



## **FIRE DEPARTMENT APPARATUS MAINTENANCE STANDARDS**

By: Veronica Rose, Chief Analyst

### **QUESTION**

Was the 2007 fatal fire truck accident in Waterbury a result of poor maintenance of the apparatus? Do other states require fire pump and aerial components to be maintained in compliance with the requirements of Standard 1911 of the National Fire Protection Association (NFPA)?

### **SUMMARY**

Both a report by the Waterbury Police Department and one published by the National Institute for Occupational Safety and Health (NIOSH) found that maintenance of the fire department vehicles was not a factor in the accident. The key contributing factors, according to the reports, included a failure to stop at a red traffic signal and to wear seat belts.

Of the 36 states for which we have information, three require fire departments to maintain fire apparatus as required by NFPA 1911, Standard for the Inspection, Maintenance, Testing and Retirement of In-Service Automotive Fire Apparatus. The three states are New Jersey, Washington, and Wisconsin.

### **WATERBURY FIRE TRUCK ACCIDENT**

On May 19, 2007, a fire engine and ladder truck responding to the same call collided at a Waterbury intersection killing Captain John Keane, a Waterbury firefighter. Keane and the driver of the engine, neither of whom was wearing a seatbelt, were ejected from the apparatus and suffered multiple injuries. Keane died three days after the crash; the driver survived. Six other firefighters were also injured.

Both the Waterbury Police Department and NIOSH investigated and concluded that mechanical failure was not a factor in the accident. They identified failure to stop at a red light and failure to wear a seat belt as contributing factors. According to the NIOSH report, "If the driver and captain in Engine 12 had been wearing their seat belts, it is possible that they would not have been ejected from the apparatus, and their injuries may not have been severe or fatal."

NIOSH investigators recommended that, to minimize the risk of similar occurrences, fire departments should:

1. "establish, train on, and enforce standard operating procedures that require drivers to stop at red traffic lights and stop signs, and proceed through intersections only after ensuring it is safe to continue [and]
2. enforce standard operating procedures that require mandatory use of seat belts in all vehicles."

The report noted that although there is no evidence that mechanical failure contributed to the accident, in accordance with prudent safety practice, fire departments should:

1. "ensure that their vehicle/apparatus maintenance program complies with applicable NFPA standards and that all maintenance and repairs are performed by qualified technicians [and]
2. review procedures for all vehicles travelling in an emergency response to ensure safe travel and eliminate any chance of confusion at roadway intersections."

The report also recommended that governing municipalities should:

1. "ensure that adequate line-of-site is maintained at roadway intersections, with an emphasis on routes routinely traveled by responding emergency vehicles/apparatus [and]
2. consider enacting legislation to include operators and occupants of fire department vehicles in existing seat belt legislation and/or repeal existing laws that exempt drivers and occupants of fire service vehicles from mandatory seat belt use."

A copy of the NIOSH report is available at:

<http://www.cdc.gov/niosh/fire/reports/face200717.html>

## COMPLIANCE WITH NFPA STANDARD 1911

Of the 36 states from which we were able to get information, including 24 states that responded to a survey, only three require NFPA 1911 compliance. These are New Jersey, Washington, and Wisconsin (see Table 1 below).

New Jersey requires pumper fire apparatus, initial attack fire apparatus, and mobile water supply fire apparatus to be inspected at least annually in accordance with NFPA 1911-1997 ([NJAC § 12:100-10.6](#)).

Washington requires all aerial devices to be maintained, tested, and repaired in accordance with the manufacturer's instructions and non-conflicting portions of the 2002 edition of NFPA 1911, Standard for the Inspection, Maintenance, Testing and Retirement of In-Service Automotive Fire Apparatus ([WAC § 296-305-04510](#)).

Wisconsin adopts NFPA by reference. It also specifically requires fire departments to test fire pumps on apparatus and inspect and service test aerial devices as specified in NFPA 1911 ([Wis. Admin. Code § SPS 330.09\(f\) & \(g\)](#)).

**Table 1: Fire Department Apparatus Maintenance Standards**

<i>State</i>	<i>NFPA 1911</i>	<i>State</i>	<i>NFPA 1911</i>	<i>State</i>	<i>NFPA 1911</i>
Alabama	No	Maryland	No	Rhode Island	No
Arizona	No	Massachusetts	No	South Carolina	No
Arkansas	No	Minnesota	No	South Dakota	No
California	No	Missouri	No	Tennessee	No
Colorado	No	Montana	No	Texas	No
Delaware	No	Nebraska	No	Utah	No
Florida	No	New Hampshire	No	Vermont	No
Georgia	No	New Jersey	Yes	Virginia	No
Kentucky	No	North Dakota	No	Washington	Yes
Iowa	No	Ohio	No	Wisconsin	Yes
Louisiana	No	Oregon	No	West Virginia	No
Maine	No	Pennsylvania	No	Wyoming	No

Source: Nationwide survey of states and Westlaw search of state codes

VR:ro

Attachment: NIOSH Report, [Death in the Line of Duty](#), June 23 2009.