



## Massachusetts Call/Volunteer Firefighters Association

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The Honorable Douglas L. Parker  
Assistant Secretary of Labor for Occupational Safety and Health  
Occupational Safety and Health Administration  
U.S. Department of Labor  
200 Constitution Avenue, NW  
Washington, DC 20210

**Comments: Docket ID: “Emergency Response Standard” (Emergency Response) Rule  
[Docket No. OSHA-2007-0073] (RIN 1218-AC91)**

Dear Assistant Secretary Parker,

I am writing on behalf of the Massachusetts Call/Volunteer Firefighters Association, Inc.

The Massachusetts Call/Volunteer Firefighters Association, Inc. (MCVFA) is a non-profit association that represents and advocates for the paid-on-call (“call”) and volunteer fire departments, firefighters, and EMS providers in Massachusetts.

The MCVFA would like to take this opportunity to comment on behalf of its members on the proposed rule. We are generally in opposition to the proposed OSHA regulations for fire brigades as written and proposed. Call/volunteer fire departments and many combination fire departments (especially those in small towns that are still predominately volunteer organizations) lack the resources in money, staff, and administrative capabilities to implement most of the proposal.

There are 365 fire departments in the Commonwealth of Massachusetts. Of these departments, approximately 120 of them are career fire departments, 160 of them are combination fire departments (using both call/volunteer and career members) and the rest, about 85 are entirely volunteer or paid-on-call. There are about 7,000 volunteer or paid-on-call (“call”) firefighters in Massachusetts.

The majority of the entirely volunteer or paid-on-call departments serve sixty-eight (68) very small towns with populations of less than 2,500 people. These comments will focus mainly on how the proposed rules will impact those departments; however, the comments will have varying levels of applicability to the larger volunteer and combination departments.

The profile of a typical call/volunteer fire department in a Massachusetts Town of 2,500 people or less is as follows:

- 17 Call or Volunteer Firefighters on Staff
- 0 Part-Time Firefighters on Staff
- 0 Career Firefighters on Staff
- 2 Auxiliary or Support Firefighters
- 1 Junior Firefighter/Explorer
- 2 Dedicated EMS Providers (who are not firefighters)
- **Has an annual budget of \$74,932.**
- Spends \$2,926 per year on training.
- Serves a community with a population of 1,342 people.
- Provides EMS First Response/First Aid – Does NOT provide Ambulance service.

### **Lack of Financial Resources:**

Operating with an average total budget of about \$75,000 per year, all these fire departments barely subsist and have no financial capacity to do anything more than what they did in the prior year. These departments struggle to pay for fuel, maintain their trucks and building, and purchase basic replacement gear and supplies.

Their budgets cannot grow much beyond 2.5% per year because Massachusetts law caps municipal tax levy increases to 2.5% per year, unless the town votes at an election to increase the levy beyond 2.5%. This means that the typical department sees its budget increase no more than about \$1,875 per year. Department budgets are not keeping up with inflation.

These departments are spending an average of about \$3,000 per year for training, which is roughly 4% of their annual budget.

A typical fire department budget from a town of 1,500 residents would look like this:

Budget Data:

Fire Chief Salary	\$6,500
Firefighter Stipends	\$55,176 (About \$2043 per Firefighter.)
Utilities	\$18,130 (Heat, Electric, Water, Propane, Etc.)
Office Expenses	\$7,720
Gasoline/Diesel	\$4,000
Fire Equipment	\$12,000 (Repairs, Replacement & Maintenance)
Radio System	\$4,500
Total	\$108,000

All of these small departments attempt to supplement their budgets through fundraising activities such as spaghetti suppers, chicken barbeques, fishing derbies, car shows, raffles, and boot drives (begging on the side of the road). Unfortunately, these efforts consume enormous amounts of time by the volunteers and generate small sums of money. The cost in effort doesn't warrant the benefit in terms of extra money, but they are left with no real alternative. (In a town of 1,000 people, a spaghetti supper might have a net profit of \$500 – which is not enough money to purchase two fire helmets.)

These fire departments can barely afford to maintain an inventory of structural firefighting Personal Protective Equipment (PPE) for 15 to 20 firefighters. The cost of PPE is the same for a volunteer firefighter in a town of 500 people as it is for a Boston firefighter in a city of 675,000 residents. The lowest cost structural PPE ensemble we can find today in Massachusetts is as follows:

Helmet:	\$ 327
Structural FF Coat	\$1,369
Structural FF Pants	\$ 892
Suspenders	\$ 41
Structural FF Boots	\$ 199
Firefighting Hood X2	\$ 52 (\$26 each)
Structural FF Gloves X2	\$ 136 (\$68 each)

Total Structural PPE Ensemble Cost: \$3,016 per firefighter

The cost of a single set of structural PPE is roughly 200% of what these fire departments are receiving in annual budget increases.

Many departments are spending about \$6,000 per year or 8% of a typical small town fire department budget to replace two sets of structural PPE each year, and maintain an inventory of 20 sets of PPE that are less than 10 years old and in compliance with all the applicable NFPA standards.

Small department budgets are thrown into a chaos when a new person joins the volunteer department, and the department doesn't happen to have a set of PPE that fits them. They must purchase new PPE with money they can't afford to spend. Furthermore, the delivery time for new structural firefighting coats and pants is running 6 to 12 months. On-boarding one new volunteer firefighter – who they desperately need -- is a financial crisis for these small towns.

All this comes at a time when call/volunteer fire departments are struggling to recruit new members. All of these small departments are understaffed and need new members. The worst position they can be in is to have new members and not have the money to equip and train them. The impact of these proposed OSHA regulations will do just this kind of damage to these departments. These OSHA rules will devote scarce money from basic PPE and training to complex programs and training with little value in small departments.

An important point of this example is that having NFPA compliant PPE for each firefighter is important and something all of the fire departments strive to do. If the proposed OSHA rules simply incorporated having compliant PPE (per NFPA standards) into our work rules, while it would cause some financial difficulties in the smallest departments, it would be something we (as an industry) could figure out and make work. The problem is that everything else proposed in the rules cost even more, and there is no money to pay for it.

A second important point to remember is that small and very small towns need the same number of firefighters to fight a fire as big suburban towns. In order to initiate fire attack on a fire in a bedroom, you need six firefighters as follows:

- Two Firefighters on the Attack Team (advancing the hose & extinguishing the fire).
- Two Firefighters on the “Two-Out” Safety Team (or Initial RIC/RIT).
- A pump operator (aka engineer or driver-operator).
- An Incident Commander (IC).

It doesn't matter if you are in a town of 500 people or a town of 50,000 people. The cost of training and equipping those six firefighters are the same. No vendor or manufacturer gives you a break because your town has only 500 people in it.

Both the volunteer fire department serving the town of 500 people and the career fire department serving the town of 50,000 are likely to both have twenty-four firefighters to train and equip. The problem arises when you divide the cost of PPE for twenty-four firefighters among 500 residents, verses 50,000 residents. For example:

Twenty-Four (24) Sets of PPE =	\$73,000
Divided by 500 residents =	\$146 per resident
Divided by 50,000 residents =	\$1.46 per resident

The impact of the proposed OSHA rules financially burdens small towns to a much greater degree than larger communities. The difference in the financial burden is extreme.

It is also worth noting that most of the volunteer fire departments are in the four Western Counties of Massachusetts and that also have the lowest per capita incomes in Massachusetts. Of the thirteen counties in Massachusetts, they rank in per capita income as follows:

#9:	Hampshire County	\$29,460
#10:	Berkshire County	\$29,294
#11:	Franklin County	\$29,259
#13:	Hampden County	\$25,819

The per capita income in Boston is \$50,344.

Additionally, the average annual real estate tax bill (aka property tax bill)<sup>1</sup> for the families living in the small towns of Western Massachusetts is:

- \$4,256 Franklin County (on a \$239,900 home)
- \$3,926 Hampden County (on a \$216,100 home)
- \$4,847 Hampshire County (on a \$289,300 home)
- \$3,586 Berkshire County (on a \$221,000 home)

The people living in these small and very small towns cannot afford more taxes for their fire departments (or anything else).

OSHA's proposal estimates that the cost of implementing the medical exams for firefighters is about \$629 per firefighter. Even spread over two years (as many of these small departments may be allowed to do under the proposed rules) the cost for a department with 18 volunteers is \$11,322 per year. This translates to a \$22.65 tax increase per resident in a town of 500 people. While this doesn't seem like much, when you look at the cost for Boston residents<sup>2</sup> (only \$1.31 per resident) and compare it to the existing tax burden and incomes in these small towns, you can see there is inequitable distribution of cost for compliance with these proposed rules.

(Note: OSHA estimates that the cost of providing NFPA 1582 medical exams is \$629 per firefighter, but FEMA, for AFG grant award purposes, estimates the cost of an NFPA 1582 medical exam between \$1,200 and \$1,400. OSHA needs to better research the cost of this proposal and its financial feasibility.)

OSHA's estimate of the total cost impact of these proposed rules indicates that the total annualized cost for small volunteer organizations (Table VII-E-4) is \$13,738 per year.

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<sup>1</sup> In Massachusetts, fire & EMS departments are almost exclusively funded at the city and town level via real estate taxes.

<sup>2</sup> Boston FD Cost for Medical Exams using OSHA's estimates: 1400 firefighters X \$629 = \$880,600 per year. Divided by 675,000 residents equals \$1.31 per resident. Compare to the Savoy Fire Department with 14 volunteer firefighters in a town of 683 people: Five medical exams per year X \$629 per exam = \$3,145 divided by 683 people = \$4.61 per person. The financial impact on Savoy is 3.5 times the impact on Boston.

OSHA's proposal suggests that these small volunteer organizations have annual revenue of \$1,795,450 and the cost only represents an increase of 0.76%. This data is wrong as it pertains to the small volunteer fire departments of Massachusetts. It isn't even close. The annual revenue for these departments is overstated by \$1.7 million or 2400%. The typical volunteer fire department has revenue of about \$75,000 per year.

If, as OSHA projects, these small fire departments experience an average increase in their operating costs of \$13,738 to comply with the proposed rules, it would be an 18% increase in their budgets.

We also question the accuracy of the \$13,738 estimate to comply with these rules. The cost of providing bi-annual medical exams to a department with 18 volunteers is almost this much money all by itself.

Finally, there is no reliable or meaningful source of state funding for fire and EMS departments in Massachusetts. While there is an occasional (one-time) grant program for fire equipment, the maximum state grant that town of 2,500 or smaller population has ever been eligible for is \$10,500.

### **Administrative Burden – Generally:**

Setting aside the financial costs of implementing the proposed rules, there is also an administrative burden that cannot be met by these fire departments. None of these small and very small-town call/volunteer fire departments have any administrative staff whatsoever.

These departments are led by a volunteer, or part-time fire chief who does most of his/her administrative work at their kitchen table, after having worked at their full-time primary job. These chiefs are overwhelmed with administrative work. A close look at many of these departments would show they are routinely behind on administrative matters, or simply don't do any administrative work beyond such tasks as paying the bills, scheduling training, and writing fire reports.

These departments do not have access to planning staff, data analytics, financial managers, file clerks, and IT staff. As a result, strategic planning is almost impossible. Any comprehensive use of data is almost impossible. Unlike large suburban and urban organizations, these departments generally lack the ability to conduct a community risk analysis, generate a critical task analysis for incidents in their town, or develop standards of cover. It is not that they don't want to be able to do these things, but they have no staff to do it.

Instead, these departments are forced to rely upon generic plans. They must forego anything but the minimum required incident reporting.

This is not just a fire department problem. The **towns themselves have limited and sometimes no resources**. These towns are run by volunteer elected officials and part-time staff. The typical

town hall is maybe open 20 or 25 hours a week. They rely upon the Massachusetts State Police to patrol their streets. The only full-time staff in the town are part of their school system.

For instance, the Town of Hawley with 353 residents has the following town budget:

- \$606,958 for schools.
- \$592,833 for all other town operations combined, including a fire department budget of \$38,160. (Note: the fire station doesn't have running water.)

The town has a part-time administrator paid \$21,030 per year, and part-time town clerk who is paid \$10,200 per year.

Therefore there is no administrative, planning, or analytical staff available at the town level to support any new fire department planning or compliance requirements. (Massachusetts has no significant county government functions that can fill this gap.)

Thus, if OSHA requires a community risk analysis be created, reviewed, and annually updated, there is no one to do it. Nor is there anyone to administer a health and wellness program.

Unfortunately, the fire chiefs themselves generally do not have the skill sets needed to fill these administrative and strategic roles. Similar to the rest of the nation, most fire chiefs do not have management or financial backgrounds, but instead come from technical trades. These chiefs were chosen because they were good at managing emergency incidents, not budgets, strategic plans, or data analysis. It is unlikely they have significant formal education in public administration.

This places the small-town chief at a major disadvantage over his/her suburban and urban counterpart when it comes to implementing a new set of rules as lengthy and comprehensive as what is being proposed. Urban and large suburban department chiefs have better access to staff with the skill sets needed to read, analyze, and develop a strategic compliance plan, and they have the more staff to monitor and update the plan.

### **Macro Difficulties**

There are handful of large, macro, requirements in the proposed rule that would have a substantially detrimental effect on small town fire departments in Massachusetts. They are:

#### **Apparatus Inspections:**

The proposed OSHA rule would incorporate by reference NFPA 1910, Standard for the Inspection, Maintenance, Refurbishment, Testing and Retirement of In-Service Emergency Vehicles and Marine Firefighting Vessels. This rule would require that all fire apparatus is inspected weekly or within 24-hours of responding to an emergency. Inspections would have to

be conducted by staff who are trained in DOT and chassis inspection. The rule will require periodic comprehensive, diagnostic inspections of up to 70 components (not all trucks have all 70 components).

To the best of the MCVFA's knowledge, no fire department in Massachusetts is currently doing truck inspections to the extent called for by NFPA 1910.

**There is no significant risk of injury or death that requires OSHA to mandate how departments conduct truck inspections and maintenance.**

The most current firefighter fatality data from the US Fire Administration for the year 2021 indicates that twelve (12) firefighters were killed in motor vehicle accidents in 2021. In ten (10) of the twelve (12) crash fatalities there is no possibility that the crash and death was the result of a mechanical failure of the fire apparatus (due to failure to inspect or maintain it properly). In these cases, the deaths were in a result of failing to wear seat belts, collisions with tractor trailer trucks, going through stop signs, and other driver errors. In one case, two deaths were in a roll-over of a tanker and there is no determination of the cause. Data from other years shows the same pattern.

From 2013 to 2022, ninety-seven firefighters died in crashes, but only four of those deaths can be attributed to any kind of vehicle mechanical failure. Here's what the factual data tells us about firefighter deaths in vehicle crashes from 2013 to 2022:

- 6 deaths with an unknown cause of the crash.
- 35 deaths in crashes involving a collision without any mechanical problem.
  - Intersection collisions, struck by drunk drivers, driver error, etc.
- 28 deaths in private vehicles (Not subject to NFPA 1910).
- 4 deaths because of a mechanical failure to a fire truck.
- 21 deaths in aircraft, ATVs, and being struck by a fire truck.

Half of these deaths were not even in fire trucks. For additional, see Appendix A at the end of this comment.

If NFPA 1910 is adopted, at best, it might have prevented four deaths over ten years.<sup>3</sup>

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<sup>3</sup> It should be noted that on January 9, 2009, Boston Fire Lt. Kevin Kelley was killed, and two firefighters injured, when the brakes failed on their truck, and it struck a building. There is no doubt if the truck had been properly maintained, inspected, and taken out of service in accordance with NFPA 1910, that this would not have happened. An investigation revealed that the leadership of the BFD and the City of Boston failed to have the necessary systems and procedures in place to prevent his incident. The truck was found to have been operating for years with a defective braking system due to the department's poor maintenance system, and the driver had not received proper training on the truck's air brake system.



The four deaths occurred as follows:

- In 2016, three firefighter deaths resulted from two separate crashes. Both crashes were the result of tire failures.
- One firefighter died in a crash that was a result of a transmission transfer case failure while the truck was returning from a repair facility. The crash resulted in a recall by Navistar Inc. for International 4800 trucks built between June 1999 and May 2002 equipped with Fabco TC-200 transfer cases.

In the proposed rule, at Table VII-A-4 – A Summary of Hazards identified by OSHA During Fatality Investigations, it is stated that 29 firefighter deaths or 10.6% of firefighter deaths are attributable to “Vehicle Preparedness and Operation”. Combining vehicle preparedness deaths and vehicle operation deaths is inappropriate and results in an inaccurate view of the situation. If the data was separated into two categories, vehicle preparedness and vehicle operations, then the data clearly indicates that the overwhelming number of deaths in this area result from vehicle operations and have no nexus to vehicle preparedness (such as weekly inspections). Therefore, it is not necessary for the federal government to require strict compliance with NFPA 1910 (FKA NFPA 1911) to prevent firefighter deaths and injuries.

There is no national fire apparatus mechanical inspection or maintenance safety problem. **The data does not support the need for federal OSHA action.** Even if it did warrant OSHA action, the proposed solution **fails to pass any cost-benefit analysis** in terms of time and money to implement. Employee safety will not be improved by any measurable standard if this rule is approved.

### **Administrative Burden and Cost:**

These proposed rules come with a massive administrative burden on volunteer and part-time fire chiefs.

According to Table VII-C-5 – Unit Labor Hours for Labor-Based Costs by Employment Size Class – Structural and Wildland Fire Services and Firefighters, the estimated hours for compliance with this standard, by fire chiefs, is as follows:

One – Time: 198.58 hours or 4.76 workweeks (at 40 hours per week)

Annually: 376.032 hours or 9.4 workweeks (at 40 hours per week)

An unpaid, volunteer fire chief would be expected to spend the equivalent of a month’s work to initially implement these proposed rules. Given everything else this chief is doing without pay in his/her spare time, this is an **undue burden given the expected outcomes**, and lack of data supporting the need for much of this regulation in small and very small towns.

For a part-time chief, who is paid stipend or annual salary, this moves his/her pay for the job to pennies on the hour. For instance, the chief of the Northfield, Massachusetts Volunteer Fire Department is paid a stipend of about \$542 per month. (This is typical in our state for small departments.) The one-time implementation of these rules would require a full month’s full-time

work for \$542 or \$2.80 per hour. All this assumes the chief doesn't have to do anything else that month such as his/her full-time job, respond to emergency calls, or otherwise administer the department in all other areas.

Worse is the annual time needed for compliance. Volunteer and part-time chiefs would be expected to put in 376 hours or 9.4 weeks of full-time work each year to comply with the rules. This would be in addition to what they currently do to administer their departments and respond to emergency calls.

The hours estimated by OSHA for these tasks appears low. For instance, the very first item in Table VII-C-5 says it should take fire chief two hours to familiarize themselves with the new rules. The proposal document and the NFPA standards incorporated by reference are in the range of 3000 pages long. The chief will have read through a dozen or more NFPA standards. It seems unrealistic that anyone is going to be able to familiarize themselves, in any meaningful way, with how this document changes the organization and operations of their fire department in two hours. **The proposed rules are too much, too fast.**

The chief getting a \$542 per month stipend is woefully underpaid to this work, and the unpaid volunteer is simply being abused. Nobody will do the job of volunteer or part-time fire chief under these conditions.

If all of these proposed rules are enacted, how many firefighter deaths and injuries are going to be prevented in towns smaller than 3,000 people, and what is the cost-benefit analysis to support the rules?

### **Overreach:**

Some of the NFPA standards being incorporated into these rules have elements that **lack a nexus to employee/firefighter injuries and deaths**. While not a complete list, here are some examples:

#### **NFPA 1021 – Officer Training:**

The proposed rule will require that all fire department officers must have training that meets the NFPA 1021 Standard. Some of the topics required by this standard have no bearing on or only a remote bearing on firefighter deaths and injury. Some of these topics are:

- Preparing budgets
- Developing a financial management system
- Answering Public Inquiries
- Purchasing and Finance (Public Bidding)
- Writing Media Releases & Administering Public Relations Programs
- Hiring Policy & Procedures
- Providing for ADA Accommodations

What is the significant risk of death or injury that OSHA hopes to mitigate by requiring every fire officer in the United States to have training to write media releases, manage budgets, or provide for ADA accommodations, especially if these areas are not within the normal scope of their job?

It is not within OSHA's authority to require training that is not related to workplace deaths and injuries. It would be better if OSHA were to limit the requirement for officer training to those topics more aligned or related to preventing deaths and injuries.

Additionally, officers in small, typically volunteer, fire departments do not have responsibility for the topics listed above, and other topics contained within the NFPA 1021 standard. It will be inappropriate to require training for employees on topics that are beyond the scope of their jobs.

NOTE: It is important to understand that when NFPA standards are used as "best practices" the fire chief (Authority Having Jurisdiction or AHJ) has the ability to modify the standard as it pertains to their fire department's resources and needs. For instance, fire officers would receive training that is equivalent to the NFPA 1021 standard, to the extent it is part of their job. A volunteer fire department officer does not need training regarding collective bargaining agreements, because there are no collective bargaining agreements at volunteer organizations. Making the NFPA 1021 standard (and other standards) legally required, as written, is not appropriate because they were not designed to be implemented exactly the same way by each department. **One size does not fit all.** The standards themselves contain language that allows for modification, by the AHJ, based upon local needs and resources.

### **NFPA 1140 – Wildland Fire Training:**

OSHA's proposal calls for training all wildland firefighters to NFPA 1140, Standard for Wildland Fire Protection. Doing so will require a great deal of unneeded training for primarily structural firefighters.

NFPA 1140 defines "wildland" and "wildland fire" as follows:

Wildland: Land in an uncultivated, more or less natural state and covered by timber, woodland, brush, and/or grass.

Wildland Fire: A fire that originates in or extends to vegetative fields and that can involve structures or other combustible materials.

It then goes on to essentially say that the standard applies to any firefighters who respond to wildland fires (among other things).

**By these definitions almost all firefighters are wildland firefighters** and must meet the standards of Wildland FF I, Wildland Fire Officer I, Wildland FF II, and Wildland Fire Officer II. The standard makes no distinctions for the size and frequency of wildland fires handled by the fire department, nor their risk to the community. A 10' x 10' roadside fire that a structural engine company would easily extinguish with no specialized equipment, specialty PPE, or wildland specific training is treated the same as the 829,900-acre Lime Complex Fire in Alaska in 2022.

In practice, there is clearly a difference between structural firefighters who extinguish frequent small brush fires or the occasional larger fire, and true wildland firefighters. The OSHA rules need to distinguish between the two groups so that structural firefighters aren't required to meet NFPA 1140, as is beyond their normal scope of operations, and there is no data showing that this additional training is necessary for their safety.

It should be noted that Firefighter 1 training (NFPA 1010) includes basic wildland firefighter training that is appropriate and sufficient for most structural firefighter extinguishing small or infrequent wildland fires.

Among those departments that may handle some larger wildland fires or respond to them more frequently (but are still primarily structural fire departments), there should be some tiered level of training based upon the nature of their jurisdiction's wildland fire frequency, size, and risk. A small Massachusetts fire department might respond to a half dozen or a dozen small brush fires in a year, and only one might be bigger than an acre or two. This doesn't warrant the full scope of training required by NFPA 1140, as would be required under the proposed rule.

Additionally, the data suggests there is no significant risk of death and injury to firefighters requiring OSHA intervention and the mandating of wildland fire training at any level.

In 2023, there were thirteen firefighters killed in the line-of-duty related to wildland firefighting. The ten-year average for wildland related line-of-duty deaths is ten (10) firefighters. A look at the causes of the deaths clearly shows no nexus to wildland fire training. The deaths were as follows:

- 4 Medical Deaths
  - All apparent heart attacks
- 4 Vehicle Crashes
  - One crash in a private vehicle
  - Two ATV/UTV crashes
  - Single Vehicle Crash
- 3 Aircraft Crashes
- 1 Firefighter Struck by a Falling Tree
- 1 Firefighter Killed by Contact with an Electrical Powerline

OSHA proposed solution to firefighter deaths is requiring training that would not have prevented any of these deaths.

With an average of ten deaths per year, most of which have no nexus to insufficient training, does not seem to represent a significant risk requiring OSHA intervention, and even if it does, the solution, requiring extensive additional wildland firefighter training to a wider range of departments, will not address the reasons that most wildland firefighters die.

This requirement also touches on an important point – **one size does not fit all**. In this case, wildland fire training in one part of the country is not the same as other parts because from one part of the country to another the topography is different, the size of the fires is different, the type of fuel is different, the speed and ease of access to fight the fire is different, the community risk is different, and frequency of significant fires is different. Local jurisdictions need to be able to modify NFPA 1140 to match the situation in their area.

For instance, fire shelter training will be required for all firefighters who respond to wildland fires (defined as a fire in forests, woodlands and not in buildings). Almost every fire department responds to some wildland fires that meet this rather broad definition. Most of these are small fires – mulch, roadside, and less than an acre in size. There is no need for wildland fire shelters at these fires. This is a waste of training time and will not improve worker safety.

Additionally, the nature of wildland fires in the northeast is very different from the west. Fire shelters are not typically used for the small brush fires that most fire departments deal with in the northeast. Has there been a fire shelter deployment or the need for a fire shelter deployment in the northeast in the twenty years? Again, one size does not fit all.

We also note that OSHA provides **no cost analysis** for providing this training to small volunteer fire departments that routinely respond to a small number of wildland fires each year. There is no cost-benefit for this proposal.

Finally, with regard to wildland fire training, the MCVFA believes that the majority of departments that are doing specialized wildland fire training are using the training put forth by the National Wildfire Coordinating Group, not the NFPA standard.

#### **NFPA 1910 – Truck Inspection & Maintenance:**

Almost the entire standard is an **over-reach**. There is **no data** that the inspection and maintenance of fire trucks are resulting in FF deaths and injuries<sup>4</sup>. Much of this has been discussed above, however, we would like to comment on three specific areas within NFPA 1910 as follows:

- All fire apparatus will be required to have an annual axle weight test. (NFPA 1910) This not simply the weight of the truck but weighing each individual axle. Almost no fire departments in Massachusetts, particularly those in small towns or more isolated rural communities have access to the required certified scales that can weigh individual axles. For many of the small and very small departments in

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<sup>4</sup> The 2009 Boston Crash and the two crashes in 2016 being the exceptions.

Massachusetts, this means driving a two to four hour round trip to a set of scales with each truck. Having volunteers available to do this is difficult.

Overweight trucks should not be allowed. But, annual weighing of fire trucks is not the solution, especially since there is no data indicating how many trucks are overweight.

There is no data indicating a significant risk based upon overweight fire trucks. Even if there is, weighing trucks annually is the most administratively burdensome and most expensive solution available.

OSHA could be asking us to weight thousands of trucks to identify a handful of overweight vehicles. Rules requiring that fire apparatus meet the manufacturer's weight requirements with a requirement that they be weighed when put in service and then again whenever they are altered or substantial equipment is added, would address the issue. If a truck is weighed and then no changes are made over the course of the year, the weight won't change.

- The proposed rules will require the annual testing of fire apparatus brakes (NFPA 1910). Each department will be required to layout a test course with a start and stop line (40' away for most trucks), drive each truck at 20 mph at the start line, and hit the brakes when the front bumper crosses the line, and then measure the stopping distance to see if it conforms to the chart in the standards. To the best of our knowledge, not a single fire department in Massachusetts is currently doing this. This is not a normal or accepted practice.

Is there data indicating fire truck accidents and injuries to firefighters because of poor brakes?<sup>5</sup> Truck dealers/maintenance facilities don't offer this testing as a service. For a small department with a handful of volunteers to set this up and run it is asking for a lot of effort for no defined gain.

Additionally, conducting this test on different surfaces, using different drivers, and under imprecise test conditions will result in inconsistent and unreliable results.

MCVFA believes that there no significant risk of death or injury to firefighters because departments are not annually testing the brakes for their trucks in the is manner. (Brakes should be inspected and maintained through regular service with vendors or department mechanics.)

- Truck tires will have to be replaced every seven (7) years (or sooner if the tread is worn out). This is a good practice, but it is unclear where the seven (7) year time

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<sup>5</sup> Acknowledging that the 2009 Boston Crash was caused, at least in large part, by failure to inspect and maintain the brakes.

limit comes from. Even assuming there is science or data to support the seven-year time limit, there still needs to be flexibility for trucks that are being replaced or awaiting refurbishment.

The current delivery time for new fire trucks is two years, and if the existing trucks tires turn seven (7) years old while awaiting the replacement truck, departments are faced with poor options. They can:

- Take the truck out of service until the new truck arrives and reduce emergency response capabilities; or
- Order and install new tires that cost \$800 to \$1,000 each (\$6,000 for typical engine) for a truck that is being taken out of service shortly; or
- Violate the rules.

Given that Massachusetts has many departments with budgets of less than \$100,000 a year, spending \$6,000 for tires that are going to be “thrown away” in a few months is an expensive solution to a small problem, and a poor outcome for the department and its community.

Is there a significant risk of firefighter death and injury due to old tires on fire trucks? Firefighter line-of-duty death data from the past decade shows three (3) deaths resulting from two fire truck crashes where the truck’s tires were identified as the cause of the crash. This doesn’t seem to rise to the level of risk that requires Federal OSHA intervention.

Additionally, almost all small and very small fire and EMS departments do not have in-house mechanics or maintenance facilities. Almost none have truck lifts or access to truck lifts. Any complex inspections or repairs must be done at a manufacturer’s service center, sometimes out of state. This means driving or towing trucks anywhere from one or two hours away to a full day’s drive each way. It is not uncommon for departments to wait weeks for an appointment and spend a full day getting the truck to a service center. Then the trucks can sit waiting for service or parts for days and weeks. Finally, they spend a full day getting the trucks back to their stations. During this time, they are unavailable to fight fires in their service area, to the detriment of the safety of the citizens/residents in their coverage area. It is a frustrating and unsatisfactory situation, however, that’s the reality for these departments.

Is lack of capacity or availability by service centers a good reason for not doing inspections or maintenance? No, instead, it is a reason why OSHA needs to narrow the required inspections to those that have been identified as creating significant risks to the health and safety of firefighters.

## **Is There Significant Risk that Warrants Such Extensive New or Additional Federal Regulation?**

**Not to this extent, but there are a handful of risks that should be addressed.**

In its proposal for these new regulations, OSHA seems to say that the fire service has failed to address firefighter injuries and deaths on its own, and therefore, OSHA must step in with regulations. While this may be true in a few narrow areas, in the broader context the data suggests that the need to regulate the whole of the fire service by OSHA is not accurate.

Firefighter injuries are declining without OSHA's involvement. From 1981 to 2022, overall firefighter injuries have declined from 103,340 injuries (1981) to 65,650 injuries (2022) -- a decrease of about 36%.

Fireground injuries (a subset of the above data) has dropped from 67,500 injuries in 1981 to 21,325 injuries in 2022 -- a 68% decrease.

Firefighter line-of-duty deaths are also declining without OSHA regulation. There were 136 firefighter line-of-duty deaths in 1981 and 96 deaths in 2022.

It is also important to note that the methodology for counting firefighter line-of-duty deaths has substantially changed since 1981 to include more deaths. In 2003, the fire service started to include certain heart attacks and strokes that occurred off-duty. These are known as "hometown heroes" deaths within the data sets starting then. More recently, COVID-19 deaths were added to the line-of-duty death roles.

Without these two new categories being added to the line-of-duty death definitions, the number of firefighter line-of-duty fatalities would have dropped from 136 deaths in 1981 to 73 deaths in 2022, representing a 46% decrease.

It seems that **the key premise** behind these proposed regulations, that the fire service is failing to reduce deaths and injuries without OSHA regulation, **is unsupported by factual data.**

However, in some narrow areas, such as cardiac deaths and deaths from not wearing seat belts, there is case in favor of regulatory action.

For instance, requiring seat belts when responding to and returning from incidents, could save five or six lives per year, without spending money or creating new administrative burdens. A cost-benefit analysis works for this, even if it is a small number of fatalities.<sup>6</sup> **The MCVFA recommends that seat belts be required.**

More importantly, cardiac screening, could result in up to 40 fewer deaths per year. This is almost half of all firefighter deaths in a typical year. **OSHA should seek a financially less expensive cardiac screening method** and less administratively difficult to deliver method than requiring NFPA 1582 medical exams, particularly since NFPA 1582 medical exams include a

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<sup>6</sup> It is unclear from the data how many injuries the use of seat belts would prevent. The MCVFA has been unable to find injury data specific to seatbelt use.



substantial number of tests and procedures unrelated to cardiac deaths or any other significant risk.

**The MCVFA recommends that cardiac screening, but not the full NFPA 1582 medical exam, be required on a periodic basis.** (See discussion below regarding tiers of regulation based upon risk for some background on frequency of screening.)

Additionally, the data says that small communities have fewer injuries than larger communities. This means that **small and very small towns should not have to meet the same health and safety rules as large urban communities.** Look at the 2023 injury data (from NFPA research) below:

Firefighter Risk of Injury by Size of Community Protected

Data From NFPA “United States Firefighter Injuries” December 1, 2023

Population	Average Number of Fireground Injuries Per Year	Fireground Injuries Per 100 Fires	Fireground Injuries Per 100 Firefighters
500,000 or More <sup>7</sup>	69.6	1.5	4.5
250,000 to 499,999	24.6	1.6	5.0
100,000 to 249,999	7.0	1.1	2.9
50,000 to 99,999	3.4	1.4	3.0
25,000 to 49,999	2.0	1.7	3.2
10,000 to 24,999	0.9	1.2	2.1
5,000 to 9,999	0.5	1.0	1.5
2,500 to 4,999	0.3	0.9	1.0
<b>Under 2,500</b>	<b>0.1</b>	<b>0.8</b>	<b>0.5</b>

Almost half, about 48%, of all the fire departments in the United States, and those subject to these proposed regulations, are in the last size category of “Under 2500” population. These **small and very small departments have a much lower injury rate than larger communities** – indeed, they are the lowest on the chart. Looking at the data, communities with populations less than 10,000 people (more or less) experience a much lower injury rate than the bigger communities.

For example, towns under 2,500 people have a per 100 firefighter injury of 0.5 (one injury every two years) versus a large city with an injury rate of 5 or 4.5 per year. There is a big difference in the risk between these two extremes.

The MCVFA suggests that a primary reason for the significant difference in risk from the very small to the very large community is a result of the **different risks that different communities face.** Most small towns deal with low and moderate risk fires and other incidents. Most building fires in small towns are in wood frame, single-family homes. Without denying the hazards of

<sup>7</sup> This data does not include the Fire Department of New York.

fighting these fires, they are not as risky as larger multi-family homes, apartment blocks, high-rise buildings, industrial facilities, and major transport hubs. Because single-family homes are almost the only kind of building fire that small town fire departments encounter, they can focus their training and experience on them, and generally get very good at handling them safely.

When regulating private entities, **OSHA exempts certain smaller businesses**, and it provides some **different tiers of regulation** based upon the size of the business being regulated. This data supports the idea that the same tiered approach is appropriate for the fire service. One size fits all regulations are not appropriate based upon the factual injury data.

**The MCVFA suggests that OSHA should tier these proposed regulations based upon population served and the injury rate at that size community.** For example, the following tiers would be logical based upon the risk:

Tier 1: Lowest Risk Fire Departments:	Communities of 2,500 or less population
Tier 2: Low Risk Fire Departments:	Communities of 2,501 to 24,999 population
Tier 2: Moderate Risk Fire Departments:	Communities of 25,000 to 249,999 population
Tier 3: High Risk Fire Departments:	Communities of 250,000 population or more

A review of the injury data above shows that there is a significant increase in risk at three points. First, risk increases from 0.5 to 1.0 per 100 fires at 2,500 population communities. Then risk increases again at about the 25,000-population point, and then it jumps up again at the 250,000-population point.

### **Cancer Prevention & Medical Exams**

There is clearly an increased risk of occupational cancer in the fire service. Every firefighter knows a firefighter with cancer. The problem is that we find no data regarding the extent of that risk in small and very small town (most volunteer and small combination) fire departments, while there is substantial data demonstrating the cancer risks in the urban fire service. These small-town departments haven't been studied appropriately to determine the risks and solutions. We haven't figured out how to separate cancer risk between volunteer firefighters non-fire careers, civilian life, and firefighting.

The volunteer fire service has simply assumed it has a cancer problem based upon the proven cancer problem found in urban career fire departments. It is the prudent approach. As a result, the volunteer fire service in Massachusetts has generally adopted the following practices of reducing the unknown cancer risk:

- Standard Operating Guidelines that PPE & SCBA are worn throughout the entire incident by firefighters exposed to smoke/fire, including during salvage and overhaul. This is a simple operational change that requires no additional funds or complex administration.
- Most departments are providing a second hood for their firefighters. This is an inexpensive practice, costing between \$150 and \$200 per firefighter.

- Gross Decontamination (assuming a safe location and appropriate weather) of PPE at incidents is routinely done; however, the bagging and carrying of PPE in outside compartments is not typically done.
- Most departments are carrying wipes so that firefighters can clean exposed skin at incidents.
- Changing of clothes after smoke/fire exposures is encouraged, but sometime difficult to accomplish in very small organizations. Many of these small volunteer fire departments operate out of nothing more than a garage. They have no running water, no lockers, no showers, and no facilities for changing.
- Showering after smoke/fire exposures is encouraged; however this may have to wait until volunteers return home. Many small fire stations have no showers.
- Where feasible, PPE is not allowed to be worn beyond the apparatus areas; however, many small departments have little or no separation between apparatus areas, training spaces, offices, and such. The only training facility many departments have is their fire station, so they must use their station spaces to practice in. If a department wants to practice getting a victim out of a second-floor window, they must use the second-floor window of their fire station's living quarters or office spaces. The alternative is to stop training.
- The cleaning of apparatus, particularly the passenger compartments, has improved.
- The use of tobacco products is not allowed.

Of these, the action that stands out as a clear cancer prevention method is to designate fire stations, incident scenes, training classes or exercises, and truck cabs as no smoking or no tobacco zones. There is plenty of medical evidence that tobacco products cause cancer and heart diseases.

**The MCVFA suggests that smoking and tobacco products should be banned from the fire and EMS workplace.** Given the potential risks of cancer from firefighting activities, adding tobacco products into the mix would seem to be a bad idea and a feasible (financially and administratively) solution is to restrict smoking and tobacco.

### **Behavioral Health & Wellness Programs**

A substantial part of the OSHA proposal would require all fire departments to provide a behavioral health and wellness program to all firefighters.

It is unclear what is OSHA's goal or need for mandating behavioral health and wellness programs, particularly in the half or two-thirds of the fire service in small towns. There is a great deal of discussion in the fire service about firefighter suicide, PTSD, stress, and other behavioral/emotional health. However, there have been few studies in the low call volume environment, and there is almost no data telling us the nature and scope of these problems in small town, primarily volunteer, fire departments.

The studies that do exist and demonstrate a behavioral health problem are in urban departments or large suburban organizations. The MCVFA can't find any data or studies regarding these issues in small towns, and low volume emergency departments.

Without knowing the nature and scale of the problem, we don't know how to prevent or mitigate it. OSHA offers no data or direction. It seems that OSHA is simply assuming that if the problem exists in urban fire departments (5% of the fire departments)<sup>8</sup>, it must exist in the all the smaller departments. Even if it might exist across all departments (at least to some extent), how do we solve a problem with regulation when we can't define the scope of the problem?)

Further compounding the problem is that we don't necessarily know what works. Fire Chiefs are bombarded with sales pitches for health & wellness programs. Chiefs find no objective studies or science to help guide them in choosing a vendor and a program that works for them. Small departments with no administrative staff, and no administrative wing to their fire station (it's just a garage) must rely upon vendors and outside sources to provide these kinds of services. Unfortunately, this can make them susceptible to expensive, but unproven, products that play upon their desire to demonstrate safety and care for their firefighters.

Requiring a wellness program for these small departments is likely to end up with towns finding the least expensive way to "check the box" and meet the regulation, regardless of how well the program works. The MCVFA fears departments spending money on wellness apps, that nobody uses and provide nominal service, simply to comply with the rule. Small town fire departments barely have enough money to get by on – they can't afford to waste money on things that might not work or provide marginal value.

We need know what the problem is before we start mandating the solutions.

### **Bad Data – Part 1**

Reading the proposal, the MCVFA noted that OSHA relied upon data from the 2021 Firehouse Magazine Annual Fire Department Run Survey for making several assumptions regarding the size and scope of volunteer fire departments, particularly their budget and funding status, memberships, and emergency call volumes. The use of this survey for making regulations and laws is **inappropriate**. The Firehouse Run survey is for entertainment and not appropriate for creating regulations.

The Firehouse Survey is small, with only about 250 fire departments participating. There are more than 30,000 fire departments in the United States. The survey is made up of a self-selecting group of respondents, some or most of whom are not chief officers or other higher administrative personnel with access to accurate data. The survey is not close to being scientific or statistically sound.

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<sup>8</sup> The NFPA Fire Department Profile Date indicates that about 5% of the fire departments in the United States protect communities of 100,000 or more people. About 80% of departments protect communities of under 10,000 people.

OSHA appears to have taken the 250 (more or less) responses to this survey and extrapolated them to represent the entire volunteer fire service.

There are, in fact, multiple sources of much more accurate and complete data than this survey. The NFPA does an annual profile of fire departments that captures information on about 2,500 fire departments. The Insurance Services Office (ISO) has accurate information about the staffing and equipment of almost all the fire departments in the United States. NFPA does a comprehensive needs assessment of fire departments about every five years and includes data from about 5,000 fire departments. These data bases are more accurate than the Firehouse Magazine Survey.

## **Bad Data – Part 2**

In order to properly construct regulations that address a significant risk, we have to define that risk. In preparing these comments, the MCVFA has done a great deal of research on firefighter deaths and injuries. We found that the data is reported differently by different organizations. Sometimes it is a small difference, but other times it is significant. We also found the way data was categorized can be deceptive in terms of defining a risk.

For example, the NFPA's 2022 report on firefighter injuries says that 7,225 firefighters were injured "responding to or returning from Incidents". The same report identifies 800 injuries in fire truck crashes and 250 injuries in crashes involving personally owned vehicles. The report is silent as to the other 6,175 firefighters' injuries responding to or returning from incidents. We were also unable to find data that would tell us about those 800 injuries in fire truck collisions, other than that they occurred.

It is inappropriate to simply guess about why 800 firefighters were injured in truck collisions, and say we need to inspect and maintain the trucks better, or we to mandate more driver training. We don't know how many cases involved collisions where firefighter training was a factor. We don't know the severity or nature of these injuries.

OSHA needs to figure this data out before mandating a solution; otherwise, OSHA can't say that the proposed regulations offer solutions that solve a significant risk.

Another example is that NFPA's 2022 firefighter line-of-duty death data says five (5) firefighters died in wildland fire operations, FEMA says 19 died in wildland fires, and the Wildland Fire Lessons Learned Center says 13 died in wildland fires. They are all correct numbers, and each organization does great work. The difference is in methodology and purpose. Each organization collects its data using slightly different methods and definitions based upon slightly different needs or uses.

OSHA needs to do a better job of reviewing and analyzing all the various data sources in order to define the significant risks.

## **Incorporating NFPA Standards**

OSHA is incorporating by reference at least twenty-one (21) NFPA Standards into their regulations. This changes the standards from industry best practices or goals into legally mandated practices. However, most of these **standards are not designed to be absolute as a law.**

All NFPA standards contain language that allows the Authority Having Jurisdiction (AHJ), typically the fire chief, to adopt the standard in whole or in part, and to modify the standard to fit local needs and resources. If these become OSHA regulations, the fire chief can no longer modify the standard.

OSHA seems to assume that incorporating the NFPA standards by reference does not create a burden on fire departments because departments are already using them. This is not the case. **Very few departments use NFPA standards in whole, or literally.** They almost all modify the standards to fit local resources and needs. The standards are created knowing that chiefs can and do modify them.

While the NFPA standards process is public, transparent, and well run, much of what makes it into standards lacks scientific validity or solid data to support its inclusion. There is a great deal of opinion and a certain amount of politics in these standards. Many parts of the standard are based upon antidotal evidence, not hard data or significant risks.

The incorporation by reference of these NFPA standards also creates a regulatory document that is thousands of pages long. Such length is well beyond the administrative capacity of the typical volunteer or small combination fire department to read, analyze, and develop appropriate compliance procedures. It is simply too much for a volunteer or part-time chief to read and analyze, let alone to comply. These chiefs and their departments have no administrative help and have funds to get administrative help.

Another issue is that NFPA standards can be read online for free, but require payment if a chief or department wants a copy to mark up, share with staff, or cut/paste into strategic documents or procedures. This is a significant expense for small, underfunded departments.

## **Training & PPE Requirements Generally**

Throughout OSHA's proposal, there appears to be a theme that firefighters and EMS providers should have specialized training and PPE for responding to incidents involving technical rescue incidents and other specialized hazards.

The MCVFA agrees that firefighters and EMS providers should have appropriate training and PPE for the incidents to which they respond. The problem is that OSHA doesn't make it clear

what level of activity by a small fire department would require them to be trained and equipped for certain very low frequency events such as maritime firefighting or trench rescue. For instance, would OSHA require a fire department to have specialized PPE and training in the following circumstances:

- A small department neighbors a larger community with a small municipal airport. Once, twenty years ago, a plane took off from that airport and crashed in the neighboring town. If it happened again, would OSHA expect the small-town department to have aircraft fire-rescue training and PPE to handle this once every 20-year event? How frequent would these events have to be to trigger PPE and training?
- A small department responds to and extinguishes a leisure boat fire at a marina every two or three years. What level of maritime fire training does that trigger?
- A coastal town's fire department is called to the beach for a person who is buried in sand when a hole (created by beach goers as they tend to) falls in on him. What level of trench rescue training and PPE would OSHA expect for a department that does this once every decade or so?

There are plenty of similar scenarios where small fire departments are called upon to respond to technical or unusual emergencies once every five, ten, or twenty years. The OSHA proposal seems to say that departments should train and equip for emergencies that “may” occur. There does not appear to be any guidance for knowing how often something occurs to require specialized training and PPE.

The MCVFA agrees that firefighters should not be asked to handle incidents for which they lack PPE or for which they are untrained. Cities such as Boston and New Bedford are major ports, and their fire departments should be trained for maritime operations. But should the same level of training be required for a town with a small recreational marina and small craft? Cities and towns with airports should have aircraft crash and rescue training, but should towns under the flight path have the same training requirements? It is unclear from the standards and OSHA's proposal what will be required.

The proposed rules imply that departments will be able to make these determinations using a community risk analysis and by creating a risk management plan for the department. While the MCVFA agrees that departments should do a community risk analysis and have a risk management plan, we are concerned that the small departments lack the administrative staff and skills to do so in the manner or format expected by OSHA. These departments have no money to hire consultants to write these for them. Instead, they will be written by volunteers in their spare time. As a result, these analyses and plans likely will not include heat maps, charts, and complex data analysis. We ask that **OSHA better clarify what is expected for a community risk analysis and risk management plan, especially in a low-risk small town.**

**The MCVFA seeks clarity on these issues of required specialized training and required specialized PPE.**

## OSHA Questions

Throughout the proposal, OSHA asks several questions of the fire service in its quest to assess the proposed rules and create better rules. The MCVFA would like to take this opportunity to answer or provide thoughts regarding many of those questions.

### **Medical Surveillance (aka Medical Exams):**

*OSHA is seeking input on whether an action level of 15 exposures to combustion products within a year to trigger medical surveillance consistent with National Fire Protection Association (NFPA) 1582 is too high, too low, or an appropriate threshold. OSHA is also considering action levels of 5, 10, or 30 exposures a year as alternatives.*

The answer to this question hinges greatly upon what is considered an “exposure to combustion products” and what incidents have a “hot zone”. While everyone should agree that firefighters operating inside a burning building, in an atmosphere that is clearly an IDLH atmosphere, is an exposure to combustion products. But most incidents don’t fit neatly into that scenario. Is there hot zone for these examples? Let’s consider the following scenarios:

1. A fire company extinguishes a small mulch fire in the traffic island of a parking lot and is exposed to smoke from the mulch.
2. A fire company investigates an open burning complaint and finds a homeowner burning brush within the law but in doing so, they are briefly exposed to smoke from the burning pile of brush.
3. A fire company responds to and extinguishes a car fire. Two members of the fire company, in full PPE and SCBA, extinguished the fire and were exposed to smoke. The driver/operator was never exposed to smoke. The incident commander may have been briefly exposed to smoke. Which members of the fire company have been exposed enough to trigger medical surveillance?
4. A fire company responds to an alarm sounding in building. They find no fire, but while investigating they discover that there is Carbon Monoxide in the building at a level of 5 PPM. Is this an exposure to products of combustion? Does the answer change if they find 35 PPM of CO? Does it change if they find 100 PPM of CO? Does it matter if they were not wearing SCBA, or donned SCBA after discovering the CO?
5. A fire company responds to a report of a chimney fire in a residence. They find light smoke in the house because the homeowner failed to open the chimney flue. They ventilate the house. Does it matter if they were wearing SCBA the entire time, part of the time, or never?
6. A permitted brush pile fire in a yard spread to a 20’x40’ section of adjacent woodland. A fire company responds and extinguishes the fire in about two or three minutes with a hose. No SCBA is worn.
7. Smoke is coming from a US Mail Drop Box. A fire company arrives and immediately extinguishes the fire with a portable CO2 extinguisher and without wearing SCBA.



8. Is exhaust from the internal combustion engine of running vehicles (in normal operation) considered an exposure to combustion products?
9. Firefighters spend six hours extinguishing a multi-acre wildland fire. They do not wear SCBA, and they are clearly exposed to products of combustion. Is this one exposure? Or is there a time component to exposures?
10. A fire company extinguishes a lawnmower fire. They initially knock down the fire from a distance using the reach of their hose stream, and then they approach the smoldering lawnmower to investigate and make sure the fire is extinguished. Does it matter if they are wearing SCBA at any point?
11. A fire company responds to an automatic fire alarm. On arrival, there is no smoke or fire visible. They enter the house at the front door and can smell burnt bacon. The homeowner tells them that they had burnt bacon while cooking, but there is no problem. The officer goes into the kitchen and witnesses burnt bacon in a pan, but there is no fire or hazard. The fire company returns to their station.
12. A fire company responds to a school for an automatic fire alarm. On arrival, they see no smoke or fire. They check the alarm panel and see the alarm came from the teacher's lounge. They walk through hallways with no smoke or fire, but as they get closer and closer, they smell burnt popcorn. They find and remove a bag of burnt popcorn from a microwave oven.
13. A fire department ambulance responds to a building fire. There is a victim being treated in the yard. The ambulance crew walks through drifting smoke to reach the patient, and then removes the patient to their ambulance.

We could continue and describe hundreds of ambiguous situations similar to these. We need clarity.

If in fact, OSHA plans to limit the definition of exposure to combustions products to being in an IDLH atmosphere, with or without SCBA, then fifteen exposures per year seems to be a reasonable trigger for medical surveillance. **If, however, even the slightest exposure counts then fifteen exposures is much too low.** In many of the scenarios above, the exposure to products of combustion is no greater than everyone's causal exposures in life while cooking, grilling, burning backyard brush, standing in a parking lot with cars running, or engaged in various industrial operations with environments that do not trigger medical surveillance for employees.

For this proposal work in the field, the definition of exposure to products of combustion must be clear and easy to apply.

Additionally, there is certain element arbitrariness to choosing any particular number of exposures to trigger medical surveillance. In the broad manner that OSHA proposes using medical surveillance, there doesn't seem to be any medical agreement or significant studies to support annual, bi-annual, semi-annual, or 15 exposures.<sup>9</sup>

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<sup>9</sup> There are some specific and well documented/studies exposure limits for certain situations that could be used. For example, radiation exposure has been well studied and the Nuclear Regulatory Commission has meaningful limits

*Additionally, OSHA is seeking input and data on whether the proposed rule's requirements for medical evaluations an appropriate minimum screening for team members and responders are. Should the minimum screening include more or fewer elements, and if so, what elements? OSHA is also seeking additional data and information on the feasibility of the proposed medical evaluation and surveillance requirements for Emergency Service Organizations (ESOs).*

The firefighter occupational medical exam set forth in NFPA 1852 is an excellent tool. It is best used for initial screening of firefighters before they are assigned to fire suppression duties for creating a health baseline for firefighters<sup>10</sup>. While providing this exam at some interval or after a certain number of exposures to an IDLH atmosphere makes might make sense, it doesn't need to be mandated by OSHA in every instance.

Many of the small-town fire departments do not go to many fires. The bulk of their emergency call activity is EMS, public service incidents, motor vehicle crashes, and investigations where there is no fire (or the fire is very small, incipient, or smoldering). However, they do need to be prepared to engage in structural firefighting without warning.

Given the very low frequency of firefighting, a full NFPA 1852 medical exam is not warranted on an annual basis or even bi-annual basis. Fire departments that respond to one or two building fires a year and maybe eight or dozen small outside fires, should be able to use an alternate means to prevent health related problems. Maybe use the full medical exam every five years for low frequency situations (but this still somewhat an arbitrary number).

A review of the firefighter deaths over the past decade indicates that cardiac deaths among firefighters, particularly as they age, is a real issue that needs to be addressed. However, the NFPA 1582 medical exam goes far beyond what is needed to screen firefighters for cardiac disease.

A review of data from 2012 to 2022 indicates that heart attacks are the cause of about 43% of firefighter line-of-duty deaths. The data also shows that the most of these deaths occur in firefighters between the ages of 41 and 60. For example, in 2022, twenty-one (21) firefighters between the age of 41 and 60 died from heart attacks, and only eight (8) under the age of 41 died of heart attacks. An additional eight (8) firefighters over the age of 60 died from heart attacks.

Other stress related medical deaths only average about four (4) per year, and in 2022 that number was four (4).

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and levels that require surveillance. Adopting these kinds of specific protections for firefighters would be appropriate.

<sup>10</sup> In Massachusetts, such a baseline is necessary in order for firefighters to be eligible for presumptive cancer and heart disease benefits. This may be the case in other states as well.

**The MCVFA suggests that the medical surveillance focus from an OSHA regulatory approach should be focused on cardiac screening.** The NFPA 1582 Medical Exam includes such things as an eye exam or a hearing exam. There is no data suggesting any significant risk of firefighter injuries or deaths from eye and hearing problems that requires Federal OSHA regulation. The NFPA 1582 Medical Exam is an expensive and overbroad solution to the cardiac death problem.

A less expensive and more focused cardiac surveillance or screening program would be more appropriate to the national need.

### **FITNESS FOR DUTY TESTING:**

*OSHA is seeking input and data on whether stakeholders support the proposed fitness for duty (ability to physically accomplish required job tasks safely) requirements or whether the requirements pose a burden on or raise concerns for team members, responders, or ESOs.*

Fitness for duty testing on a regular basis, every three years as proposed, is a good idea, but each fire department needs to be able to design their own test based upon what they actually do, and how often they do it (risk-benefit analysis). **One size does not fit all.** Let's look at a commonly suggested fitness for duty test:

Wearing a 50-pound vest to simulate the weight of equipment worn during firefighting, the firefighter completes the following eight evolutions in ten minutes and twenty-seconds, or less:

- Stair Climb: Climbing stairs while carrying an additional 25-pound (11 kg) simulated hose pack
- Ladder Raise and Extension: Placing a ground ladder at the fire scene and extending the ladder to the roof or a window
- Hose Drag: Stretching uncharged hose lines and advancing lines
- Equipment Carry: Removing and carrying equipment from fire apparatus to the fire ground
- Forcible Entry: Penetrating a locked door and breaching a wall
- Search: Crawling through dark, unpredictable areas to search for victims
- Rescue Drag: Removing a victim or partner from a fire building
- Ceiling Pull: Locating fire and checking for fire extension

How was it determined that 10 minutes and 20 seconds was required to complete these tasks? Is a firefighter who completes the task in 10 minutes and 21 seconds truly unfit compared to the firefighter who completed the task in 10 minutes and 19 seconds?

While 10 minutes and 21 seconds to complete this list of tasks made sense for some department at some point in time, it is an arbitrary standard when applied across 30,000 organizations with different needs. If a fitness for duty requirement is needed, **OSHA must allow each organization to develop its own, based upon their call volume and mix of calls, and other resources.**

These types of tests have a difficult legal history because they have all too often been used to disqualify women and minorities and been found to lack relevance to the actual job. Not that these tasks aren't done by firefighters, and every fire department might do one, but why these items and not other things we do every day? Firefighters are increasing spending their time lifting patients onto stretchers, why is that not a measure of fitness? Seventy percent of fire department responses involved EMS, not firefighting.

In an urban setting, carrying equipment up three, five, or more flights of stairs may be an appropriate measure of fitness for duty. In a rural setting where most of the properties are single floor, single family homes, then climbing stairs is not relevant to the task.

Small town fire departments also need to be able to conduct a fitness for duty test without having to purchase special props or to transport their firefighters to an out-of-town location. The financial and administrative burden of bring in props or shipping out your volunteer firefighters is beyond the capabilities of most of the small organizations. Additionally, they should be determined fit for duty using the actual equipment they will use for firefighting – the equipment at their fire station.

It should also be noted that there is tendency to test these fitness skills individually, when, for some of these tasks, we would be violating safety protocols in the field by doing them individually, rather than in a team. Unfortunately, these tests also tend to emphasize speed over safety.

### **Skills Check:**

*OSHA is seeking input and data regarding the appropriate methods and interval(s) for skills checks, as it relates to a responder's ability to perform essential job tasks and proposed paragraph (h)(3).*

Periodic skills testing is a good idea, particularly for certain critical skills such as donning and doffing SCBA. However, as with fitness testing, the specific skills to be tested should be determined by the local fire department based upon what they do and how often they do it (risk-benefit analysis).

A small-town rural fire department might choose to test drafting skills instead of hydrant skills, where they operate in a town with no fire hydrants. A city might test hydrant skills but would have no need to test drafting skills because there is a fire hydrant every 400'. Fire departments

that protect suburban tract housing made of single-family ranch homes might not test ladder skills, where a department with lots old 2 ½” story homes might test 35’ ladder skills.

**If skills testing is required, it should allow the local jurisdiction to determine the skills based upon the department’s experience and fire problem.**

### **PPE Age Limit:**

*OSHA is seeking input on whether the agency should specify retirement age(s) for PPE. Commenters should provide information and data to support specific retirement/remove from service criteria for PPE.*

The current NFPA standards call for retiring structural PPE after ten years. This seems to be reasonable<sup>11</sup>; however, small town fire departments do not have enough money to purchase new PPE for all of their members. Some departments use outdated PPE for non-fire training or for exterior support personnel (who are at low risk for exposure to fire). Structural PPE is designed for only one purpose – fighting structure/building fires by entering the IDLH and super-heated atmosphere. If the PPE is being used for other purposes such as auto extrication, non-fire support personnel, or exterior fire operations then it can still be useful and safe.

PPE that is torn, melted/burned, or does not fit the wearer is unsafe and should not be used.

However, the real issue here is cost and delivery times. The lowest price that the MCVFA could find for equipping a firefighter in Massachusetts with a complete structural firefighting ensemble is \$3,016. Departments in Massachusetts are reporting that they are waiting six to nine months for delivery of PPE. This delay forces departments to continue using old or damaged PPE until the new gear arrives because most departments cannot afford two sets of PPE for each member, or even a significant inventory of spare PPE in all the different sizes.

### **Handling PPE Contamination:**

*OSHA is seeking input on whether WEREs and ESOs are currently isolating and/or separating contaminated PPE and non-PPE equipment from team members and responders and also how this separation is being accomplished?*

Generally, smaller departments are conducting gross decontamination of firefighting PPE at the incident scene, when there is a significant incident: if firefighters come out of a structure fire,

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<sup>11</sup> Not everything that is reasonable needs to be mandated nor is that OSHA’s statutory purpose.

they will rinse the PPE with water (from a fire hose) before returning to their station. But this isn't typically occurring at minor incidents where the PPE does not show any visible signs of contamination.

For example, firefighters will typically gross decontaminate the PPE if it covered in soot, plaster, or other visible debris from the fire, but if they extinguish a lawnmower fire with 30 second burst of water and the gear shows no contamination, the PPE is not getting decontamination at the incident.

EMS PPE, that is not disposable (i.e. EMS jackets) and has been exposed to bodily fluids or other contaminants is typically bagged at the scene or at the hospital, and then washed before being used again. Disposable PPE is disposed of in accordance with state EMS protocols. State EMS protocols address all of these EMS decontamination and PPE issues, and there is no need for another layer of OSHA rules.

Most small-town fire departments do not have two sets of structural PPE for its firefighters. They don't have the money to do it, and it would not be cost effective for a department that only goes to one or two building fires a year.

There has been a great movement away from wearing dirty PPE. Departments and firefighters are generally keeping fire gear cleaner than was traditional. A decade ago, it was considered a badge of honor to wear heavily soiled PPE, but that cultural position is fading. Once PPE is back from an incident and requires washing, it can take days or weeks to get it washed. Small departments that have an appropriate washer generally only have one washer that is a small unit that cleans only one or two sets of gear per wash. Using volunteers to disassemble, inspect, wash, dry, and reassemble the gear means doing only one or two sets per day.

Some fire stations in Massachusetts lack running water or have no space for a washer. These departments need to borrow washing facilities from other towns or pay vendors to wash their PPE. This takes even more time to accomplish.

### **PFAS in PPE:**

*OSHA is seeking information on whether there is evidence of per- and polyfluoroalkyl substances (PFAS) in PPE causing health issues for team members and responders. Commenters should provide information and data to support release of PFAS from the PPE and movement of PFAS into the responder.*

The MCVFA has no specific technical information about this issue, but agree with the larger general society that PFAS should be eliminated over time as reasonable substitutes become available. Unfortunately, PFAS seems to be everywhere in our world, so much so that anyone tested is highly likely to have PFAS in them. This huge societal issue goes well beyond the fire

service. As with any consumer goods, PFAS should be removed from PPE. The specific threat to firefighters needs to be studied.

*OSHA is seeking input on whether the scheduled updates to NFPA 1971 will address or alleviate stakeholder's concerns about PFAS in PPE.*

The MCVFA does know what the scheduled updates to NFPA 1971 are or how they will address PFAS in PPE. The NFPA has about 300 codes and standards. **Almost nobody in the fire service follows all of these standards and their various update cycles.** Small town fire departments generally don't participate in the NFPA process and are generally unaware of the status of any particular standard at any particular time. This goes to the heart of the problem with OSHA simply incorporating NFPA standards into OSHA rules – most fire departments don't track or follow the NFPA (they lack the administrative and financial resources to do so), yet OSHA seems to think all fire departments are all very much engaged in this process and using these standards.

#### **Seat Belts Generally:**

*OSHA is seeking information on whether there are any other situations or vehicles where OSHA should require, or exclude, the use of seat belts and vehicle harnesses.*

**The MCVFA supports the use of seat belts by firefighters at all times** when riding in fire apparatus and when responding to incidents in their private vehicles. There needs to be some flexibility for EMS personnel when treating a patient in a moving ambulance. There are times that EMS personnel must be unbelted to provide certain medical treatments or reach supplies and equipment. While the use of a harness by EMS personnel may work for many situations, it is unproven for all, and many ambulances cannot easily be retrofitted with harnesses.

Further complicating the EMS issue, there isn't a generally accepted or proven harness system that works for all situations in the back of an ambulance. At this time, the MCVFA believes that **100% compliance while treating a patient in ambulance is not technically feasible.**

Additionally, there should be flexibility for vehicles that were built without seatbelts. There is likely only a small percentage of fire apparatus without seatbelts, but they do exist and should be exempt from the rule. (This doesn't include and should not include trucks built with seatbelts that were removed.) Ideally, these will be replaced soon, but the current wait for delivery of a fire engine is between two and three years from the date it is ordered. In Massachusetts, it takes about 18 months to propose and authorize spending of the scope needed to purchase a new fire engine. So, departments will need three to five years to replace a truck without seat belts.

Another area where compliance is not technically feasible is when evacuating people and patients from wilderness, maritime, and disaster areas. For example, getting a patient off the beach often requires loading them into the back of a 4x4 pickup truck to get them off the beach and to the ambulance parked on the nearest paved road. The same scenario happens on mountainsides, hiking trails, farm fields, and anywhere else there is no paved road. These situations require EMS personnel to ride with the patient in the back of the pickup truck. There are no seatbelts or harnesses.

Similarly, we are pulling patients out of the water and off boats. These patients and the EMS personnel are riding in boats without seatbelts and harnesses. When evacuating people from floods and other natural disasters, we are typically using surplus military vehicles that can ford deep water or operate over rough terrain or debris fields and loading people into the cargo area. These vehicles typically have no seatbelts or harnesses for the crew or passengers in the cargo area.

In many cases, these boats, pickup trucks, and military vehicles being used for rescue or EMS in these wilderness settings, are not owned or operated by the fire or EMS department. They are borrowed on the spot (“commandeered”) from civilians or other agencies.

*OSHA is seeking input on how compliance with (l)(2)(iii), where emergency vehicles are not moved until all passengers are seated and belted, would be achieved in situations where PPE must be donned enroute to an incident. Would the team members or responders stop enroute or wait until arrival at the scene to don their PPE?*

In the event that fire apparatus is on the road, that the crew is not wearing PPE, and they must respond to an emergency, they should do one of two things:

- Stop the vehicle (in a safe spot) and put on their PPE; or
- Respond to the incident and put on their PPE when they arrive.<sup>12</sup>

Crews should not be unbuckled and donning PPE while the truck is moving.

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<sup>12</sup> Some chiefs and firefighters suggest these two options don’t look professional to the public. Others suggest that these delay the response and create a greater hazard for firefighters because the fire will be further advanced and more dangerous to fight. The MCVFA feels that while there may be some merit to these thoughts, the firefighter line-of-duty death data supports the use of seat belts even if these thoughts prove correct in some circumstances.



*OSHA is seeking input on whether it should require that patients be restrained during transport to prevent an unrestrained patient from being thrown into a responder in the event of a vehicle collision or an evasive driving maneuver.*

**The MCVFA believes that all patients should be restrained during transport in an ambulance.** Currently, Massachusetts law requires this and there is no need for OSHA regulation. If OSHA’s mandate is for worker safety, it seems that regulating safety for a patient is beyond OSHA’s scope.

#### **IMS:**

*OSHA is seeking input about WERE and ESO current use of an Incident Management System (IMS), whether the National Incident Management System (NIMS) and National Response Framework were used as guidance for the IMS, and if there are any concerns with being compatible with NIMS.*

Massachusetts already requires that fire and EMS departments be compatible with NIMS, so additional OSHA regulation would be unnecessary. The MCVFA is concerned that OSHA regulation in this area will favor one method or product, the most expensive option, over other options. Departments need scalable and affordable options based upon local conditions.

#### **Incident Management Systems:**

*OSHA is seeking input on which aspects of an IMS are the most effective and the least effective in protecting the safety and health of team members and responders. Commenters should explain how and why certain IMS components are or are not effective.*

The MCVFA is unclear on what the question is. Is OSHA seeking opinions on whether using “A, B, C, and D” to describe the sides of building is better or worse than using “Alpha, Bravo, Charlie, and Delta”? Is OSHA asking for us to explain why we call each floor of a building a “division” instead of a “floor”? (We don’t why.)

Is OSHA looking for comment on specific software and apps that ICs might be using? The MCVFA feels it cannot comment on this question without more specificity and guidance.

*OSHA is seeking input on current practices for identifying and communicating the various control zone boundaries. What marking methods are used? How are they communicated to team members and responders? Do the marking methods help or hinder on-scene operations?*

It is unclear what the real question here is. **Control zones are rarely used in the small-town firefighting and EMS world.** Most of emergency responses are for EMS or minor incidents where control zones aren't needed. The use of fire line tape or street cones seems to work well for most other situations. The MCVFA believes that most small-town fire departments will go decades without a more complex incident requiring personnel posted at specific entry points or zone changes.

### **Workplace Violence:**

*OSHA seeks input on whether the agency should include requirements for Standard Operating Procedures (SOPs) regarding protections against workplace violence for team members and responders, and for any data or documentation to support or refute potential requirements. OSHA notes that its regulatory agenda includes a separate rulemaking addressing workplace violence against health care workers. While OSHA has not published a proposed rule in that rulemaking, OSHA welcomes comments on whether violence against emergency responders should be addressed in a potential Emergency Response final rule in addition to that Workplace Violence rulemaking, instead of in that rulemaking, or primarily in that other rulemaking.*

It would be a mistake to fire and EMS stations into forts or secured facilities. Doing so would be counterproductive to our need to recruit additional volunteer fire and EMS responders and our need to engage with our communities. While violence against fire and EMS responders grabs headlines, **the MCVFA does not think that workplace violence in small town fire departments as a significant risk requiring federal intervention.**

While EMS providers have always had to deal with combative patients, this is best dealt with through state EMS protocols and local collaborations with police and social service providers. Potential requirements for wearing ballistic PPE going to all sorts of incidents could have a negative impact on the need to recruit and retain EMS providers.

## SUMMARY: One Size DOES NOT Fit All

These proposed OSHA rules essentially treat all fire departments the same without regard for their size, complexity, budgets, populations served, emergency call volume, staffing, and community risk.

The best way to demonstrate and explain the imbalance of OSHA’s proposal and its overburden with regard to small fire departments is to compare the Boston Fire Department to the New Ashford Volunteer Fire Department.<sup>13</sup> Look at the chart and data below, and it should be apparent that these are two completely different organizations (that share the title “fire department”) that defy the one size fits all concept.

	Boston Fire Department	New Ashford Fire Department
Population Served	675,000	225
Number of Building Fires Per Year	5469 (Calendar Year 2021)	1
Number of Emergency Calls Per Year	79,862 (Calendar Year 2021)	27
Number of Firefighters	1527 (Career)	15 (Volunteer)
Annual Budget	\$271,548,666	\$14,820

Note that population that New Ashford Fire Department serves only 0.03% of the population that Boston Fire Department serves. Even more notably, the budget for New Ashford Fire Department is only **\$14,820**, which is a paltry 0.0055% of Boston Fire Department’s **\$271.5 million** budget.

Compliance with the proposed rules, as written, would require more than doubling the budget of the New Ashford Fire Department. Compliance with these rules is simply not financially feasible. In the private sector, OSHA generally considers economic feasibility as being less than 1% of revenues or less than 10% of profits. For the new Ashford FD and thousands of similarly small fire departments, 1% of revenue is a mere \$148. The cost of compliance with this proposal goes far beyond \$148 and beyond the entire revenue available to the fire department. The cost of compliance with this proposal will threaten the existence of the New Ashford FD, and most of the other small departments like it – half of the fire service.

Our overall recommendation and comment is as follows:

**The MCVFA urges OSHA to revise these proposed rules with the needs of the half of the fire service protecting small towns with small budgets and mostly volunteer staff.**

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<sup>13</sup> Unaudited Data from Online Public Sources for Discussion Purposes.

Thank you for your consideration.

Respectfully submitted,

A handwritten signature in red ink, appearing to read "Michael A. Goldstein". The signature is fluid and cursive, with a long horizontal flourish at the end.

Michael A. Goldstein, Ph.D.

President

Massachusetts Call/Volunteer Firefighters Association, Inc.

**APPENDIX A**

**Firefighter Deaths – Vehicle Crashes**

**2014 to 2022**

**For Analysis of Proposed OSHA Rules to Require NFPA 1910**

Data From US Fire Administration Reports (2022 from NFPA)

Prepared by Massachusetts Call/Volunteer Firefighters Association (MCVFA)

	Total Deaths	Unknown Reason for Fire Truck Crash	Fire Truck Crash – Not Mechanical	Personal Vehicle Crash	Crash Due to Mechanical Failure	Other
2022	14					1 in Helicopter Crash
2021	12	2	3	4	0	2 in Aircraft Crash 1 in UTV Crash
2020	15	2	3	4	0	6 in Aircraft Crashes
2019	6	0	3	2	0	1 in Helicopter Crash
2018	12	0	5	6	0	1 Bulldozer Rollover
2017 Messy Math	10	1	5	3	0	1 Struck by Fire Truck
2016	19	1	4 (One was Texting & Driving)	4	3  Two Tire Failures.	1 Bulldozer Rollover 2 Struck by Fire Truck 1 Jet Ski

2015	5	0	3	0	0	2 in Helicopter Crash
2014	9	0	6	0	1*	2 in Aircraft Crashes
2013	9	?	3?	5	?	1 in ATV Crash

	Deaths	Unknown Cause	Fire Truck Crashes – Not Mechanical	Personal Vehicle Crashes	Mechanical Failure Crashes	Crashes not by cars & trucks
Totals	97	6	35	28	4	21
	100%	6%	35%	28%	4%	21%

The data indicates that since 2014 that four firefighters in three crashes have died as result of fire truck mechanical failures. Three of the deaths were a result of tire failure, and one death was a result of a manufacturing defect.

**Notes Regarding Mechanical Failures:**

2016: Three firefighter deaths resulted from two separate crashes. Both crashes were the result of tire failures.

2014: The Mechanical Crash in 2014 was a result of a transmission transfer case failure while the truck was returning from a repair facility. The crash resulted in a recall by Navistar Inc. for International 4800 trucks built between June 1999 and May 2002 equipped with Fabco TC-200 transfer cases.

**Note Regarding Seat Belts:**

The data indicates that in the 74 crashes where seatbelt use is relevant, that at least 24 of the firefighters killed were NOT wearing seat belts. This represents 32% of the deaths involving fire apparatus and privately owned vehicles. The MCVFA feels this indicates a significant risk to the health and safety of firefighters and EMS providers, and that a workplace rule requiring seat belt use is appropriate.

## Appendix B

### Firefighter Cardiac Deaths 2012 to 2022

#### For Analysis of Proposed OSHA Rules

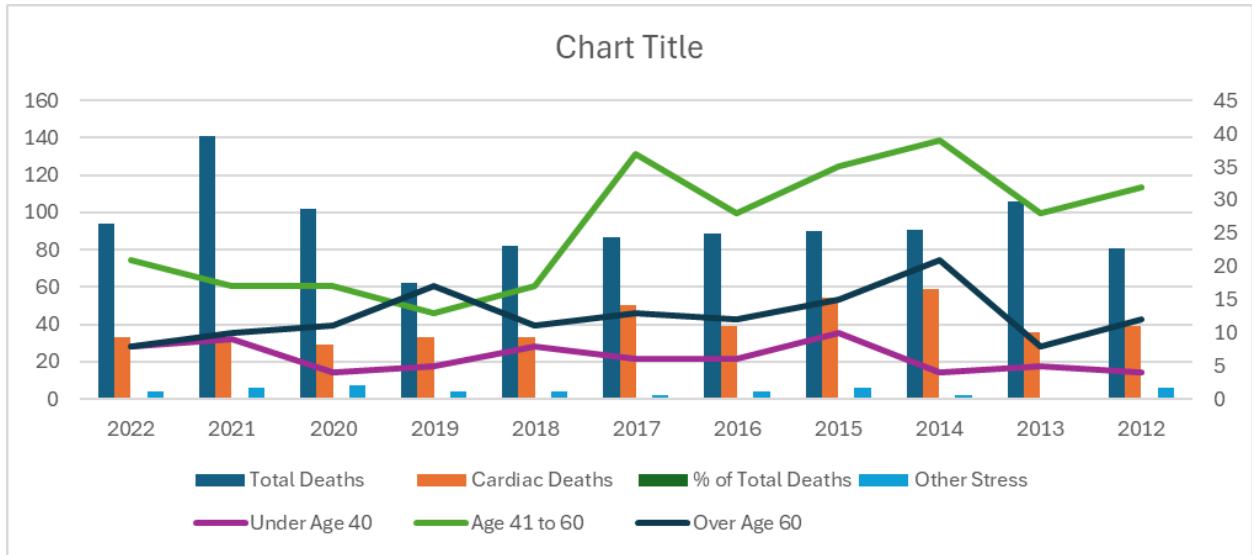
Prepared by Massachusetts Call/Volunteer Firefighters Association (MCVFA)

Below is a chart of the firefighter deaths from 2013 to 2022 resulting from stress or overexertion. Overwhelmingly, these were cardiac related deaths.

Year	Total FF Deaths	Total Stress Deaths	Cardiac Deaths	Other Stress Deaths	% of Deaths Cardiac	Deaths Under Age 40	Deaths Age 41 to 60	Deaths Over Age 60
2022	94	37	33	4	35%	8	21	8
2021	141	39	33	6	24%	9	17	10
2020	102	36	29	7	29%	4	17	11
2019	62	37	33	4	52%	5	13	17
2018	82	37	33	4	40%	8	17	11
2017	87	52	50	2	58%	6	37	13
2016	89	43	39	4	44%	6	28	12
2015	90	60	54	6	60%	10	35	15
2014	91	61	59	2	65%	4	39	21
2013	106	37	36	1	34%	5	28	8
2012	81	45	39	6	48%	4	32	12

2012 to 2022	Average Total FF Deaths	Average Total Stress Deaths	Average Cardiac Deaths	Average Other Stress Deaths	Average % of Deaths Cardiac	Average Deaths Under 40	Average Deaths 41 to 60	Average Deaths Over 60
	93	44	40	4	43%	6	26	13





The NFPA's 2020 US Fire Department Profile indicates that the age distribution of the 1,041,000 firefighters in the United States is:

- 16 to 19      3%
- 20 to 29     20%
- 30 to 39     27%
- 40 to 49     23%
- 50 to 59     17%
- 60 +          10%

Regrouping the NFPA Age Data match the firefighter death data above for 2020, indicates:

- The Over 60 Age Group represents 10% of all Firefighters (104,120 firefighters +/-) and 30% of Cardiac Deaths (11 Deaths)
- The 41 to 60 Age Group represents 40% of all Firefighters (416,480 firefighters +/-) and 59% of Cardiac Deaths (17 Deaths)
- The Under 40 Age Group represents 50% of all Firefighters (520,500 firefighters +/-) and 14% of Cardiac Deaths (4 Deaths)

The data shows that the risk of a cardiac death increases as firefighters age. This was not an unexpected result because medical studies and authorities all agree that the risk of heart attacks and cardiac death increases with age for all populations. The American Heart

Association (AHA) states that the average age of person having a first heart attack is 65.5 years for men and 72 years for women.

According to the CDC, the overall death rate for Americans from heart disease is 161.5 people per 100,000 (2019 Data).

NOTES:

“Other Stress” includes cerebral vascular accident (CVA fka “stroke”), heat exhaustion, and aneurysms. CVAs made up an overwhelming majority of these incidents.

The data tended to show that heart attacks and CVAs caused about two-thirds of deaths in the age 51 and over category.

Data was compiled from US Fire Administration and NFPA reports. The two organizations report the data in slightly different ranges and formats, and this results in small differences in the data and minor overlapping data sets. These differences and rounding result in some columns and rows not adding up to 100%.