

**U.S. Firefighter Fatalities
in Road Vehicle Crashes - 1998-2007**

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U.S. Firefighter Fatalities in Road Vehicle Crashes - 1998-2007

Crashes, including collisions and rollovers, consistently account for the second largest share of firefighter deaths, overall. The 148 deaths of on-duty firefighters in 133 road vehicle crashes over the past 10 years are shown in Figure A. The number of deaths annually ranged from a low of 10 in 1998 and 2006 to a high of 25 in 2003 and 2007.

Almost all of the crashes were single-fatality incidents. One crash each killed three, five and eight firefighters, all employees of or contractors for federal land management agencies. There were two two-fatality crashes -- the victims were volunteer firefighters.

Overall, more than two thirds of the victims (101 firefighters) in these crashes were volunteer firefighters. Fifteen percent (22 firefighters) were career firefighters and the remaining 25 victims (16.9 percent) were contractors for, or employees of, state and federal land management agencies or the military.

Of the 148 victims, 110 were driving and 38 were passengers.

Type of Duty

Four out of five of the crashes and fatalities occurred while firefighters were responding to or returning from alarms (106 crashes, 119 deaths). Of these 119 victims, 102 were responding to emergencies at the time of the crashes (29 to structure fires; 26 to grass, brush or wildland fires; 15 to medical calls; 13 to motor vehicle crashes; five to false alarms; two each to outside fires and vehicle fires; and the other 10 to a variety of emergency situations). Fifteen of these 102 crash deaths occurred during mutual aid responses (11 to structure fires, three to brush, grass or wildland fires and one to an outside fire). The other 17 victims were killed in 10 crashes while returning from emergency calls -- this includes one crash where eight firefighters returning from a wildland fire died.

Five deaths occurred during emergency operations -- four deaths on two wildland fires when vehicles rolled down ravines and one during an EMS call.

Nine deaths were related to training activities, but only one occurred during driver training; the other eight crashes occurred while the victims were driving to or from training exercises or courses.

The remaining 15 deaths occurred during a variety of other types of on-duty, non-emergency activities.

Of the 148 victims, 16 were chief officers. All were driving the vehicle when they were killed. Ten were driving fire department apparatus, four were driving other fire department vehicles and two were driving their personal vehicles. Ten were responding to alarms (four structure fires; two brush, grass or wildland fires; one EMS call and three other types of emergency calls) and one was returning from a structure fire. Five were engaged in other on-duty activities -- two were driving to meetings, one was returning from a meeting, one was going to get a vehicle inspection sticker for the fire apparatus and one was driving to a controlled burn.

Types of vehicles involved

One third of the crashes involved firefighters' personal vehicles and all of them were single-fatality incidents (50 deaths). There were 28 crashes with 30 deaths involving pumpers. Another 28 crashes involving water tenders (tankers) also resulted in 30 deaths. Six firefighters were killed in single-fatality crashes involving ambulances or rescue vehicles and three were killed in single-fatality crashes involving ladder trucks. The remaining 29 deaths occurred in 18 crashes of other types of public safety vehicles. This includes eight deaths in a van returning from a wildland fire and five deaths in a van responding to a wildland fire.

Of the 114 victims for whom information about seatbelt use was reported, 67 percent were known to not be wearing seatbelts or using restraint systems.

Factors in the crashes

Thirty-five of the crashes occurred on curves in the road, often when drivers failed to negotiate the turn, and the apparatus wheels went off the pavement. These crashes resulted in 37 deaths. In 32 of these crashes, the firefighters were responding to alarms. In two cases, the firefighters were returning from calls -- one was riding his motorcycle. One firefighter was involved in a driver training exercise when he crashed on a curve. The vehicle's brakes were found to be defective.

Twenty-three single-fatality crashes occurred at intersections. In 21 of these 23 crashes, the victims were responding to alarms. One victim was on his way to a meeting when he was broadsided by another driver who ran a stop sign and another was killed when a vehicle involved in a separate collision landed on his car.

Three single-fatality crashes occurred at grade level railroad crossings when fire apparatus were struck by trains. One of the firefighters was responding to a medical call and did not stop at the crossing. Another was driving a tanker back from a training exercise and was struck at a private railroad crossing. The third, returning from a false alarm, was attempting to drive the fire apparatus around a crossing gate when he was struck by the train.

Excessive speed for road conditions or exceeding the speed limit was a factor in 48 of the crashes, resulting in 50 deaths. Wet or icy roads contributed to 31 crashes. In five crashes, the drivers were intoxicated, and drugs or alcohol were possible factors in two other crashes.

Operator error, including failure to stop at traffic signals and driver inattention, and poor fire apparatus maintenance were factors in several of the crashes.

Other victims of fire department vehicle crashes

According to NFPA's most recent statistics, in 2006 there were approximately 16,000 collisions involving fire department apparatus responding to or returning from incidents, resulting in 1,250 firefighter injuries.¹

Firefighters are not the only victims in these crashes. National Highway Traffic Safety Administration (NHTSA) reports show that from 1997 through 2006, in fatal collisions involving a fire apparatus in emergency use (operating lights and sirens) and another vehicle, 94 of the victims were occupants of the other vehicle, while nine were firefighters. In other multiple vehicle crashes where the fire apparatus was NOT in emergency use, 33 of the victims were occupants of the other vehicles and one was a firefighter. Over that period, crashes involving fire department apparatus killed 21 pedestrians and five bicyclists.²

Conclusion

Deaths in crashes continue to account for a significant proportion of the annual fatalities. NFPA publishes several standards related to road safety issues. NFPA 1002, *Fire Apparatus Driver/Operator Professional Qualifications*, identifies the minimum job performance requirements for firefighters who drive and operate fire apparatus, in both emergency and nonemergency situations. NFPA 1451, *Fire Service Vehicle Operations Training Program*, provides for the development of a written vehicle operations training program, including the organizational procedures for training, vehicle maintenance, and identifying equipment deficiencies. NFPA 1911, *Inspection, Testing, Maintenance and Retirement of In-Service*

Automotive Fire Apparatus, details a program to ensure that fire apparatus are serviced and maintained to keep them in safe operating condition.

Taking into account that personal vehicles were the vehicles most frequently involved in road crashes, the latest edition of NFPA 1500, *Fire Department Occupational Safety and Health Program*, added a requirement that when members are authorized to respond to incidents or to fire stations in private vehicles, the fire department must establish specific rules, regulations, and procedures relating to the operation of private vehicles in an emergency mode that are at least equal to the provisions regulating fire department vehicle operations.

The provisions of NFPA 1500 include requirements that operators successfully complete an approved driver training program, possess a valid driver's license for the class of vehicle, and operate the vehicle in compliance with applicable traffic laws. All vehicle occupants must be seated in approved riding positions and secured with seatbelts before drivers move the apparatus, and drivers must obey all traffic signals and signs and all laws and rules of the road, coming to a complete stop when encountering red traffic lights, stop signs, stopped school buses with flashing warning lights, blind intersections and other intersection hazards, and unguarded railroad grade crossings. Passengers are required to be seated and belted securely and must not release or loosen seatbelts for any reason while the vehicle is in motion.

In related efforts, the USFA has formed partnerships with the IAFF, NVFC and IAFC to focus attention on safety while responding in emergency apparatus. Details can be found at www.usfa.dhs.gov/fireservice/research/safety/vehicle.shtm.

References

1. Karter, Jr., Michael J. and Molis, Joseph L., "U.S. Firefighter Injuries - 2006," National Fire Protection Association, Quincy MA, November 2007.
2. See Table 62 of the National Highway Traffic Safety Administration's *Traffic Safety Facts* reports for 1997 through 2006.

Figure A
U.S. Firefighter Fatalities
in Road Vehicle Crashes - 1998-2007

