants, more than half (52%) of those killed in 2012 were unrestrained (Table 6). Although there were 351 more passenger vehicle occupant fatalities in 2012, we know the time of day of the crash for only 305 of them—an increase of 8 (3% of the 305) during the day and 297 (97%) during the night. Among the 297 increase in nighttime fatalities, a large proportion (229, or 77%) was among restrained passenger vehicle occupants. The number of restrained passenger vehicle occupants killed in daytime crashes actually decreased by 39 people. Of passenger vehicle occupants killed at night, 61 percent were unrestrained, compared to 43 percent during the day.

Table 6
Passenger Vehicle Occupant Fatalities, by Restraint Use and Time of Day

Type	2011		2012		Change	% Change
	#	%	#	%		
Fatalities	21,316		21,667		351	1.6%
Restraint Used	10,255	48%	10,478	48%	223	2.2%
Restraint Not Used	11,061	52%	11,189	52%	128	1.2%
Day	10,999	52%	11,007	51%	8	0.1%
Restraint Used	6,280	57%	6,241	57%	-39	-0.6%
Restraint Not Used	4,719	43%	4,766	43%	47	1.0%
Night	10,183	48%	10,480	48%	297	2.9%
Restraint Used	3,910	38%	4,139	39%	229	5.9%
Restraint Not Used	6,273	62%	6,341	61%	68	1.1%

Source: FARS 2011 (Final), 2012 (ARF);

Day: 6 a.m. to 5:59 p.m.; Night: 6 p.m. to 5:59 a.m.; Total fatalities include those at unknown time of day; unknown restraint use has been distributed proportionally across known use.

Fatal Crashes Involving Large Trucks

There was a 3.7-percent increase in the number of people killed in crashes involving large trucks. Looking at only this one percentage masks the changes across fatality categories. The number of nonoccupant fatalities is the only category of fatalities that declined from 2011 to 2012; a decline of 11 percent. All other categories of fatalities in large-truck crashes increased (Table 7). Large-truck occupants in single-vehicle crashes increased by the smallest percentage (3.9%), while those in multivehicle crashes increased by the largest (18%). Note that the number of fatal crashes involving large trucks is relatively small, so such variability in the number of fatalities is not unexpected.

Table 7
Persons Killed in Large-Truck Crashes

Type	2011	2012	Change	% Change
Truck Occupants	640	697	57	8.9%
Single-Vehicle	408	424	16	3.9%
Multivehicle	232	273	41	18%
Other Vehicle Occupants	2,713	2,843	130	4.8%
Nonoccupants	428	381	-47	-11%
Total	3,781	3,921	140	3.7%

Source: FARS 2011 (Final), 2012 (ARF)

Crash Location

Fatalities in rural crashes increased by 2.3 percent (Table 8) while those in urban crashes increased by 4.9 percent. People killed in roadway departure crashes increased by 3.4 percent and intersection crashes increased by 5.4 percent. Following are the definitions used for roadway departure and intersection crashes as defined by FHWA.

Roadway Departure Crash: A non-intersection crash in which a vehicle crosses an edge line, a centerline, or leaves the traveled way. Includes intersections at interchange areas.

Types of Crashes Fitting the Definition: Non-intersection fatal crashes in which the first event for at least one of the involved vehicles: ran-off-road (right or left); crossed the centerline or median; went airborne; or hit a fixed object.

Intersection: Non-interchange; intersection or intersection-related.

Table 8

People Killed in Motor Vehicle Traffic Crashes, by Roadway Function Class, Roadway Departure and Relation to Junction

	2011	2012	Change	% Change
Total	32,479	33,561	1,082	3.4%
Roadway Function Class				
Rural	17,769	18,170	401	2.3%
Urban	14,575	15,296	721	4.9%
Roadway Departure*				
Roadway Departure*	18,273	18,887	614	3.4%
Relation to Junction				
Intersection*	8,317	8,766	449	5.4%

Source: FARS 2011 (Final), 2012 (ARF)

Total fatalities include those with unknown Roadway Function Class.

*See definitions in text.

Other Facts

- The increase in passenger vehicle occupant fatalities is the first since 2002. Even with this increase, passenger vehicle occupant fatalities are down 34 percent from where they were in 2002.
- There were 10 times as many unhelmeted motorcyclist fatalities in States without universal helmet laws (1,858 unhelmeted fatalities) as in States with universal helmet laws (178 unhelmeted fatalities) in 2012. These States were nearly equivalent with respect to total resident populations.
- While fatalities from alcohol-impaired driving have increased from 2011 to 2012, fatalities from crashes involving young drivers and alcohol have decreased, by 15 percent (16- to 20-year-old drivers with .01+ BAC).
- Males have consistently comprised about 70 percent of motor vehicle fatalities for decades.

- Although most age groups had increased fatalities in 2012, the 10-to-15 year group saw a decrease of 3.9 percent, and the 16-to-20 year group decreased by 5.7 percent. There were half a percent fewer fatalities over age 74 in 2012. All other age groups increased.
- Sixty-one percent of large-truck occupants killed in 2012 died in single-vehicle crashes.

State-by-State Distribution of Fatalities and Alcohol-Impaired Driving Crash Fatalities

Table 9 presents the total number of motor vehicle crash fatalities for 2011 and 2012, the change in the number of fatalities, and the percentage change for each State, the District of Columbia, and Puerto Rico. Thirteen States, Puerto Rico, and the District of Columbia had reductions in the number of fatalities. In 2012, the largest reduction was in Mississippi, with 48 fewer fatalities. There were 37 States with more motor vehicle fatalities in 2012 than 2011. Texas had the largest increase, with 344 additional fatalities, and Ohio had 106 more fatalities than in 2011.

Nationwide, about one-third (31%) of the total fatalities were in alcohol-impaired-driving crashes. Eighteen States and the District of Columbia saw declines in the number of alcohol-impaired-driving fatalities. New Jersey had the largest decrease, with 30 fewer lives lost in alcohol-impaired-driving crashes in 2012. Thirty-two States and Puerto Rico saw increases in alcohol-impaired driving fatalities, with the largest increase of 80 fatalities in Texas.

Additional State-level data is available at NCSA's State Traffic Safety Information Web site, which can be accessed at: www-nrd.nhtsa.dot.gov/departments/nrd-30/ncsa/STSI/USA%20WEB%20REPORT.HTM.

NHTSA's Fatality Analysis Reporting System is a census of all crashes of motor vehicles traveling on public roadways in which a person died within 30 days of the crash. Data for the NASS GES comes from a nationally representative sample of police-reported motor vehicle crashes of all types, from property-damage-only to fatal.

The information in this Research Note represents only major findings from the 2012 FARS and GES files. Additional information and details will be available at a later date.



U.S. Department of Transportation
**National Highway Traffic Safety
Administration**

This research note and other general information on highway traffic safety may be accessed at: www-nrd.nhtsa.dot.gov/CATS/index.aspx

Table 9

Total and Alcohol-Impaired Driving Fatalities, 2011 and 2012, by State

State	2011			2012			2011 to 2012 Change			
	Total Fatalities	Alcohol-Impaired-Driving Fatalities		Total Fatalities	Alcohol-Impaired-Driving Fatalities		Total Fatalities		Alcohol-Impaired-Driving Fatalities	
		#	%		#	%	Change	% Change	Change	% Change
Alabama	895	261	29%	865	257	30%	-30	-3.4%	-4	-1.5%
Alaska	72	21	29%	59	15	25%	-13	-18%	-6	-29%
Arizona	826	212	26%	825	227	28%	-1	-0.1%	15	7.1%
Arkansas	551	154	28%	552	143	26%	1	0.2%	-11	-7.1%
California	2,816	774	27%	2,857	802	28%	41	1.5%	28	3.6%
Colorado	447	160	36%	472	133	28%	25	5.6%	-27	-17%
Connecticut	221	94	42%	236	85	36%	15	6.8%	-9	-9.6%
Delaware	99	41	41%	114	34	30%	15	15%	-7	-17%
Dist of Columbia	27	8	29%	15	4	27%	-12	-44%	-4	-5%
Florida	2,400	694	29%	2,424	697	29%	24	1.0%	3	0.4%
Georgia	1,226	271	22%	1,192	301	25%	-34	-2.8%	30	11%
Hawaii	100	45	45%	126	51	41%	26	26%	6	13%
Idaho	167	50	30%	184	54	29%	17	10%	4	8.0%
Illinois	918	278	30%	956	321	34%	38	4.1%	43	15%
Indiana	751	207	28%	779	228	29%	28	3.7%	21	10%
Iowa	360	83	23%	365	92	25%	5	1.4%	9	11%
Kansas	386	108	28%	405	98	24%	19	4.9%	-10	-9.3%
Kentucky	720	172	24%	746	168	23%	26	3.6%	-4	-2.3%
Louisiana	680	219	32%	722	241	33%	42	6.2%	22	10%
Maine	136	23	17%	164	49	30%	28	21%	26	113%
Maryland	485	161	33%	505	160	32%	20	4.1%	-1	-0.6%
Massachusetts	374	126	34%	349	123	35%	-25	-6.7%	-3	-2.4%
Michigan	889	256	29%	938	259	28%	49	5.5%	3	1.2%
Minnesota	368	109	30%	395	114	29%	27	7.3%	5	4.6%
Mississippi	630	159	25%	582	179	31%	-48	-7.6%	20	13%
Missouri	786	258	33%	826	280	34%	40	5.1%	22	8.5%
Montana	209	82	39%	205	89	44%	-4	-1.9%	7	8.5%
Nebraska	181	45	25%	212	74	35%	31	17%	29	64%
Nevada	246	70	28%	258	82	32%	12	4.9%	12	17%
New Hampshire	90	27	30%	108	32	30%	18	20%	5	19%
New Jersey	627	194	31%	589	164	28%	-38	-6.1%	-30	-15%
New Mexico	350	104	30%	365	97	27%	15	4.3%	-7	-6.7%
New York	1,171	328	28%	1,168	344	29%	-3	-0.3%	16	4.9%
North Carolina	1,230	359	29%	1,292	402	31%	62	5.0%	43	12%
North Dakota	148	63	42%	170	72	42%	22	15%	9	14%
Ohio	1,017	310	30%	1,123	385	34%	106	10%	75	24%
Oklahoma	696	222	32%	708	205	29%	12	1.7%	-17	-7.7%
Oregon	331	96	29%	336	86	26%	5	1.5%	-10	-10%
Pennsylvania	1,286	398	31%	1,310	408	31%	24	1.9%	10	2.5%
Rhode Island	66	26	39%	64	24	38%	-2	-3.0%	-2	-7.7%
South Carolina	828	309	37%	863	358	41%	35	4.2%	49	16%
South Dakota	111	33	29%	133	45	33%	22	20%	12	36%
Tennessee	937	259	28%	1,014	295	29%	77	8.2%	36	14%
Texas	3,054	1,216	40%	3,398	1,296	38%	344	11%	80	6.6%
Utah	243	54	22%	217	34	16%	-26	-11%	-20	-37%
Vermont	55	18	33%	77	23	30%	22	40%	5	28%
Virginia	764	228	30%	777	211	27%	13	1.7%	-17	-7.5%
Washington	454	157	35%	444	145	33%	-10	-2.2%	-12	-7.6%
West Virginia	338	93	28%	339	95	28%	1	0.3%	2	2.2%
Wisconsin	582	197	34%	615	200	33%	33	5.7%	3	1.5%
Wyoming	135	38	28%	123	40	32%	-12	-8.9%	2	5.3%
National	32,479	9,865	30%	33,561	10,322	31%	1,082	3.3%	457	4.6%
Puerto Rico	361	103	28%	347	104	30%	-14	-3.9%	1	1.0%

Source: FARS 2011 (Final), 2012 Annual Report File (ARF)