Fourth Needs Assessment of the U.S. Fire Service

Conducted in 2015 and Including Comparisons to the 2001, 2005, and 2010 Needs Assessment Surveys

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Abstract

Fire service needs are extensive across the board, and in nearly every area of need, the smaller the community protected, the greater the need. While some needs have been declining in this fourth survey, many have been constant or have shown an increase. Evidence of the need for staffing engines; training for structural firefighting, Hazmat and wildland firefighting; and updated SCBA and personal protective clothing is concerning. AFG and SAFER grant funds are targeted towards areas of need. These grant programs should grow in order to address the considerable multifaceted need that continues in the fire service. Local resources are often not enough, as in the case of an unusually challenging incident when a fire department needs to turn to outside resources. Half of respondent departments have written agreements to obtain assistance in this scenario, but there is room for improvement. These agreements may provide the strongest base on which to build regional and national agreements to allow costs of shared resources to be spread across a much wider area. This may also serve as a protocol for any community to respond to an unusually challenging incident that may be unlikely within the community but not so unlikely within the entire region.

Keywords

United States fire service, capabilities, preparedness, structural fire, wildland fire, technical rescue, code enforcement, community risk reduction, emergency medical service, hazardous materials response, active shooter response, traffic control, fire prevention, fire apparatus, fire equipment, facilities, communications, personal protective equipment, deployment of resources.

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EXECUTIVE SUMMARY

Fire departments are an essential part of public safety. Fire department members not only fight fires, they engage in a variety of activities to prevent fires from occurring. They also provide emergency medical services, rescue people from a wide variety of dangerous situations, and assist the public in countless ways. It takes adequate training and resources to do these tasks well and protect the public effectively. Much of the work performed by firefighters is dangerous. The training and resources that they receive are also essential to their safety.

This fourth Fire Service Needs Assessment Survey was conducted by NFPA in 2015-2016 and follows three earlier surveys, which were completed in 2001, 2005 and 2010. The first two were conducted under grants from the U.S. Fire Administration. These surveys have been linked from their inception to the DHS/FEMA grant programs, including the broad spectrum grants set up under Public Law 108-767, Title XXXVI – Assistance to Firefighters, and the staffing-focused program called SAFER.

The goal has been to identify major needs of the U.S. fire service, by comparing what departments actually *have* with what existing consensus standards, government regulations, and other nationally recognized guidance documents state they *need to have* in order to be safe and effective. Because these grant programs had already targeted many of these identified needs, the surveys were designed to examine the reduction of these needs over time to indicate the success of the grant program.

This executive summary therefore includes not only a summary of the findings of the four needs assessment surveys but also a summary of the implications of those findings for the grant programs. For more on grant evaluation concepts and linking the findings on needs to implications for grants programs see Appendix 1.

Survey Structure and Analysis

The survey used in the first three studies was developed by NFPA, in collaboration with an ad hoc technical advisory group consisting of representatives of national organizations associated with the management of fire and related hazards and risks in the U.S. For this 2015 cycle, parts of the survey were redesigned in order to better reflect current roles and responsibilities of the fire service. The content was revised based on input from representatives of the International Association of Fire Fighters, International Association of Fire Chiefs, National Volunteer Fire Council, National Association of State Fire Marshals and International Association of Women in Fire and Emergency Services. While new questions were added, many of the original survey questions did not change, permitting comparisons of responses across years. A copy of the survey is provided in Appendix 2.

The survey was sent out as a census, meaning that all U.S. fire departments with administrative and fire response responsibilities who were listed in the NFPA fire service inventory were contacted. In 2015, 26,322 fire departments were included in the target population. In addition

to mailing out a paper version of the questionnaire, the survey was offered online for the first time.

A total of 5,106 fire departments responded to the survey, with approximately 50% responding to the online version and 50% responding to the paper version. Overall, the response rate was 19%, with a range of 11% response for fire departments protecting populations less than 2,500 to 82% response for fire departments protecting populations of 500,000 or more. (See Appendix 3.) Some fire departments that responded in 2015 had not responded in previous years, while some that did not respond had responded in an earlier survey. Consequently, this report estimates overall fire department needs, but not the needs of an identical group over time because the survey responses did not come from exactly the same fire departments during each of the four surveys.

The report is organized around the following groups of needs:

(1) Personnel and their capabilities

(2) Facilities and apparatus

(3) Personal protective equipment

(4) Community risk reduction: fire prevention and code enforcement

(5) Ability to handle unusually challenging incidents

(6) Communications and advanced technology

In order to determine how AFG funds were being allocated across different activities, the awards lists for 2011-2014 were examined and categorized. The result was an approximate determination of the allocation of funds for the four-year time period to the specific activity areas of EMS Equipment, EMS Training, Equipment, Facilities Modification, Personal Protective Equipment, Training, Vehicle Acquisition, and Wellness & Fitness Programs. The calculations were approximate because many awards included more than one activity, and smaller activity awards less than $75,000 were not split out for these computations. This detail would not be expected to change the overall activity award percentages substantially. The total award amount for years 2011-2014 was $1.177 billion. It should be noted that, AFG funding has been declining steadily over the past several years. Between Fiscal Years 2005 and 2009, the average annual appropriation for AFG was $572 million. This amount decreased between Fiscal Years 2010 and 2014 to an average annual appropriation of $359 million.[1]

Measuring Need for Departments Providing a Service vs. Size of Need Among All Departments

Two measures were defined to quantify needs, which can be illustrated using the diagram in Figure ES-1.

[1] Lennard G. Kruger. *Assistance to Firefighters Program: Distribution of Fire Grant Funding,* RL32341, Congressional Research Service, January 4, 2016. Appropriated amounts will differ from actual funding amounts.

Figure ES-1. Departments Responsible for Providing a Service vs. Departments Having a Resource for a Service They Provide

The first measure is "Need for departments providing a service" which is based on fire departments that report having the responsibility to provide a service. The unmet need is not having the resources needed to provide the service. This measure is calculated as the proportion of fire departments that do not have the resources to provide the service out of all departments who are responsible for providing the service. In Figure ES-1, this is shown as the blue area (middle circle minus the smallest circle) as a fraction of the entire middle circle.

The second measure is "Size of need among all departments" which is calculated as the proportion of unmet need out of all fire departments. The unmet need is the number of fire departments that do not have the resources to provide a service that they are responsible for. In Figure ES-1, it is the blue area (middle circle minus the smallest circle) as a fraction of the largest all-departments circle. This measure is useful for comparing needs across different services, since the denominator of all departments remains constant.

This is a conservative estimate of need because it is not counting departments that may want to provide a service but cannot because of a lack of resources.

These two measures can also be shown as ratio formulas. The measure of need for departments providing a service would have the following formula:

$$\frac{\text{Departments responsible for providing service but lacking resources}}{\text{Departments responsible for providing service}}$$

Example: Ninety eight percent of fire departments provide structural firefighting capabilities (Table 1-15). However, 49.9% of all fire departments responsible for structural firefighting do not have all personnel trained in structural firefighting (i.e. lack of resources, 100% minus the total percent of fire departments where all personnel who perform structural firefighting are trained) (Table 1-16). This total of 49.9% is reflected as 50% in Figure 1-5. This 50% is calculated with the number of departments responsible for providing the service as the denominator (25,783 departments in Table 1-16).

The measure of size of unmet need would have the following ratio formula, which can be related to the first measure by the following equation:

$$\frac{\text{Departments responsible for providing service but lacking resources}}{\text{All departments}} = \frac{\text{Departments responsible for providing service but lacking resources}}{\text{Departments responsible for providing service}} \times \frac{\text{Departments responsible for providing service}}{\text{All departments}}$$

Example: 48.9% is the size of need for structural firefighting training among all fire departments (i.e. those that perform and those that don't perform structural firefighting) (Figure 1-6). In this instance the denominator is *all* known fire departments – 26,322, versus 25,783 from the previous example. The percentage measure of size of unmet need will always be less than the measure of need among departments providing a service.

The equations above show that when the two measures seem to go in different directions, it is be because there has been a change in the percent of all departments that have the responsibility, a measure that is also provided in this report.

Section 1. Personnel and Their Capabilities

Staffing

Career firefighters. The change identified in the most recent needs assessment survey is toward less frequent assignment of at least 4 career firefighters to an engine or pumper. This is suggestive of an initial trend toward reduced compliance with NFPA 1710.

Except for cities protecting at least 500,000 population, most communities do not assign at least 4 career firefighters to an engine or pumper and so are probably not in compliance with NFPA 1710, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments*, which requires a minimum of 4 on-duty firefighters on an engine or pumper.

Note that a "mostly career" department might also respond with some volunteers, and those numbers are not reflected in the following results.

The percentage of departments with fewer than 4 career firefighters assigned to an engine or pumper is (refer to Tables 1-8 and 1-A):

- 35% for departments protecting at least 500,000 population (in 2015, when 92% of firefighters protecting communities of this size were career)
    - slightly up from 30% in 2001 (when 92% of firefighters protecting communities of this size were career)
    - up from 22% in 2005 (when 93% of firefighters protecting communities of this size were career)
    - and up from 20% in 2010 (when 95% of firefighters protecting communities of this size were career)
- 51% for departments protecting 250,000 to 499,999 population (in 2015, when 88% of firefighters protecting communities of this size were career)
    - up from 41% in 2001 (when 86% of firefighters protecting communities of this size were career)
    - up from 44% in 2005 (when 80% of firefighters protecting communities of this size were career)
    - and up from 26% in 2010 (when 88% of firefighters protecting communities of this size were career)
- 71% for departments protecting 100,000 to 249,999 population (in 2015, when 93% of firefighters protecting communities of this size were career)
    - up from 56% in 2001 (when 82% of firefighters protecting communities of this size were career)
    - up from 59% in 2005 (when 91% of firefighters protecting communities of this size were career)
    - and up from 60% in 2010 (when 92% of firefighters protecting communities of this size were career)
- 80% for departments protecting 50,000 to 99,999 population (in 2015, when 86% of firefighters protecting communities of this size were career)
    - slightly up from 76% in 2001 (when 77% of firefighters protecting communities of this size were career)
    - up from 71% in 2005 (when 86% of firefighters protecting communities of this size were career)
    - and up from 71% in 2010 (when 87% of firefighters protecting communities of this size were career)

While it cannot be confirmed by these data, this initial trend towards reduced compliance with NFPA 1710 may be reflective of the change in management of SAFER funds since the preparation of the last report. The change has reduced the required period of employment and removed the mandate of continued employment after grant funds are expended. As a result, increased staffing levels may not be maintained. Other impact factors should also be considered, and in light of the inherent dangers of firefighting and recommendations of NFPA 1710, this initial trend warrants further exploration.

Volunteer firefighters. Many volunteer and mostly-volunteer fire departments satisfy NFPA Standard 1720, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer Fire Departments*, which calls for a minimum of 4 firefighters on-site before an interior attack on a structure fire is begun.

Note that a "mostly-volunteer" department might respond with some career firefighters as well, and those numbers are not included in the following results.

Specifically, for weekday responses during the day among departments that responded to the survey (see Table 1-4):

- In communities of 25,000 to 49,999, 84% of departments respond with an average of 4 or more volunteer firefighters.
- In communities of 10,000 to 24,999, 79% of departments respond with an average of 4 or more volunteer firefighters.
- In communities of 5,000 to 9,999, 83% of departments respond with an average of 4 or more volunteer firefighters.
- In communities of 2,500 to 4,999, 80% of departments respond with an average of 4 or more volunteer firefighters.
- In communities of under 2,500, 80% of departments respond with an average of 4 or more volunteer firefighters.

The response for volunteers is better during evenings and on weekends, when compared to weekday calls during the day (see Tables 1-5 to 1-7). Because this survey question was specific as to weekday day/night response and weekend day/night response in 2015, the results cannot be compared to previous survey years.

It is possible that the SAFER grants, which are targeted towards staffing, have helped to mitigate this need. In years 2011-2014, a total of $1.287 billion was awarded for hiring and recruitment.

Training

Several training needs have actually increased since the last Needs Assessment Survey in 2010, based on the departments responding to the surveys. We compared these needs using the measure, "Size of need among all departments" in order to have a common denominator across percentages. This measure was defined as the percentage of departments that perform a service and have some involved personnel who have not been formally trained, among all departments.

Structural firefighting training, size of need among all departments. Overall, 49% of all departments in 2015 have not formally trained all of their personnel involved in structural firefighting, slightly up from 46% in 2010. (See Figure 1-6.)

Hazmat training, size of need among all departments. Overall, 29% of all departments provide Hazmat but have not formally trained all their personnel involved in Hazmat, up from 50% in 2010. (See Figure 1-11.)

Wildland firefighting training, size of need among all departments. Overall, 63% of all departments provide wildland firefighting but have not formally trained all their personnel involved in wildland firefighting, up from 58% in 2010. (See Figure 1-14.)

The training needs that have remained constant or decreased were EMS and technical rescue.

EMS training, size of need among all departments. Overall, 34% of all departments provide EMS but have not formally trained all their personnel involved in EMS, largely unchanged from 33% in 2010. (See Figure 1-8.). The wording of this question changed in 2015 to ask about certification. The early surveys were less specific and asked about formal training.

Technical rescue training, size of need among all departments. Overall, 40% of all departments provide technical rescue but have not formally trained all their personnel in technical rescue, down from 48% in 2010. (See Figure 1-18.)

In the 2011-2014 AFG funding cycles, approximately 5% of the total funds were allocated to training. EMS training received approximately 0.1% of the total funds. The grants must continue and grow in order to address the significant need for training as described.

As another way of looking at the training data, services which require training for all involved personnel were ranked in order of need for the largest and smallest population sizes, as follows.

The top training needs for respondent departments protecting populations of 500,000 or more were fire prevention, code enforcement, Hazmat and technical rescue.

The complete list of training needs described by size of need in ranked order for departments protecting populations of 500,000 or more is as follows (see Figures 1-6, 1-8, 1-11, 1-14, 1-18, 1-21, 1-23 and 1-25). The size of need percentages represent departments that perform a service but have not formally trained all of their involved personnel, among all departments:

- Fire prevention, 28%
- Code enforcement, 24%
- Technical rescue, 22%
- EMS, 20%
- Wildland firefighting, 15%
- Traffic control, 13%
- Hazmat, 2%

The top three training needs for respondent departments protecting populations of under 2,500 were traffic control, wildland firefighting and Hazmat.

The following is the complete list of training needs described by size of need in ranked order for departments protecting populations of under 2,500 (see Figures 1-6, 1-8, 1-11, 1-14, 1-18, 1-21, 1-23 and 1-25). The size of need percentages represent departments that perform a service but have not formally trained all of their involved personnel, among all departments:

- Traffic control, 76%

- Wildland firefighting, 71%
- Structural firefighting, 65%
- Fire prevention, 62%
- Hazmat, 54%
- EMS, 35%
- Technical rescue, 34%
- Code enforcement, 16%

Active shooter events are an emerging issue and new questions were added to the survey to determine fire department capabilities in this area. Among the largest respondent departments protecting populations of 50,000 and more, at least 75% provide active shooter response (see Table 1-49). Overall, two out of five departments that would respond to an active shooter event do not have standard operating procedures or guidelines in place (see Table 1-50). Half of all departments that would respond to an active shooter event have not received multi-agency training (i.e., training from police, fire, EMS, sheriffs, etc.) and have not been tested on the training and special equipment required (see Table 1-51).

Health & Wellness

Overall, only one quarter (27%) of departments provide a program to maintain basic firefighter fitness and health. This was slightly down from 30% in 2010 (see Table 1-52 and Figure 1-27), based on departments that responded to the surveys. Three out of five (61%) departments indicated that they have a program for infection control and PPE decontamination programs for infectious and communicable disease hazards (see Figure 1-30). Approximately half (56%) of departments report having a program for exposure control and PPE decontamination for carcinogens and other toxic hazards (see Figure 1-30). Behavioral health programs were reported by one out of five (20%) departments overall (see Figure 1-30). The remaining departments lack these valuable programs. Health & Wellness programs were awarded approximately 1% out of the total AFG funds in 2011-2014, so the majority of departments cannot rely on federal funding to jump start these initiatives.

Section 2. Facilities and Apparatus

Stations and Facility Modification

The most expensive department–related purchase a community can make is an additional fire station (and the additional personnel and equipment costs to operate it), followed closely by a replacement fire station. In 2009, FEMA offered Assistance to Firefighters Fire Station Construction Grants to 120 fire departments to build new fire stations or modify existing stations, but this program has not been repeated in recent years. The regular AFG program includes awards for modifying facilities but not for new construction.

In light of this, it is not surprising that needs related to the number and age of fire stations have been growing, while needs related to facility modification have showed some progress.

Based on respondent departments:

- Two out of five (43%) fire stations are at least 40 years old, up from 32% in 2001 (see Figure 2-1).
- There is an increasing need for additional stations in both the largest and smallest communities, based on ISO guidelines, coverage area and modeled response distances (see Figure 2-4):
  - 85% of departments lack sufficient fire stations to achieve a specified maximum travel distance in communities of 500,000 or more, up from 73% in 2001.
  - 71% for communities of 250,000 to 499,999, up from 64% in 2001.
  - 71% for communities of 100,000 to 249,999, up from 67% in 2001.
  - 75% for communities of 2,500 to 4,999, slightly up from 73% in 2001.
  - 76% for communities under 2,500, slightly up from 73% in 2001.
- One out of five fire stations (35%) do not have backup power, down from 57% in 2001 (see Figure 2-2).
- Three out of five fire stations (59%) are not equipped with exhaust emission control, down from 78% in 2001 (see Figure 2-3).

It is possible to achieve better coverage without adding stations and companies by designing first-response areas with more use of reciprocal cross-border responses, where any address receives first response from the nearest fire station, even if that station is not in the same community as the address of the emergency. Such an arrangement can be made informally through mutual aid or more formally through regionalization. It is possible that coverage is better than the survey analysis suggests because of widespread use of mutual aid in this manner. It is also possible that assumptions of optimal station location have understated the need for more and better coverage. In any event, it appears that most departments are not achieving the response goals of ISO.

AFG funding targeted towards modifying facilities received an approximate 2% of the total funds in 2011-2014. Facility improvements reflected in this report were likely funded by additional sources.

Vehicles and Apparatus

- Overall, 43% of all fire department engines and pumpers were at least 15 years old, down from 51% in 2001 (see Figure 2-5).

Considering AFG funding, approximately 19% of 2011-2014 funds were distributed for vehicle acquisition. While this helps hold the line on the aging of vehicles and apparatus, it is far less than the need.

- An increasing share of fire departments (43%) have plans for apparatus replacement on a regular schedule, up from 35% in 2001 (see Table 2-7).

This trend is going in the right direction with respect to having a regular schedule for apparatus replacement. The fact that there is a planned schedule suggests that funding is not reliant on grants. However, more than half of departments do not have a regular schedule for apparatus replacement and these departments would possibly look towards AFG funding for resource support.

Section 3. Personal Protective Equipment

Based on respondent departments,

- Overall, half of all departments (50%) do not have enough portable radios to equip all emergency responders on a shift, largely unchanged from 51% in 2010 (see Figure 3-1).

- Two-thirds (69%) of departments do not have a reserve of at least 10% of in-service portable radios, largely unchanged from 70% in 2010 (see Figure 3-4).

- Half of departments (53%) cannot equip all firefighters on a shift with self-contained breathing apparatus (SCBA), largely unchanged from 52% in 2010. This need is illustrated primarily in community sizes under 10,000 (see Figure 3-5).

- Two-thirds (69%) of departments reported that some of the SCBA equipment was at least 10 years old, up from 55% in 2010. This need is illustrated across all community sizes (see Figure 3-6).

- One out of ten (13%) of departments do not have enough personal protective clothing for all of their emergency responders, up from 9% in 2010. This need is illustrated primarily in community sizes under 5,000 (see Figure 3-8).

- Almost three-quarters (72%) of departments reported that some of their personal protective clothing was at least 10 years old, up from 63% in 2010 (see Figure 3-9).

- 44% of departments do not have enough reserve personal protective clothing to equip 10% of their emergency responders, down from 53% in 2010 (see Figure 3-10).

The largest share of AFG funding in 2011-2014 was distributed for personal protective equipment (approximately 37%) and general equipment (approximately 33%). The survey results indicate that the need is increasing faster than the grants can sustain. There is a lack of supply and reserve radios, SCBA and personal protective clothing, and the equipment is aging. A positive sign in this category is that more departments currently have a reserve of personal protective clothing, when compared to 2010.

Inspection and Laundering of Personal Protective Clothing

For communities that are 25,000 or larger, at least 75% of departments inspect and test their personal protective clothing each year (see Table 3-11). This percentage dropped to 34% for the departments in the smallest communities of under 2,500.

For communities that are 25,000 or larger, at least 94% of departments offer laundering services (see Table 3-12). This percentage decreased to 44% for the smallest departments in communities of 2,500 or under.

It should be noted that more departments offer laundering services than inspect their personal protective clothing on a regular basis.

Section 4. Community Risk Reduction: Fire Prevention and Code Enforcement

For departments lacking prevention and education programs, results were projected to estimate the percent of U.S. population lacking a particular program.

When considering engineering-based prevention programs, hazard mitigation planning (for natural, industrial chemical and transportation disasters) was the greatest need, with half (54%) of the U.S. population living in communities protected by fire departments without a hazard mitigation plan (see Figure 4-2).

The greatest educational needs were the following, in ranked order of need according to the population protected without a program (see Table 4-B,1-13):

- A wildfire safety program based on a national model (84% of the U.S. population without a program)
- Home fire sprinkler education (74%)
- Car seat installation (70%)
- An older-adult fire safety program based on a national model (67%)
- Home safety visits (54%)
- A youth firesetter program (48%)
- Cardiopulmonary resuscitation instruction (42%)
- Free installation of home smoke alarms (37%)
- Free distribution of home smoke alarms (33%)
- A school fire safety education program based on a national model curriculum (32%)
- Fire prevention week activities (14%)

Almost all departments had at least one educational program and the population protected without any program was less than 1%.

The need for community risk reduction programs and activities was demonstrated to be significant and higher priority should be given to these areas.

Fire Code Inspections

Overall, 20% of fire departments did not have anyone conducting fire code inspections in the community, down from 24% in 2010 (see Figure 4-5).

The percentage of departments with full-time fire department inspectors was 18%, largely unchanged from 19% in 2010 (see Figure 4-5). In communities with under 2,500 population, only 4% of departments had full-time fire department inspectors, a slight decrease from 6% in 2010 (see Figure 4-6).

A new survey question addressed the percentage of commercial or inspectable properties that are inspected once a year. In the largest departments protecting populations of 500,000 or more, 66% of departments inspected the majority (> 50%) of their commercial or inspectable properties (see Table 4-6). In the smallest departments in communities of under 2,500, 19% of departments are not able to inspect any of such properties, 19% of departments are able to inspect the majority (> 50%) of their commercial or inspectable properties and 35% are not responsible for conducting inspections.

Fires That Are Deliberately Set

Overall, two out of five (40%) departments have fire department fire investigators available to determine whether a fire was deliberately set, an increase from the 33% of fire departments with arson investigators in 2010 (see Table 4-7).

Section 5. Ability to Handle Unusually Challenging Incidents

In the survey, we identified two unusually challenging incidents: (1) technical rescue and EMS for a building with occupants after structural collapse following a fire or a no-notice catastrophic event such as an earthquake or tornado, and (2) a wildland-urban interface (WUI) fire affecting structures. Regarding these scenarios, we asked each department:

- How far would they have to go to obtain enough trained personnel and specialized equipment?
- Did they have written agreements or other plans for obtaining assistance from others?

These questions were modified from the previous survey so there are no comparisons across years. Estimates were based on respondent departments.

Technical rescue and EMS for a building with occupants after structural collapse following a fire or a no-notice catastrophic event such as an earthquake or tornado.

Among the departments protecting the largest communities of 500,000 or more, 83% could obtain enough people with specialized *training* locally (see Table 5-1). This percentage

decreased to 40% among departments that protect communities of 100,000 to 249,999 and further decreased to 21% among departments that protect communities of under 2,500.

Among the departments protecting the largest communities of 500,000 or more, 83% could obtain enough specialized *equipment* locally (see Table 5-2). This percentage dropped to 35% among departments that protect communities of 100,000 to 249,999 and further dropped to 18% among departments that protect communities of under 2,500.

At least 80% of departments protecting populations of 100,000 or greater have a written agreement to obtain assistance from others on this type of incident (see Table 5-3). Less than half of departments in smaller communities under 5,000 also have written agreements, with 37% of departments protecting populations of under 2,500 having a written agreement to obtain assistance from others in this scenario.

Wildland-Urban Interface (WUI) fire affecting structures

Overall, 78% of departments reported that this is a role that their fire department performs (see Table 5-4).

Approximately half of departments in community sizes of under 250,000 could handle an incident involving 2 to 5 structures with local resources only, meaning that half of these departments would need to obtain support from regional partners (within state) or the State (see Table 5-7). Overall, 28% of departments would seek resources from the State for an incident affecting 6 to 20 structures, and three out of five departments (59%) would seek State resources for an incident involving more than 20 structures (see Tables 5-8 and 5-9).

Among fire departments that have the responsibility for protecting structures in the wildland-urban interface, more than 75% of departments protecting populations of 50,000 or more have a written agreement to obtain assistance from others for this type of incident (see Table 5-10). This percentage decreased as the community size decreased, with approximately half of departments protecting populations under 5,000 having written agreements. The remaining departments do not have a formal written agreement to obtain assistance from others, although it is demonstrated in the survey responses that many departments cannot rely on local resources alone in many wildland-urban interface situations.

Section 6. Communications and Advanced Technology

These sections were expanded in the 2015 Needs Assessment Survey to include new questions. Estimates were based on respondent departments.

Communications

- Overall, 9% of departments reported that they could not communicate with their response partners at an incident scene, lower than 13% in 2010 (see Table 6-1).

- 98% of 911 calls were not answered directly by the fire department (see Table 6-3).

- Overall, 38% of fire departments have no backup dispatch facility, largely unchanged from 35% in 2010 (see Table 6-4).

- Departments in smaller communities were more likely than larger departments to have fire calls processed by the same center that answered the initial 911 call (see Table 6-5).

- Departments protecting larger populations were more likely to have different people process and dispatch the same fire call (see Table 6-6).

Advanced Technology (see Table 6-8)

Common implemented technology:

- Computer aided dispatch (CAD) was being used by more than 95% of departments in community sizes of 50,000 or greater. In communities of less than 2,500, 39% of departments used computer aided dispatch.

- The use of mobile web-based geographic information systems (GIS) was widespread among departments in community sizes of 100,000 or more, with more than 79% of departments reporting implementation of GIS. The percentage decreased in the smaller community sizes, with 12% of departments protecting populations of less than 2,500 using GIS.

- Tablet software was being used in over 50% of departments in community sizes of 25,000 or greater and in 7% of departments in the smallest communities of less than 2,500.

Developing technology:

- Advanced personnel location equipment was utilized in 20-26% of departments in the largest community sizes (250,000 or more). This percentage dropped to 3% for the smallest community size.

- Infrared sensing surveillance was reported in use by 19-26% of departments protecting populations of 100,000. This percentage dropped to 3% for the smallest community size.

- Physiological monitoring of firefighters was implemented in 26% of the departments protecting populations of 500,000 or more and 2% of the smallest departments protecting populations under 2,500.

- Aerial robotics were reported by 8-14% percent of departments in the larger community sizes (100,000 or more) and less than 1% in the smallest community size.

It should be noted that, half of the departments serving populations less than 2,500 reported having none of the listed advanced technologies.

In a separate question regarding thermal imaging cameras, over 85% of departments in community sizes of 10,000 or more had access to a thermal imager for all fireground incidents (see Table 6-9). This percentage decreased to 57% for departments in the smallest communities of under 2,500.

Summary and Conclusions

For respondent departments, fire service needs are extensive across the board, and in nearly every area of need, the smaller the community protected, the greater the need.

While some needs have declined, many others have been constant or have shown an increase. Gaps remain across the board in staffing, training, facilities, apparatus, personal protective equipment, and health and wellness, gaps remain. Evidence of the need for staffing engines; training for structural firefighting, Hazmat and wildland firefighting; and updated SCBA and personal protective clothing is concerning.

Roles and responsibilities of the fire service are expanding apparently at the same time appears that resources are being cut. EMS and Hazmat are now common responsibilities while active shooter response, enhanced technical rescue and wildland-urban interface firefighting are up and coming challenges for many departments.

AFG and SAFER grant funds are targeted towards areas of need. As other resources are cut back, more departments turn towards these grants for support. If anything, these grant programs should grow in order to address the considerable multifaceted need that continues in the fire service.

Community risk reduction remains an underserved need. The majority of departments perform fire prevention that includes preparedness and mitigation, as well as educational activities, which all formidable tasks on their own. While efforts continue in many areas, there does not appear to be a universal plan or vision on how to achieve significant progress on these needs on a national scale.

The scenarios for unusually challenging incidents highlight how departments often turn to outside resources beyond the local level. Previous surveys indicated improvement in the development of written agreements to secure the use of outside resources. Currently, with only half of departments obtaining written agreements with neighboring jurisdictions, there is room for improvement in this area. These agreements may provide the strongest base on which to build regional and national agreements to allow costs of shared resources to be spread across a much wider area. This may also serve as a protocol for any community to respond to an unusually challenging incident that may be unlikely within the community but not so unlikely within the entire region.

TABLE OF CONTENTS

	Page
Executive Summary	iii
Table of Contents	xviii
List of Tables and Figures	xix
Introduction	xxxii
Glossary	xxxvi
Section 1. Personnel and Their Capabilities	1
Section 2. Facilities and Apparatus	114
Section 3. Personal Protective Equipment	137
Section 4. Community Risk Reduction: Fire Prevention and Code Enforcement	167
Section 5. Ability to Handle Unusually Challenging Incidents	199
Section 6. Communications and Advanced Technology	223
Appendix 1. Grant Program Evaluation	247
Appendix 2. Printed Version of the Fourth Needs Assessment Survey with Online Only Questions Included at the End	248
Appendix 3. Survey Methodology	258

List of Tables and Figures

	Page
Figure ES-1. Departments Responsible for Providing a Service vs. Departments Having a Resource for a Service They Provide	v
Figure I-1. Departments Responsible for Providing a Service vs. Departments Having Resources for a Service They Provide	xxxiv
Figure 1-1. Percent of Career vs. Volunteer Fire Departments	2
Figure 1-2. Percent of Population Protected by Career vs. Volunteer Fire Departments	2
Table 1-A. Number of Career, Volunteer, and Total Firefighters by Size of Community	4
Table 1-B. Average Number of Career/Paid Firefighters per Department on Duty Available to Respond	4
Figure 1-3. Number of Career vs. Volunteer Firefighter	5
Figure 1-4. Percent of Firefighters Who are Career by Size of Community	6
Table 1-C. Number of Support/Auxiliary Fire Department Members	10
Figure 1-5. Need for Departments Performing Structural Firefighting; Percent with Personnel Who Are Not All Formally Trained by Size of Community in 2015	12
Figure 1-6. Size of Need Among All Departments: Percent That Perform Structural Firefighting and Need Training by Size of Community, for Four Studies	13
Table 1-D. Estimated Number of Firefighters Involved in Structural Firefighting Who Are Serving in Departments Where No One is Certified by Size of Community Protected	14
Figure 1-7. Need for Departments Providing EMS: Percent with Personnel Who Are Not All Formally Trained by Size of Community, for Four Studies	16
Figure 1-8. Size of Need Among All Departments: Percent That Provide EMS and Need Training by Size of Community	17
Figure 1-9. Level of Certification for Departments Performing Emergency Medical Services by Size of Community	19
Figure 1-10. Need for Departments Providing Hazmat: Percent with Personnel Who Are not All Formerly Trained by Size of Community	21
Figure 1-11. Size of Need Among All Departments: Percent That Provide Hazmat and Need Training by Size of Community	22
Figure 1-12. Level of Certification for Departments Providing Hazardous Materials Response (HAZMAT) by Size of Community	24
Figure 1-13. Need for Departments Performing WUI/Wildland Firefighting: Percent with Personnel Who Are Not All Formally Trained	26
Figure 1-14. Size of Need Among All Departments: Percent That Perform WUI/Wildland Firefighting and Need Training by Size of Community	27

List of Tables and Figures (Continued)

Page

Figure 1-15. Estimated Percent of Departments who Perform Wildland urban Interface And Wildland Fire Operations that Lack Having Specialized Wildland Urban Interface Fire Operations Training 29

Figure 1-16. Percent of Departments Involved in Wildland-Urban Interface and Wildland Fires That Lack Wildland Fire Personal Protective Clothing 30

Figure 1-17. Need for Departments Performing Technical Rescue: Percent with Personnel Who Are Not Formally Trained 32

Figure 1-18. Size of Need Among All Departments: Percent That Perform Technical Rescue and Need Training by Size of Community 34

Figure 1-19. Percent of Departments that have each of the following rescue resources by Size of Community 35

Figure 1-20. Need for Departments Performing Fire Prevention: Percent with Personnel Who Are Not All Formally Trained 37

Figure 1-21. Size of Need Among All Departments: Percent that Perform Fire Prevention and Need Training 38

Figure 1-22. Need for Departments Performing Code Enforcement: Percent with Personnel Who Are Not All Formally Trained 39

Figure 1-23. Size of Need Among All Departments: Percent That Perform Code Enforcement and Need Training 40

Figure 1-24. Need for Departments Performing Traffic Control: Percent with Personnel Who Are Not All Formally Trained 41

Figure 1-25. Size of Need Among All Departments: Percent That Perform Traffic Control and Need Training 42

Figure 1-26. Percent of All Departments That Perform Active Shooter Response and of Those Which Have SOP/SOG's and Have Received Multi-Agency Training and Testing by Size of Community 43

Figure 1-27. Percent of Departments Without a Program to Maintain Basic Firefighter Fitness and Health by Size of Community 44

Table 1-E. Estimated Number of Firefighters in Fire Departments Without a Program to Maintain Basic Firefighter Fitness and Health 45

Figure 1-28. Percent of Departments That Have a Basic Firefighter Fitness and Health Program that is Associated With the IAFC/IAFF Wellness Fitness Initiative, Includes a Physical Exam and Fitness Assessment 47

Figure 1-29. Percent of Departments having Physical Exams and the Frequency of those Exams as a Percent of Departments That Have Physical Exams 48

Figure 1-30. Percent of Departments with Behavioral Health, Infection Control/PPE Decontamination and Exposure/PPE Decontamination Programs 50

List of Tables and Figures (Continued)

Page

Figure 1-31. Percent of Departments that Monitor Air Quality at the Fireground by Gas Type and Size of Community 51

Table 1-1. Number of Departments and Percent of US Population Protected, by Type of Department 52

Table 1-2. Department Type, by Community Size 53

Table 1-3. Number of Male and Female Firefighters Among Career and Volunteer Firefighters 54

Table 1-4. For All- or Mostly- Volunteer Departments, Average Number of Volunteer Firefighters Responding Weekdays During the Day, Percent of Departments by Community Size 55

Table 1-5. For All- or Mostly- Volunteer Departments, Average Number of Volunteer Firefighters Responding Weekdays During the Night, Percent of Departments by Community Size 56

Table 1-6. For All- or Mostly-Volunteer Departments Average Number of Volunteer Firefighters Responding Weekends During the Day Percent of Departments by Community Size 57

Table 1-7. For All- or Mostly- Volunteer Departments, Average Number of Volunteer Firefighters Responding Weekends During the Night, Percent of Departments by Community Size 58

Table 1-8. For All- or Mostly- Career Departments, Minimum Number of Career Firefighters Assigned to an Engine/Pumper Apparatus, Percent of Departments by Community Size 59

Table 1-9. For All- or Mostly- Career Departments Number of Career Firefighters Typically Staffing an Engine/Pumper Apparatus Percent of Departments by Community Size 60

Table 1-10. For All- or Mostly-Career Departments, Minimum Number of Career Firefighters Assigned to a Ladder Truck/Aerial Apparatus Percent of Departments by Community Size 61

Table 1-11. For All- or Mostly-Career Departments, Minimum Number of Career Firefighters Typically Staffing a Ladder/Aerial Apparatus, Percent of Departments by Community Size 62

Table 1-12. Percentage of Departments Reporting Active Members with Specific Types of Support or Auxiliary Roles and No Direct Firefighting Activities 63

Table 1-13. Number of Departments Reporting Active Members with Specific Types of Support or Auxiliary Roles and No Direct Firefighting Activities (Q.12) 64

Table 1-14. Count and Percentage of 'Other' as Specified by Fire Departments Who Checked 'Other' as a Support or Auxiliary Role 65

Table 1-15. Does Department Provide Structural Firefighting? by Community Size 67

List of Tables and Figures (Continued)

Page

Table 1-16. For Departments That Provide Structural Firefighting What Percentage of the Personnel Who Perform This Duty Have Received Formal Training? Percent of Departments by Community Size 68

Table 1-17. For Departments That Provide Structural Firefighting, Percentage of Personnel That Have Been Certified to Level I, Percent of Departments by Community Size 69

Table 1-18. For Departments That Provide Structural Firefighting Percentage of Personnel Restricted to Exterior Firefighting Only Percent of Departments by Community Size 70

Table 1-19. Does Department Provide Emergency Medical Service (EMS)? by Community Size 71

Table 1-20. For Departments That Provide Emergency Medical Service, Level That Personnel Who Perform This Duty Have Been Certified To, by Community Size 72

Table 1-21. Does Your Community Provide Ambulance Services? by Community Size 73

Table 1-22. Is Community-Provided Ambulance Service a Fire-Department Based Service? by Community Size 74

Table 1-23. Does Department Provide Tactical EMS for Law Enforcement Operations? by Community Size 75

Table 1-24. Does Department Provide Hazardous Material Response? by Community Size 76

Table 1-25. For Departments That Provide Hazardous Material Response Level That Personnel Who Perform This Duty Have Been 7ertified to by Community Size 77

Table 1-26. Does Department Provide Wildland Urban Interface (WUI)/Wildland (Brush, Grass, Forest) Firefighting? by Community Size 78

Table 1-27. For Departments That Provide WUI/Wildland Firefighting What Percentage of Personnel Who Perform This Duty Have Received Formal Training? Percent of Departments by Community Size 79

Table 1-28. For Departments That Provide WUI/Wildland Firefighting Training Includes Specialized Wildland-Urban Interface Firefighting Operations Training? .by Community Size 80

Table 1-29. For Departments That Provide WUI/Wildland Firefighting Percent of Emergency Responders Equipped with Wildland Fire Personal Protective Clothing by Community Size 81

Table 1-30. Does Department Provide Technical Rescue Service? by Community Size 82

Table 1-31. For Departments That Provide Technical Rescue Service What Percentage of Personnel Who Perform This Duty Have Received Formal Training? Percent Departments by Community Size 83

Table 1-32. Available Rescue Resources within a Department/Jurisdiction by Community Size 84

List of Tables and Figures (Continued)

	Page
Table 1-33. Departments with Available Urban Search and Rescue Type 1 Task Force: 70 Person by Community Size	85
Table 1-34. Departments with Available Urban Search and Rescue Type 2 Task Force: 70 Person by Community Size	86
Table 1-35. Departments with Available Urban Search and Rescue Type 3 Task Force: 35 Person by Community Size	87
Table 1-36. Departments with Available Urban Search and Rescue Type 4 Task Force: 22-Person by Community Size	88
Table 1-37. Departments with Available Structural Collapse Rescue Team: Type I (Heavy): 6-Person by Community Size	89
Table 1-38. Departments with Available Structural Collapse Rescue Team: Type II (Medium): 6-Person by Community Size	90
Table 1-39. Departments with Available Structural Collapse Rescue Team: Type III (Light): 5-Person by Community Size	91
Table 1-40. Departments with Available Structural Collapse Search Team: Type I (Heavy): 5-Person by Community Size	92
Table 1-41. Departments with Available Structural Collapse Search Team: Type II (Medium): 3-Person by Community Size	93
Table 1-42. Departments with Available Structural Collapse Search Team: Type III (Light): 2-Person by Community Size	94
Table 1-43. Does Department Provide Fire Prevention (Preparedness & Mitigation)? by Community Size	95
Table 1-44. For Departments That Provide Fire Prevention (Preparedness & Mitigation), What Percent of Personnel Who Perform This Duty Have Received Formal Training? Percent of Departments by Community Size	96
Table 1-45. Does Department Provide Code Enforcement? by Community Size	97
Table 1-46. For Departments That Provide Code Enforcement What Percent of Personnel Who Perform This Duty Have Received Formal Training? Percent of Departments by Community Size	98
Table 1-47. Does Department Provide Traffic Control? by Community Size	99
Table 1-48. For Departments That Provide Traffic Control What Percent of Personnel Who Perform This Duty Have Received Formal Training? Percent of Departments by Community Size	100
Table 1-49. Does Department Provide Active Shooter Response? by Community Size	101

List of Tables and Figures (Continued

Page

Table 1-50. Does Department Have Active Shooter Response Standard Operating Procedures or Guidelines? by Community Size 102
Table 1-51. Has Department's Personnel Received Multi-Agency Training and Been Tested on the Training and Special Equipment Required? by Community Size 103
Table 1-52. Does Department Have a Program to Maintain Basic Firefighter Fitness and Health? by Community Size 104
Table 1-53. Is the Program Associated with the IAFC/IAFF Wellness-Fitness Initiative (WFI)? by Community Size 105
Table 1-54. Does This Program Include a Firefighter Physical Examination for All Firefighters? by Community Size 106

Table 1-55. How Often Does Your Department Complete Firefighter Physical Examination for All Firefighters? by Community Size 107
Table 1-56. Does This Program Include a Fitness Assessment for All Firefighters? by Community Size 108
Table 1-57. How Often Does Your Department Complete a Fitness Assessment for All Firefighters? by Community Size 109
Table 1-58. Does Department Have a Program for Behavioral Health? by Community Size 110
Table 1-59. Does Department Have a Program for Infection Control/PPE Decontamination? by Community Size 111

Table 1-60. Does Department Have a Program for Exposure Control? by Community Size 112
Table 1-61. Does Department Monitor Air Quality at the Fireground? by Gas Type and Community Size 113
Table 2-A. Number of Fire Stations With Characteristics Indicating Potential Need, by Size of Community Protected 114
Figure 2-1. Percent of Stations Over 40 Years Old by Size of Community for Four Studies 116
Figure 2-2. Percent of Stations Without Backup Power by Size of Community, for Four Studies 117

Figure 2-3. Percent of Stations Not Equipped for Exhaust Emission Control by Size of Community, for Four Studies 118
Table 2-B. Estimated Percent of Fire Departments Lacking Sufficient Fire Stations to Achieve Specified Maximum Travel Distance, by Size of Community Protected, Maximum Travel Distance Specified, and Assumption Regarding Optimality of Fire Station Placement 121

List of Tables and Figures (Continued)

Page

Figure 2-4. Percent of Departments Needing More Stations Based on Coverage Area, ISO Guidance, and Modeled Response Distance by Size of Community, for Four Studies 123
Table 2-C. Number of Engines in Service, Limited to Engines At Least 15 Years Old by Age of Equipment and Size of Community Protected 124
Figure 2-5. Percent of Engines and Pumpers That Are At Least 15 Years Old by Size of Community, for Four Studies 125

Table 2-D. Departments with No Ladder/Aerial Apparatus vs. Departments with No Buildings of At Least 3 Stories in Height Percent of Departments, by Size of Community Protected 127
Figure 2-6. Percent of Revenue by Source, for All- or Mostly-Volunteer Departments Protecting Populations of Less Than 2,500, for Four Studies 128
Table 2-1. Number of Fire Stations and Selected Characteristics by Community Size 129
Table 2-2. Average Number of Engines/Pumpers and Ambulances* in Service and Age of Engine/Pumper Apparatus by Community Size 130
Table 2-3. Average Number of Engines/Pumpers in Service and Age of Engine/Pumpers, by Community Size 131

Table 2-4. Average Number of Engines/Pumpers, Ladders/Aerials and Tankers/Tenders in Reserve, by Community Size 132
Table 2-5. Number of Ladders/Aerials In-Service, by Community Size 133
Table 2-6. Number of Buildings in Community That Are 3 or More Stories in Height, by Community Size 134
Table 2-7. Does Department Have a Plan for Apparatus Replacement on a Regular Schedule? by Community Size 135
Table 2-8. For All- or Mostly-Volunteer Departments Sources of Budget Revenue by Share (%) of Revenue and Community Size 136

Table 3-A. Departments Where Not All Emergency Responders on a Shift Have Radios and Radios Lacking Water-Resistance or Intrinsic Safety in an Explosive Atmosphere by Size of Community Protected 137
Figure 3-1. Percent of Departments Where Not All Emergency Responders on a Shift on a Shift Have Portable Radios by Size of Community, for Four Studies 138
Figure 3-2. Percent of Departments Where Not All Portable Radios Are Water Resistant by Size of Community, for Four Studies 139
Figure 3-3. Percent of Departments Where Not All Portable Radios Are Intrinsically Safe in Explosive Atmosphere by Size of Community for Four Studies 140
Figure 3-4. Percent of Departments Without a Reserve of At Least 10% of In-Service Portable Radios by Size of Community, for Four Studies 141

List of Tables and Figures (Continued)

Page

Table 3-B. Departments Where Not All Firefighters on a Shift Have SCBA, Where At Least Some SCBA Units Are At Least 10 Years Old, and At Least Some SCBA are CBRN Compliant by Size of Community 142

Figure 3-5. Percent of Departments Where Not All Firefighters on a Shift Are Equipped With SCBA by Size of Community, for Four Studies 143

Figure 3-6. Percent of Departments Where Some SCBA Is At Least 10 Years Old by Size of Community, for Four Studies 144

Table 3-C. Percent of Departments for Which Not All Emergency Responders per Shift Are Provided With PASS Devices by Size of Community 145

Figure 3-7. Percent of Departments Where Not All Emergency Responders on a Shift Are Equipped With PASS Devices by Size of Community, for Four Studies 147

Table 3-D. Firefighters in Departments Where Not All Firefighters Are Equipped With Personal Protective Clothing and Percent of Personal Protective Clothing That Is At Least 10 Years Old by Size of Community 148

Figure 3-8. Percent of Departments Where Not All Emergency Responders Have Their Own Personal Protective Clothing by Size of Community, for Four Studies 149

Figure 3-9. Percent of Departments Where Some Personal Protective Clothing Is At Least 10 Years Old by Size of Community, for Four Studies 150

Figure 3-10. Percent of Departments Without Enough Reserve Personal Protective Clothing to Equip 10% of Emergency Responders by Size of Community, for Four Studies 152

Table 3-E: Departments without Reserve Personal Protective Clothing (PPC) Sufficient to Equip 10% of their Emergency Responders, PPC Inspected and Tested each Year and Laundering Facilities or External Services to Clean Contaminated PPC 153

Table 3-1. How Many of Department's Emergency Responders on a Single Shift Are Equipped With Portable Radios? Percent of Departments by Community Size 154

Table 3-2. What Percentage of Department's Portable Radios Are Water-Resistant? Percent of Departments by Community Size 155

Table 3-3. What Percentage of Department's Portable Radios Are Intrinsically Safe in an Explosive Atmosphere? Percent of Departments by Community Size 156

Table 3-4. Does Department Have Reserve Portable Radios Equal to or Greater Than 10% of In-Service Radios? by Community Size 157

Table 3-5. How Many Emergency Responders on a Single Shift Are Equipped With Self-Contained Breathing Apparatus (SCBA)? Percent of Departments by Community Size 158

Table 3-6. How Much of Departments SCBA Equipment Is At Least 10 Years Old? Percent of Departments by Community Size 159

List of Tables and Figures (Continued)

Page

Table 3-7. Percentage of Department's SCBA Equipment that is CBRN Compliant? Percent of Departments by Community Size 160
Table 3-8. What Fraction of Emergency Responders on a Single Shift Are Equipped With Personal Alert Safety System (PASS) Devices? Percent of Departments by Community Size 161
Table 3-9. What Percentage of Emergency Responders Are Equipped With Personal Protective Clothing? Percent of Departments by Community Size 162
Table 3-10. How Much of Department's Personal Protective Clothing Is At Least 10 Years Old? Percent of Departments by Community Size 163

Table 3-11. Does Department Have Reserve Protective Clothing Sufficient to Equip 10% of Emergency Responders? by Community Size 164
Table 3-12. Is Personal Protection Clothing Inspected and Tested Each Year? Percent of Departments by Community Size 165
Table 3-13. Percentage of Departments Having Laundering Facilities or Providing Services (External) to Clean Contaminated Personal Protection Clothing by Community Size 166
Table 4-A. Number of Fire Departments and Estimated Total Population Protected by Those Fire Departments Where Selected Fire Prevention or Code Enforcement Programs Are NOT Provided, by Size of Community Protected 167
Figure 4-1. Percent of Departments Lacking Particular Engineering (incl. Code Enforcement) Programs, for Four Studies 171

Figure 4-2. Percent of U.S. Population Living in Communities Protected by Departments Lacking Particular Engineering (incl. Code Enforcement) Programs by Size of Community, for Four Studies 172
Table 4-B, 1-13. Number of Fire Departments and Estimated Total Population Protected by Those Fire Departments Where Educational Programs Are NOT Provided, by Size of Community Protected 174
Figure 4-3. Percent of Departments Lacking Particular Fire Safety Education Programs, for Four Studies 187
Figure 4-4. Percent of U.S. Population Living in Communities Protected by Departments Lacking Particular Fire Safety Education Programs, for Four Studies 187
Figure 4-5. Who Conducts Fire-Code Inspections, for Four Studies 189

Figure 4-6. Who Conducts Fire-Code Inspections in Communities with Less Than 2,500 Population Protected, for Four Studies 190
Table 4-1. Which Engineering Programs or Activities Does Department Conduct? by Community Size 192
Table 4-2. Which Education Programs Does Department Conduct? By Community Size 193
Table 4-3. Which Education Programs or Activities Does Department Conduct? By Community Size 194

List of Tables and Figures (Continued)

	Page
Table 4-4. How Many Departments Include Home Fire Sprinkler Information In their Public Education Programs?	195
Table 4-5. Who Conducts Fire-Code Inspections in the Community? By Community Size	196
Table 4-6. Percentage of Commercial or Inspectable Properties Inspected Once a Year Percent of Departments by Community Size	197
Table 4-7. Who Determines That a Fire was Deliberately Set? By Community Size	198
Figure 5-1. Technical Rescue and EMS for a Building with Occupants After Structural Collapse Following a Fire or No-Notice Catastrophic Event, or All Sizes of Communities, for 2015	200
Figure 5-2. Technical Rescue and EMS for a Building with Occupants After Structural Collapse Following a Fire or No-Notice Catastrophic Event for Communities 249,999 or more, for 2015	201
Figure 5-3. Technical Rescue and EMS for a building with occupants after structural collapse following a fire or no-notice catastrophic event, for Communities 25,000 to 249,999, for 2015	202
Figure 5-4. Technical Rescue and EMS for a building with occupants after structural collapse following a fire or no-notice catastrophic event, for Communities 10,000 to 24,999, for 2015	203
Figure 5-5. Technical Rescue and EMS for a building with occupants after structural collapse following a fire or no-notice catastrophic event, for Communities 5,000 to 9,999, for 2015	204
Figure 5-6. Technical Rescue and EMS for a building with occupants after structural collapse following a fire or no-notice catastrophic event, for Communities 2,500 to 4,999, for 2015	205
Figure 5-7. Technical Rescue and EMS for a building with occupants after structural collapse following a fire or no-notice catastrophic event for Communities 2,500 and under, for 2015	206
Figure 5-8. Departments having a plan to obtain assistance form others for a technical rescue and EMS no-notice catastrophic event, for all community sizes, in 2015	207
Figure 5-9. Wildland-Urban Interface (WUI) Fire Affecting Structures for All Communities Sizes, for 2015	210
Figure 5-10. Wildland-Urban Interface (WUI) Fire Affecting Structures for All Communities Sizes, for 2015	211
Figure 5-11. Departments having a Plan to Obtain Assistance from Others for a Wildland-Urban Interface (WUI) Fire Affecting Structures for All Community Sizes, in 2015	212

List of Tables and Figures (Continued)

Page

Table 5-1. How Far Departments Would Have to Go to Obtain Enough People with Specialized Training for an Incident Involving Technical Rescue and EMS for a Building with Occupants after Structural Collapse by Community Size 213

Table 5-2. How Far Departments Would Have to Go to Obtain Enough Specialized Equipment for an Incident Involving Technical Rescue and EMS for a Building with Occupants after Structural Collapse by Community Size 214

Table 5-3. Departments with a Plan to Obtain Assistance from Others for an Incident Involving Technical Rescue and EMS for a Building with Occupants after Structural Collapse by Community Size 215

Table 5-4. Departments That See Protecting Structures in the Wildland-Urban Interface as Their Role 216

Table 5-5. Maximum Number of Structures Departments Can Handle Alone? by Community Size 217

Table 5-6. Maximum Number of Acres Departments Can Handle Alone? by Community Size 218

Table 5-7. Departments with a Wildland-Urban Interface incident affecting 2-5 structures would have to go this far to obtain enough people with specialized training and equipment by Community Size 219

Table 5-8. Departments with a Wildland-Urban Interface incident affecting 6-20 structures would have to go this far to obtain enough people with specialized training and equipment by Community Size 220

Table 5-9. Departments with a Wildland-Urban Interface incident affecting more than 20 Structures would have to go this far to obtain enough people with specialized training and equipment by Community Size 221

Table 5-10. Departments with a plan to obtain assistance from others in an incident involving a Wildland-Urban Interface (WUI) fire affecting structures by Community Size 222

Figure 6-1. Who has the Primary Responsibilities (i.e., Public Safety Answering Point (PSAP) of Answering 911 Calls for All Sizes of Communities, for 2015 225

Figure 6-2. Who has the Primary Responsibilities (i.e., public safety answering point (PSAP) of Answering 911 Calls by Departments for Population Protected 250,000 or more, for 2015 225

Figure 6-3. Who has the Primary Responsibilities (i.e., Public safety Answering Point (PSAP) of Answering 911 calls for Population Protected 25,000 to 249,999, for 2015 226

List of Tables and Figures (Continued)

Page

Figure 6-4. Who has the primary responsibilities (i.e., public safety answering point (PSAP) of answering 911 calls for Population Protected 10,000 to 24,999, for 2015 226
Figure 6-5. Who has the primary responsibilities (i.e., public safety answering point (PSAP) of answering 911 calls for Population Protected 5,000 to 9,999, for 2015 227
Figure 6-6. Who has the primary responsibilities (i.e., public safety answering point (PSAP) of answering 911 calls for Population Protected 2,500 to 4,999, for 2015 227

Figure 6-7. Who has the primary responsibilities (i.e., public safety answering point (PSAP) of answering 911 calls for Population Protected 2,500 and under, for 2015 228
Figure 6-8. Advanced Technological Approaches in Use by Departments for All Sizes of Communities, for 2015 231
Figure 6-9. Advanced Technological Approaches in Use by Departments for Population Protected 250,000 or More, for 2015 232
Figure 6-10. Advanced Technological Approaches in Use by Departments for Population Protected 25,000 to 249,999, for 2015 233
Figure 6-11. Advanced Technological Approaches in Use by Departments for Population Protected 10,000 to 24,999, for 2015 234

Figure 6-12. Advanced Technological Approaches in Use by Departments for Population Protected 5,000 to 9,999, for 2015 235
Figure 6-13. Advanced Technological Approaches in Use by Departments for Population Protected 2,500 to 4,999 236
Figure 6-14. Advanced Technological Approaches in Use by Departments for Population Protected Under 2,500, for 2015 237
Table 6-1. Can Department Communicate by Radio at an Incident Scene with Federal, State or Local Partners? by Community Size 238
Table 6-2. For Departments That Can Communicate With Partners at an Incident Scene What Fraction of Partners Can They Communicate With? Percent of Departments by Community Size 239

Table 6-3. Who has Primary Responsibilities (i.e., public safety answering (PSAP) of answering 911 calls? 240
Table 6-4. Does Department Have a Backup Dispatch Facility? by Community Size 241
Table 6-5. If the 911 call is determined to be a fire call, is that call processed by the same center that answered the initial 911 call? by Community Size 242
Table 6-6. Does the 911 Center that processes the fire call typically have at least one person that processes and dispatches the same fire call? 243
Table 6-7. If the 911 center typically has call takers and separate dispatchers, does the call center have 2 people on duty at all times? 244

List of Tables and Figures (Continued)

Page

Table 6-8. Departments Currently Using Advanced Technological Approaches by Community Size 245

Table 6-9. Percentage of Fireground Incidents where Departments Have a Thermal Imager/Thermal Imaging Cameras Available Percent of Departments by Community Size 246

INTRODUCTION

In this report, the national results are described for the Fourth Needs Assessment Survey of the U.S. fire service conducted in 2015-2016.

Survey Purpose. The first two Needs Assessment surveys in 2001 and 2005 were funded by the U.S. Fire Administration in order to evaluate the effectiveness of the DHS/FEMA grant programs, specifically the Assistance to Firefighters Grant (AFG) program and the Staffing for Adequate Fire and Emergency Response (SAFER) grant program. NFPA continued this survey into 2010 and 2015 in order to offer a snapshot of the needs of the fire service that is used by many stakeholders at the national, state and local level, as well as to examine the impact of the grant programs.

Fire department needs were assessed by asking, "What does a fire department have?" and then comparing to existing standards or guidance documents. This comprised the bulk of the survey, however, at the end of the questionnaire, there was an open-ended section to ask about the top three needs of a fire department.

Report Objective. The primary goal was to identify major gaps in the needs of the U.S. fire service, where needs are identified by comparing what departments have with what existing consensus standards, government regulations, and other nationally recognized guidance documents say they need to have in order to be safe and effective. Because the AFG and SAFER grant programs targeted many of these identified needs, these surveys were used to indicate the success of the grant program by examining the reduction of these needs over time.

For these purposes, the focus of this report is to present the national results overall and for each of nine strata or groups defined by the community size protected by fire departments. These findings are then benchmarked to nationally recognized guidance documents and standards. Additionally, we calculate trends over time using earlier Needs Assessment survey results from 2001, 2005 and 2010, when possible. These findings are evaluated and discussed in relation to the grant programs.

Survey Design. Part of the survey was redesigned for this cycle in order to stay up-to-date with the roles and responsibilities of the fire service and also emerging issues and technologies. The survey redesign process relied heavily on fire service input, which was gathered at a stakeholders meeting with representatives from the International Association of Fire Fighters, International Association of Fire Chiefs, National Volunteer Fire Council, National Association of State Fire Marshals and International Association of Women in Fire and Emergency Services. A revised survey was then pilot-tested with individuals from these organizations to check for relevance, clarity, and wording of questions and responses.

The resulting survey included more detailed questions about the following: volunteer firefighters available to respond to emergencies during weekday/weekend days and nights; types of auxiliary roles in fire departments; specific EMS training; wildland-urban interface firefighting responsibilities and training; technical rescue; traffic control; active shooter response; health and

wellness programs; exposure control and decontamination of personal protective equipment (PPE); hazard mitigation planning; fire code inspections; public education activities; dispatch procedures; physiological monitoring; geographic information systems (GIS) capability; and aerial robotics. Some questions that did not fit in the paper version of the survey were added to an electronic version.

The remaining questions on the survey were maintained from the earlier versions in order to allow for comparisons of responses across time. The results are presented in the following sections:

(1) Personnel and their capabilities;

(2) Facilities and apparatus;

(3) Personal protective equipment;

(4) Community risk reduction: fire prevention and code enforcement;

(5) Ability to handle unusually challenging incidents; and

(6) Communications and advanced technology.

The complete survey is provided in Appendix 2.

Survey and Analysis Methodology.

NFPA sent out the surveys as a census, meaning that all U.S. fire departments with administrative and fire response responsibilities who were listed in the NFPA fire service inventory were contacted. In all, in 2015, 26,322 fire departments were included in the target population.

In 2015, the survey was offered online for the first time and a link to the online survey was included on the paper version of the survey and was also emailed to those departments for whom email addresses were available (approximately 40% of the total fire service inventory).

The survey was publicized through a web video and webpage, NFPA blogs, press releases, targeted phone calls, reminder emails, and in-person outreach through NFPA regional directors. In addition, NFPA's partners – the International Association of Fire Chiefs, International Association of Fire Fighters, National Volunteer Fire Council and National Association of State Fire Marshals – were instrumental in promoting and distributing the survey to their members.

A total of 5,106 fire departments responded to the survey, with approximately 50% responding to the online version and 50% responding to the paper version. Overall, the response rate was 19%, with a range of 11% response for fire departments protecting populations less than 2,500 to 82% response for fire departments protecting populations of 500,000 or more. More details about response rates are included in Appendix 3.

In many of the results tables of this report, the numbers and percentages from respondent departments are projected within population size strata in order to sum to the total of 26,322 known fire departments. This assumes that the survey non-respondent departments are similar to respondents. The projection allows for the calculation of an overall percent, which is based on the sum of the number of projected departments in each population group and not just on those respondent departments. In the overall percent, equal weight is given to each individual department so the overall percent will be mostly influenced by the larger numbers of departments in the smallest community sizes. To balance the overall finding, percentages are reported within community size group in order to provide a picture of the specific population protected interval of interest. See Appendix 3 for a more detailed discussion of the statistical methodology used.

Describing Needs. Two measures were defined to quantify needs, which can be illustrated using the diagram in Figure I-1.

Measuring Need for Departments Providing a Service vs. Size of Need Among All Departments

Figure I-1. Departments Responsible for Providing a Service vs. Departments Having Resources for a Service They Provide

The first measure is "Need for departments providing a service" – this is based on fire departments that report having the responsibility to provide a service, and unmet need is not having the resources needed to provide the service. This measure is calculated as the proportion of fire departments who do not have the resources to provide the service out of all departments who are responsible for providing the service. In Figure I-1, this is shown as the blue area, which is the middle circle minus the smallest circle, as a fraction of the entire middle circle.

The second measure is "Size of need among all departments" – this is calculated as the proportion of unmet need out of all fire departments. The unmet need is number of fire departments who do not have the resources to provide a service that they have responsibility for. In Figure I-1, it is the blue area (middle circle minus the smallest circle) as a fraction of the largest all-departments circle. This measure is useful for comparing needs across different services, since the denominator of all departments remains constant. For example, if you are considering what mix of resources to fund, this measure will need to be combined with estimates of the cost of meeting need per department, for departments of a particular size, in order to construct a unit of cost suitable for use in a comprehensive budgeting exercise.

This is a conservative estimate of need because it is not counting departments that may want to provide a service but cannot because of a lack of resources.

These two measures can also be shown as ratio formulas. The measure of need for departments providing a service would have the following formula:

$$\frac{\text{Departments responsible for providing service but lacking resources}}{\text{Departments responsible for providing service}}$$

For example: Ninety eight percent of fire departments provide structural firefighting capabilities (Table 1-15). However, 49.9% of all fire departments responsible for structural firefighting do not have all their personnel trained in structural firefighting (i.e. lacking resources, 100% minus the total percent of fire departments where all personnel who perform structural firefighting are trained) (Table 1-16). This total of 49.9% is reflected as 50% in Figure 1-5. This 50% is the calculated with a denominator that is the number of departments responsible for providing the service (25,783 departments in Table 1-16).

The measure of size of unmet need would have the following ratio formula, which can be related to the first measure by the following equation:

$$\frac{\text{Departments responsible for providing service but lacking resources}}{\text{All departments}} = \frac{\text{Departments responsible for providing service but lacking resources}}{\text{Departments responsible for providing service}} \times \frac{\text{Departments responsible for providing service}}{\text{All departments}}$$

For example: 48.9% is the size of need for structural firefighting training among all fire departments (i.e. those that perform and those that don't perform structural firefighting) (Figure 1-6). In this instance the denominator is <u>all</u> known fire departments – 26,322 versus 25,783 in the previous example. The percentage measure of size of unmet need will always be less than the measure of need among departments providing a service.

The equations above show that when the two measures seem to go in different directions, it will be because there has been a change in the percent of all departments that have the responsibility, a measure that is also provided in this report.

Glossary

Here are standard definitions for some of the specialized terms used in this report:

Advanced Life Support (ALS). Emergency medical treatment beyond basic life support that provides for advanced airway management including intubation, advanced cardiac monitoring, defibrillation, establishment and maintenance of intravenous access, and drug therapy. [from NFPA 1710, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments*, 2016 edition.]

Basic Life Support (BLS). A specific level of pre-hospital medical care provided by trained responders, focused on rapidly evaluating a patient's condition; maintaining a patient's airway, breathing, and circulation; controlling external bleeding; preventing shock; and preventing further injury or disability by immobilizing potential spinal or other bone fractures. [from NFPA 1710, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments*, 2016 edition.]

Emergency Medical Care. The treatment of patients using first aid, cardiopulmonary resuscitation, basic life support, advanced life support, and other medical procedures prior to arrival at a hospital or other health care facility. [from NFPA 1710, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments*, 2016 edition.] In this report, reference is made to "EMS" or "emergency medical service," which is the service of providing emergency medical care.

First Responder (EMS). Functional provision of initial assessment (i.e., airway, breathing, and circulatory systems) and basic first-aid intervention, including CPR and automatic external defibrillator (AED) capability. [from NFPA 1710, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments*, 2016 edition.]

Hazardous Material. A substance (either matter – solid, liquid, or gas – or energy) that when released is capable of creating harm to people, the environment, and property, including weapons of mass destruction (WMD) as defined in 18 U.S. Code, Section 2332a, as well as any other criminal use of hazardous materials, such as illicit labs, environmental crimes, or industrial sabotage. [from NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program*, 2013 edition.]

Structural Fire Fighting. The activities of rescue, fire suppression, and property conservation in buildings or other structures, vehicles, rail cars, marine vessels, aircraft, or like properties. [from NFPA 1710, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments*, 2016 edition.]

Technical Rescue. The application of special knowledge, skills, and equipment to safely resolve unique and/or complex rescue situations. [from NFPA 1670, *Standard on Operations and Training for Technical Search and Rescue Incidents*, 2014 edition.]

Wildland/Urban Interface (WUI). Locations in which the Authority Having Jurisdiction determines that topographical features, vegetation fuel types, local weather conditions, and prevailing winds result in the potential for ignition of the structures within the area from flames and firebrands of a wildland fire. [from NFPA 1143, *Standard for Wildland Fire Management*, 2014 edition]

SECTION 1. PERSONNEL AND THEIR CAPABILITIES

Most of the U.S. is protected by career firefighters, while most U.S. fire departments are volunteer fire departments.

Tables 1-1 and 1-2 provide summary overviews of U.S. fire departments by type (career vs. volunteer), population protected and community size protected.

More than two-thirds of U.S. fire departments (69%) are all-volunteer fire departments, but only one of every five US residents (20%) are protected by such a department. Only one in 13 fire departments (8%) is all-career, but nearly half of U.S. residents (48%) are protected by such a department. Thirteen percent of fire departments are all career/mostly career and protect approximately two-thirds of the U.S. population. Conversely, 87% of fire departments are all volunteer/mostly volunteer and protect about one-third of the U.S. population.

Volunteers are concentrated in rural communities, while career firefighters are found disproportionately in large communities. There are no all-volunteer departments protecting cities of at least 500,000 in population, while all-volunteer departments constitute nearly all of the fire departments protecting communities of less than 2,500 in population. All- or mostly-career departments account for a majority of departments down to communities of at least 25,000 in population.

Rural communities, defined by the U.S. Bureau of Census as communities with less than 2,500 population, are 98% protected by all- or mostly-volunteer departments and account for more than half (56%) of the all- or mostly-volunteer departments in the US.

Community size is an important factor for the U.S. fire service not only in terms of the emphasis on career vs. volunteer firefighters but also in terms of the challenges faced by departments in different settings. However, it is possible to exaggerate those differences. Even a rural community can have a large factory complex, a large stadium, or even a high-rise building, with all the technical complexities and potential for high concentration of people or valued property. Even a large city can have a wildland/urban interface region and exposure to the unique fire dangers attendant on such an area.

There has been a slight increase in the percentage of departments that are all-career or mixed career/volunteer.

Figures 1-1 shows that there has been a slight shift from volunteer fire departments to career fire departments, in terms of percent of departments. Figure 1-2 shows that the percent of population protected for all career, all volunteer and mixed departments has not changed from 2010 to 2015.

Figure 1-1. Percent of Career vs. Volunteer Fire Departments for Four Studies

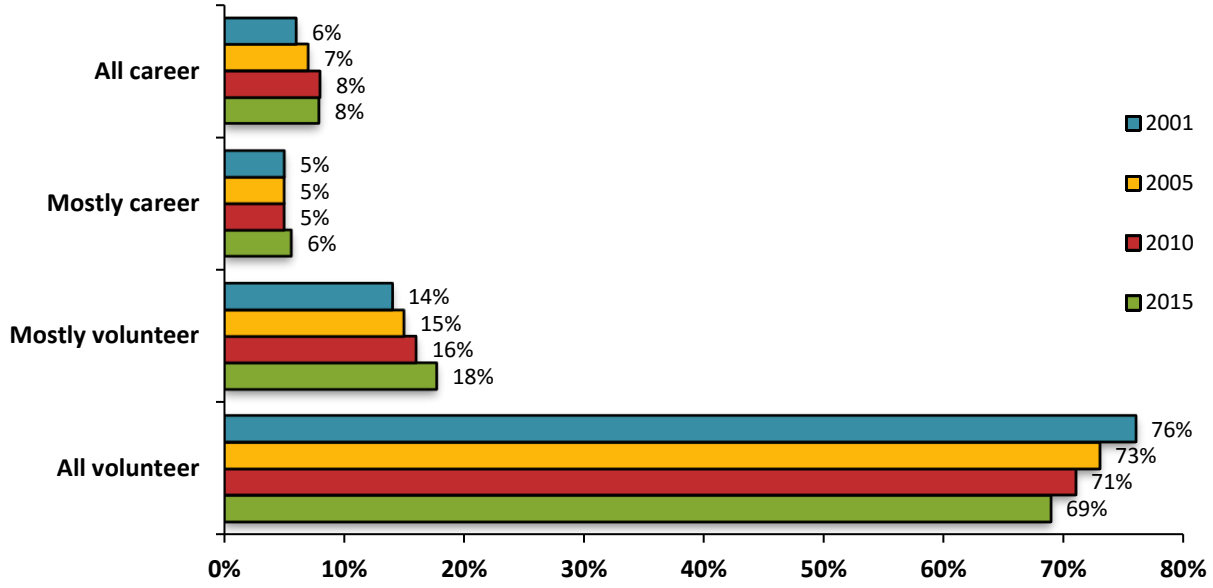
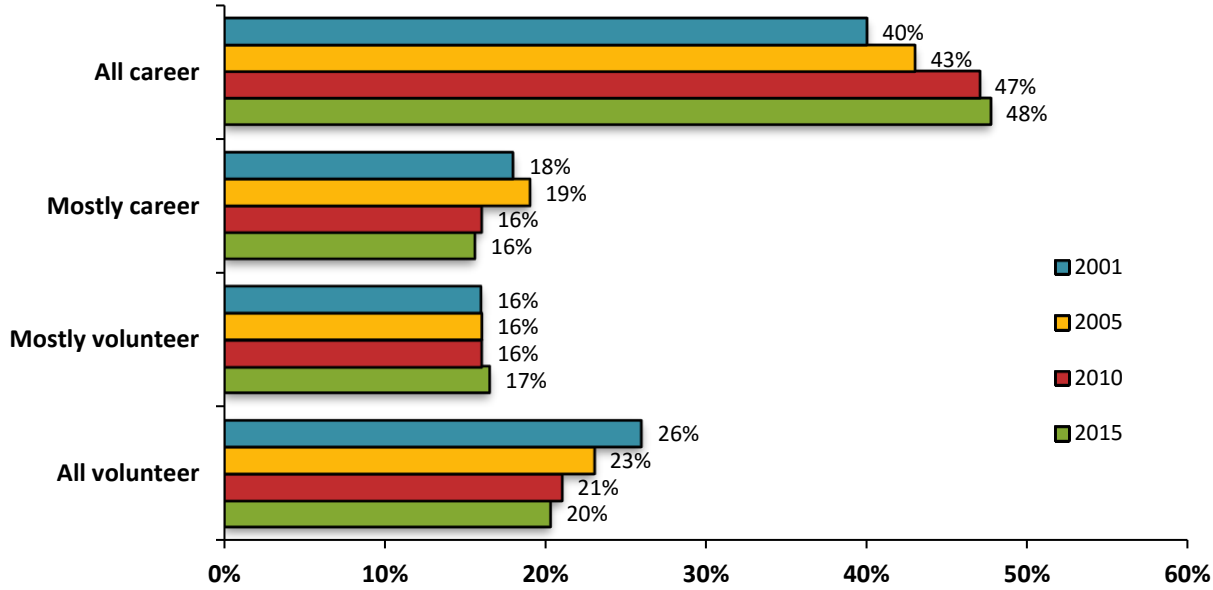


Figure 1-2. Percent of Population Protected by Career vs. Volunteer Fire Departments for Four Studies



The survey did not collect information on the reasons for this shift in department type, but here are some possibilities:

- There has been a steady shift toward people living in one community and working in a different community. This makes it more difficult for volunteer firefighters to respond during the day to fires where they live.

- For this reason and others, volunteer fire departments have been reporting growing difficulty in recruiting and retaining volunteer firefighters.

- As the U.S. has increased the diversity of responsibilities of fire departments, from fires to other hazards, from suppression to prevention, there has been a corresponding growth in needed skills and hours. Serving as a member of a fire department with a modern breadth of duties requires much more of a commitment from every firefighter.

- Urbanization has resulted in an increased need for more commitment resulting in an increased preference to staff larger urban fire departments with career firefighters.

Table 1-A indicates the estimated number of career, volunteer, and total firefighters, by the size of the community protected by their fire departments. Thirty percent of the total firefighters are career while 70% are volunteer. Table 1-3 shows these numbers broken down by male and female firefighters. The estimates show that 7% of career firefighters are female and 11% of volunteer firefighters are female. It is important to note that these estimates are based on departments that responded to the survey.

Table 1-B indicates the average number of career firefighters per department who are on duty available to respond to emergencies, by size of community the department protects. These figures do not indicate the average number of all firefighters per department on duty, because volunteers are not included and every community-size interval has some departments that are not all-career departments. The numbers in the smaller community sizes show that many departments have paid firefighters. However, an average number of 3-4 does not mean that all departments have paid firefighters.

Table 1-A. Number of Career, Volunteer, and Total Firefighters by Size of Community (Q. 1, 6, 11)

Population Protected	Career Firefighters	Volunteer Firefighters	Total Firefighters
500,000 or more	72,850	6,300	79,150
250,000 to 499,999	25,550	3,550	29,100
100,000 to 249,999	48,450	3,700	52,150
50,000 to 99,999	41,850	6,900	48,750
25,000 to 49,999	48,550	22,800	71,350
10,000 to 24,999	52,200	77,300	129,500
5,000 to 9,999	17,350	108,050	125,400
2,500 to 4,999	16,850	201,300	218,150
Under 2,500	17,500	378,250	395,750
Total	341,150	808,150	1,149,300

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service
The above projections are based on 5,032 departments reporting on Questions 1, 6 and 11
Q. 1: Population (number of permanent residents) your department has primary responsibility to protect (excluding mutual aid areas)
Q. 6: Total number of full-time (career) uniformed firefighters. How many are female?
Q.11: Total number of active part-time (including call or volunteer) firefighters. How many are female?

Table 1-B. Average Number of Career/Paid Firefighters per Department on Duty Available to Respond to Emergencies by Size of Community (Q. 6 Part III)

Population Protected	Average Number of Paid Firefighters
500,000 or more	383.2
250,000 to 499,999	125.4
100,000 to 249,000	60.8
50,000 to 99,999	28.4
25,000 to 49,999	13.9
10,000 to 24,999	6.8
5,000 to 9,999	3.1
2,500 to 4,999	4.9
Under 2,500	3.5

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service.
The above projections are based on 2,314 departments reporting on Question 6 part 3.
Q 6 part 3. Average number of full time career/paid firefighters on duty available to respond to emergencies.

The total number of firefighters has been increasing, driven by an increase in career firefighters and a stable number of volunteer firefighters.

Figure 1-3 shows that there has been a steady increase in the number of active firefighters since 2001, driven by an increasing number of career firefighters. This is consistent with trends in career vs. volunteer departments, in that all-volunteer departments appear to be shifting to mostly-volunteer departments (mixed with career firefighters).

It should be noted that the number of career firefighters has increased in pace with increases in the protected population. The number of career firefighters per 1,000 population protected has changed little since at least 1986. Despite the slight decline in the all- or mostly-volunteer department share, there has been a definite downward trend in the number of volunteer firefighters per 1,000 population protected over the past 30 years.[2]

Figure 1-3. Number of Career vs. Volunteer Firefighters for Four Studies

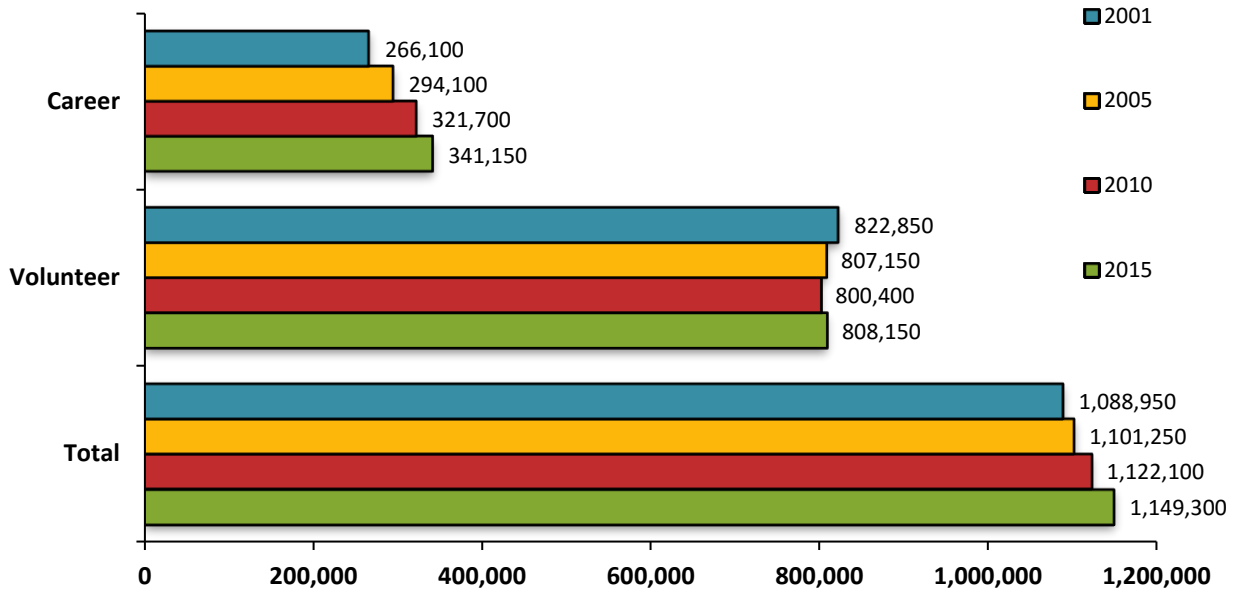
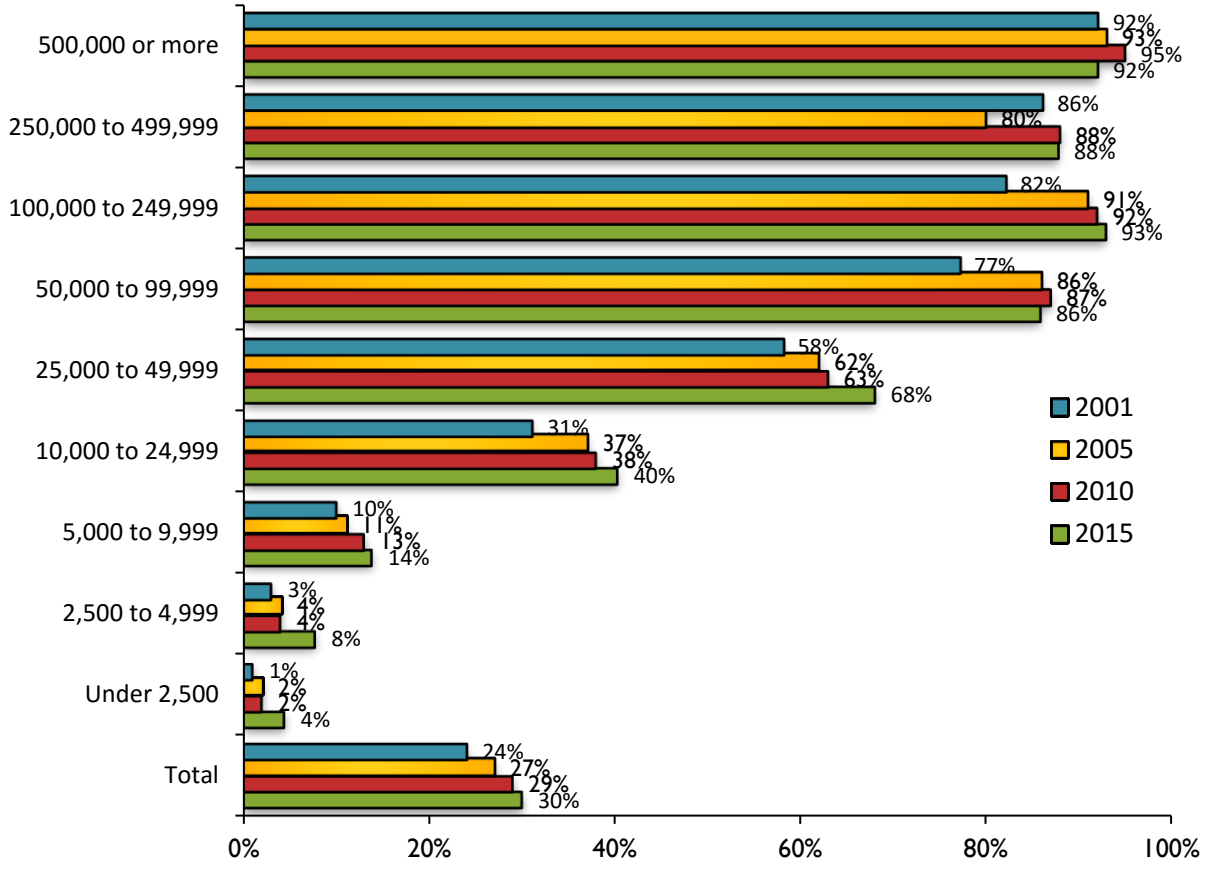


Figure 1-4 shows the career percent of firefighters has been stable or increasing for several community sizes, indicating that the shift from volunteer to career has been very broad-based.

[2] Hylton J.G. Haynes and Gary P. Stein, *U.S. Fire Department Profile - 2014*, NFPA Fire Analysis and Research Division, January 2016.

Figure 1-4. Percent of Firefighters Who are Career, by Size of Community, for Four Studies



In this Needs Assessment Survey, a question was included regarding changes in the number of funded firefighter positions at the responding department. Gains in funded positions were observed for departments protecting populations of 5,000 and above, while losses in positions were reported for departments in communities of under 5,000.

Adequacy of Number of Firefighters Responding

Tables 1-4 to 1-11 provide statistics on the number of firefighters responding to emergencies or with a certain type of apparatus.

These indicators of response can be compared to NFPA standards regarding the minimum number of firefighters to permit an interior attack on a structural fire with adequate safeguards for firefighter safety. The comparisons are not straightforward, however, because many fire departments respond with both career and volunteer firefighters, while the survey questions asked about responses from career and volunteer firefighters separately.

The issue of "adequacy" is being assessed here as only one of several objectives of a fire department response – the protection of the firefighters from unreasonable risk of injury or death. Relative success in meeting this objective will not necessarily imply anything about the department's ability to achieve the other departmental suppression objectives, such as preventing conflagrations, preventing fire from involving an entire large structure, or intervening decisively before the onset of flashover in the room of fire origin.

In addition, success in meeting any of these objectives involves more than a sufficiency of personnel. Equipment of many types is also needed, as are skills and knowledge, as achieved through training and certification. Each of these areas of need is addressed in different parts of the survey.

Volunteer Firefighters

Many volunteer and mostly-volunteer fire departments comply with NFPA Standard 1720. More volunteer firefighters turn out in the evenings and on weekends.

Table 1-4 through 1-7 provide statistics on the average number of volunteer firefighters who respond to emergencies, for only the all- or mostly-volunteer fire departments in communities under 50,000 population. Note that a "mostly-volunteer" department might respond with some career firefighters as well, and those numbers are not included in the tables.

NFPA 1720, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer Fire Departments*, calls for a minimum of 4 firefighters on-site before an interior attack on a structure fire is begun. The survey question does not directly correspond to the standard threshold because the survey refers to an average number of firefighters responding while the standard refers to a minimum number. However, using the average response, many all- and mostly-volunteer fire departments reportedly respond to emergencies with enough people. Specifically, for weekday responses during the day (refer to Table 1-4):

- In communities of 25,000-49,999, 84% of departments respond with an average of 4 or more volunteer firefighters.
- In communities of 10,000-24,999, 79% of departments respond with an average of 4 or more volunteer firefighters.
- In communities of 5,000-9,999, 83% of departments respond with an average of 4 or more volunteer firefighters.
- In communities of 2,500-4,999, 80% of departments respond with an average of 4 or more volunteer firefighters.
- In communities of under 2,500, 80% of departments respond with an average of 4 or more volunteer firefighters.

The response for volunteers is better during evenings and on weekends, when compared to weekday calls during the day, as shown in Tables 1-5 to 1-7. Because this survey question in 2015 had more specificity about weekday day/night response and weekend day/night response, the results cannot be compared to previous survey years.

Career Firefighters

Except for cities protecting at least 250,000 population, most communities do not assign at least 4 career firefighters to an engine or pumper and so are probably not in compliance with NFPA 1710.

Table 1-8 provides statistics for only the all- or mostly-career fire departments in communities with 10,000 or more population, on the number of career firefighters assigned to an engine or pumper. Note that a "mostly career" department might also respond with some volunteers, and those numbers are not reflected in Table 1-8.

NFPA 1710, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments*, requires a minimum of 4 on-duty firefighters on an engine or pumper.

The percentage of departments with fewer than 4 career firefighters assigned to an engine or pumper is (refer to Tables 1-8 and 1-A):

- 35% for departments protecting at least 500,000 population (in 2015, when 92% of firefighters protecting communities of this size were career)
    - slightly up from 30% in 2001 (when 92% of firefighters protecting communities of this size were career)
    - up from 22% in 2005 (when 93% of firefighters protecting communities of this size were career)
    - and up from 20% in 2010 (when 95% of firefighters protecting communities of this size were career)
- 51% for departments protecting 250,000 to 499,999 population (in 2015, when 88% of firefighters protecting communities of this size were career)
    - up from 41% in 2001 (when 86% of firefighters protecting communities of this size were career)
    - up from 44% in 2005 (when 80% of firefighters protecting communities of this size were career)
    - and up from 26% in 2010 (when 88% of firefighters protecting communities of this size were career)
- 71% for departments protecting 100,000 to 249,999 population (in 2015, when 93% of firefighters protecting communities of this size were career)
    - up from 56% in 2001 (when 82% of firefighters protecting communities of this size were career)
    - up from 59% in 2005 (when 91% of firefighters protecting communities of this size were career)
    - and up from 60% in 2010 (when 92% of firefighters protecting communities of this size were career)
- 80% for departments protecting 50,000 to 99,999 population (in 2015, when 86% of firefighters protecting communities of this size were career)
    - slightly up from 76% in 2001 (when 77% of firefighters protecting communities of this size were career)

- up from 71% in 2005 (when 86% of firefighters protecting communities of this size were career)
- and up from 71% in 2010 (when 87% of firefighters protecting communities of this size were career)

The change identified in the most recent needs assessment survey is toward less frequent assignment of at least 4 career firefighters to an engine or pumper. This is suggestive of an initial trend toward reduced compliance with NFPA 1710.

While it cannot be confirmed by these data, this initial trend towards reduced compliance with NFPA 1710 may be reflective of the change in management of SAFER funds since the preparation of the last report. The change has reduced the required period of employment and removed the mandate of continued employment after grant funds are expended. Therefore, increased staffing levels may not be maintained. Other impact factors should also be considered, and in light of the inherent dangers of firefighting and recommendations of NFPA 1710, this initial trend warrants further exploration.

Results for the numbers of career firefighters typically staffing an engine/pumper are provided in Table 1-9, and are comparable to the numbers in Table 1-8.

Tables 1-10 and 1-11 provides statistics similar to those in Tables 1-8 and 1-9 but for ladder apparatus. There is no comparable simple formula to use in assessing the adequacy of these numbers, so the tables are presented without comment.

Auxiliary Roles

Overall auxiliary members represent 10% of the total number of firefighter positions in departments.

Table 1-C contains the numbers of active fire department members who only fill support or auxiliary roles and have no direct firefighting activities. Compared to the numbers of firefighters in Table 1-A, the auxiliary members represent approximately 10% of the total number of firefighters in each community size interval. Note that auxiliary members are not included in the numbers of firefighters. The survey wording distinguished between the total number of firefighters in Questions 6 and 11 and the members who only fill support or auxiliary roles and have no direct firefighting activities in Question 12.

Table 1-C: Number of Support/Auxiliary Fire Department Members (Q. 12)

Population Protected	Active Fire Department Support/Auxiliary Members
500,000 or more	7,800
250,000 to 499,999	2,100
100,000 to 249,999	4,300
50,000 to 99,999	1,800
25,000 to 49,999	5,550
10,000 to 24,999	11,350
5,000 to 9,999	12,550
2,500 to 4,999	27,950
Under 2,500	48,700
Total	122,150[3]

Source: NFPA 2015 Survey of the Needs of the US Fire Service.

The above table breakdown is based on 1,924 fire departments reporting on Question 12. None of the fire departments who responded to Question 12 reported that 0 active members filled only support or auxiliary roles.

Q. 12: How many active members of your fire department only fill support or auxiliary roles and have not direct firefighting activities?

Tables 1-12 and 1-13 display the types of auxiliary roles that members are performing, with percentages calculated from a total of departments responding to this question in Table 1-12. Table 1-13 contains the projected number of departments in each category. The most common auxiliary roles were command post ops, logistics and directing traffic. The other roles listed in the survey that are filled by support members were: first aid, communications, rehab and water supply. Other additional auxiliary roles reported by respondents are presented in Table 1-14, with administrative roles being the most common category.

Extent of Training and Certification, by Type of Duty

In this section, need will be described in terms of both of the following measures:

- Need for departments providing a service (where need is compared to only departments providing the service) = (Departments responsible for providing service but lacking resources) / (Departments responsible for providing service)

[3] These results are based on a sample survey, and as a result there is a 95% confidence interval associated with each estimate. Based on the data reported by the fire departments responding to the 2015 Survey of the needs of the US Fire Service, NFPA is confident that the actual total number of active support or auxiliary fire department members fall between 119,000 to 125,300. Results in this table are rounded to the nearest 50.

- Size of need among all departments (where need is compared to all departments) = (Departments responsible for providing service but lacking resources) / (All departments)

The first measure assesses departments with unmet need against departments who have responsibility for this type of service. The second measure assesses departments with unmet need against all departments.

The FEMA Assistance to Firefighters Grants provide support to address training needs. Grants for training of any type accounted for 5% of funds awarded in 2011-2014.

Structural Firefighting

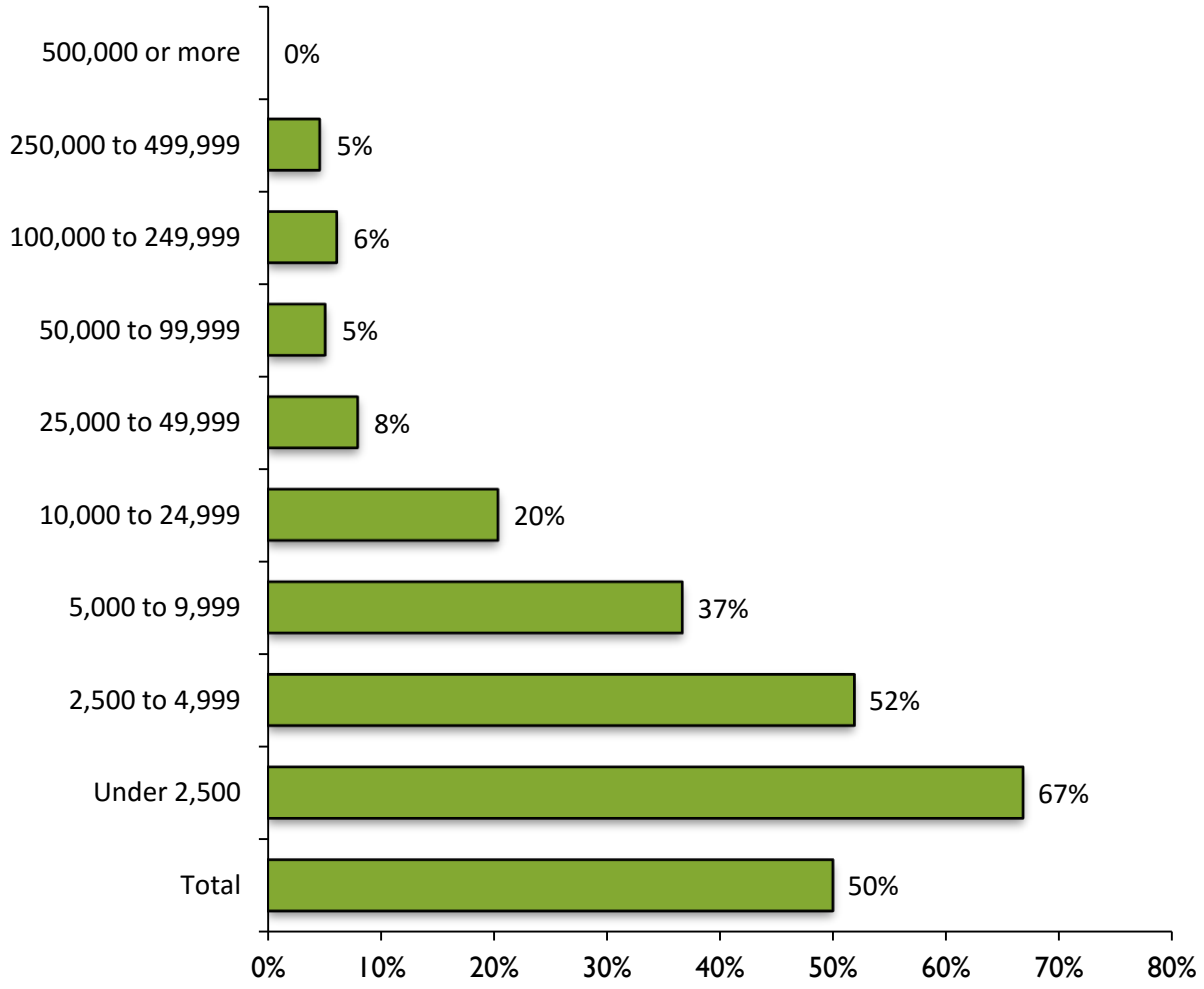
Overall, only 2% of departments say that structural firefighting is *not* a role the department performs (see Table 1-15). Most of the departments that do not perform structural firefighting are in rural communities, serving less than 2,500 population. Even there, only 3% of departments do not perform structural firefighting.

Table 1-16 addresses how many of the personnel responsible for structural firefighting have received formal training, among departments that perform structural firefighting. Answers were solicited in the form of: None (0%), Few (1-25%), Some (26-50%), Many (51-75%), Most (76-99%) and All (100%).

Need for departments performing structural firefighting: In community sizes of 25,000 and over, most departments have formally trained all of their personnel involved in firefighting. In community sizes below 25,000, the percentage of departments who have not formally trained all of their personnel involved in firefighting ranges from 20% to 67%, with the highest number of untrained personnel in the smallest communities. (See Figure 1-5.)

Overall, 50% of departments that provide structural firefighting have not formally trained all their involved personnel, down from 56% in 2001 and 53% in 2005, and slightly up from 47% in 2010 (see Figure 1-5).

Figure 1-5. Need for Departments Performing Structural Firefighting: Percent with Personnel Who Are Not All Formally Trained by Size of Community in 2015



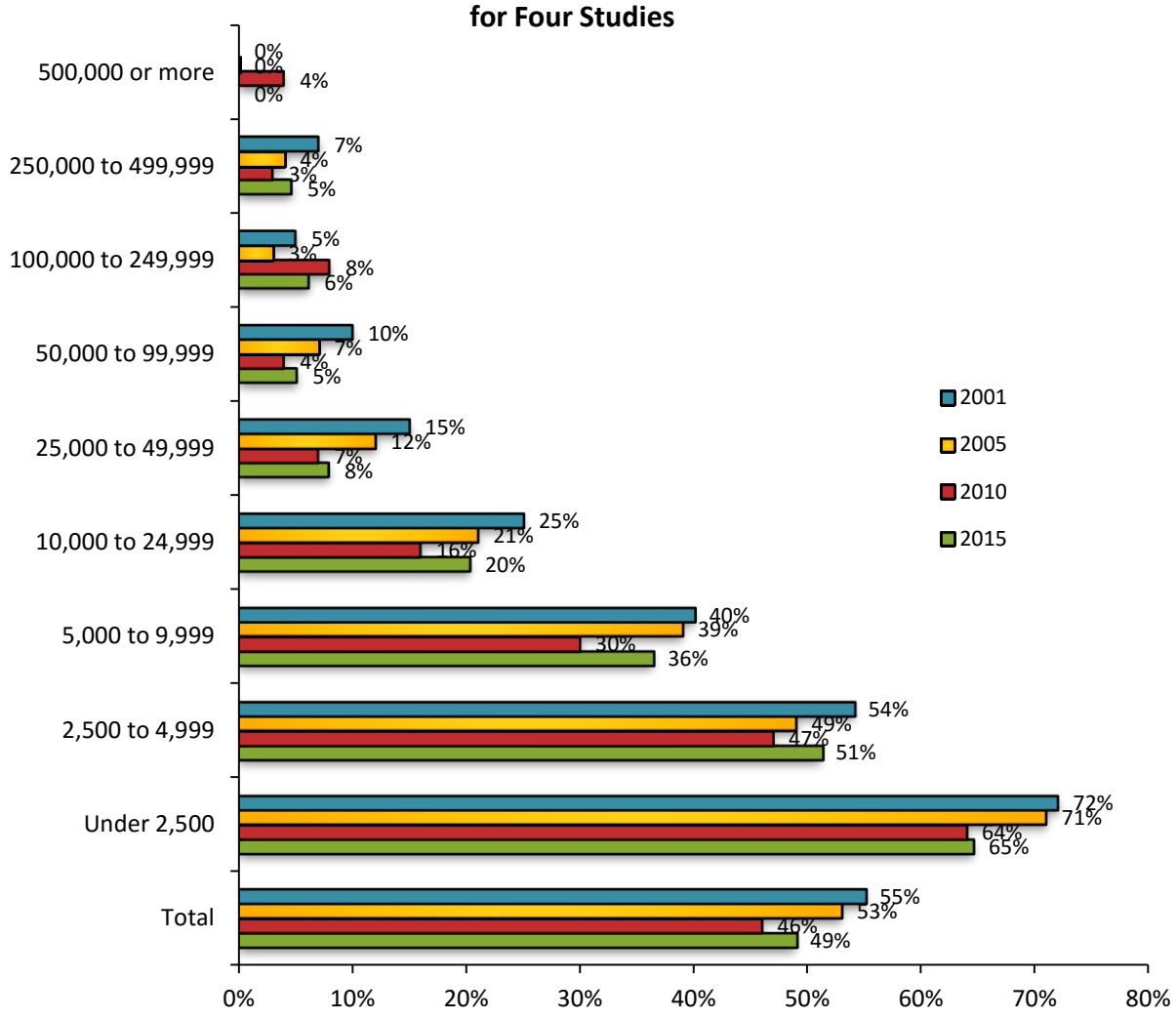
<u>Size of need among all departments</u>: Overall, 49% of all departments in 2015 have not formally trained all of their personnel involved in structural firefighting, down from 55% in 2001 and slightly up from 46% in 2010. (See Figure 1-6.)

Figure 1-6 illustrates the size of need as the percent of departments who have not formally trained all of their firefighting personnel, out of all fire departments by community size over time.

Because almost all departments provide structural firefighting, there is very little difference in the measures of size of need and need for departments performing structural firefighting.

There has been some progress in the past 15 years, but the remaining need is still extensive, particularly for fire departments in smaller communities.

Figure 1-6. Size of Need Among All Departments: Percent That Perform Structural Firefighting and Need Training by Size of Community, for Four Studies



Approximately one-third of fire departments have all of their personnel certified to Firefighter Level I (NFPA 1001), among departments that perform structural firefighting.

Table 1-17 contains a summary of departments with the percentage of their firefighting personnel who are certified to Firefighter Level I, among departments that perform structural firefighting. In community sizes greater than 50,000, 90% of departments have all of their

firefighting personnel trained to Level I. In community sizes less than 5,000, this percentage dips to 20% of departments with all firefighting personnel trained to Level I. Overall, 31% of fire departments have all of their personnel certified to Level I.

Estimated numbers of firefighters who serve in departments where no one is certified are provided in Table 1-D by community size.

Table 1-D. Estimated Number of Firefighters Involved in Structural Firefighting Who Are Serving in Departments Where No One is Certified by Size of Community Protected (Q. 13c)

Population Protected	Estimated Firefighters Lacking Firefighter I Certification
500,000 or more	-
250,000 to 499,999	-
100,000 to 249,999	-
50,000 to 99,999	500
25,000 to 49,999	300
10,000 to 24,999	450
5,000 to 9,999	1,800
2,500 to 4,999	8,200
Under 2,500	39,950
Total	51,200
Percent of all firefighters	4.5%

Source: NFPA 2015 Survey of the Needs of the US Fire Service.

An estimated total of 51,120 firefighters serve in fire departments where no one is certified as Firefighter Level I.

Most of the firefighters in departments with no certification for structural firefighting were in rural fire departments and so were almost certainly volunteer firefighters.

The number of firefighters serving in fire departments where no one is certified is decreasing over time. The 51,200 firefighters (4% of all firefighters) represent a decrease from 153,000 (14%) in 2001 and 96,000 firefighters (9% of all firefighters) in 2010.

Note that there may be other firefighters – possibly many other firefighters – who lack certification serving in departments where some firefighters are certified. These firefighters are not reflected in the 51,200 figure cited above.

Conversely, some departments where no one is certified may be providing a local equivalent of certification.

The majority of departments have personnel who perform interior firefighting and are not restricted to exterior firefighting only.

Table 1-18 describes departments by the percentage of personnel who are restricted to exterior firefighting only, among those departments who are responsible for structural firefighting.

In community sizes of 25,000 or greater, more than 90% of departments had none or few (1-25%) personnel who were restricted to exterior firefighting only. In community sizes of 2,500 or less, 66% of departments had none or few personnel who were restricted to exterior firefighting only.

Emergency Medical Service

More than two-thirds (73%) of departments say that emergency medical service (EMS) is a role the department performs (see Table 1-19).

The majority of departments that do not perform EMS serve rural communities, with less than 2,500 population protected. Even there, many departments (56%) now provide EMS. The percent of departments performing EMS has risen from 65% in 2001 to 69% in 2010 and 73% in the latest survey.

Need for departments providing EMS: Among departments that perform EMS, 55% have not formally trained all their involved personnel, largely unchanged from 54% in 2001 and up from 48% in 2010. (See Figure 1-7.)

Size of need among all departments: An estimated 34% of all departments provide EMS but have not formally trained all their personnel involved in EMS, largely unchanged from 35% in 2001 and 33% in 2010. (See Figure 1-8.)

Figures 1-7 and 1-8 show that there has been an increase in training need from 2010 to 2015 for all sizes of communities.

Figure 1-7. Need for Departments Providing EMS: Percent with Personnel Who Are Not All Formally Trained by Size of Community, for Four Studies

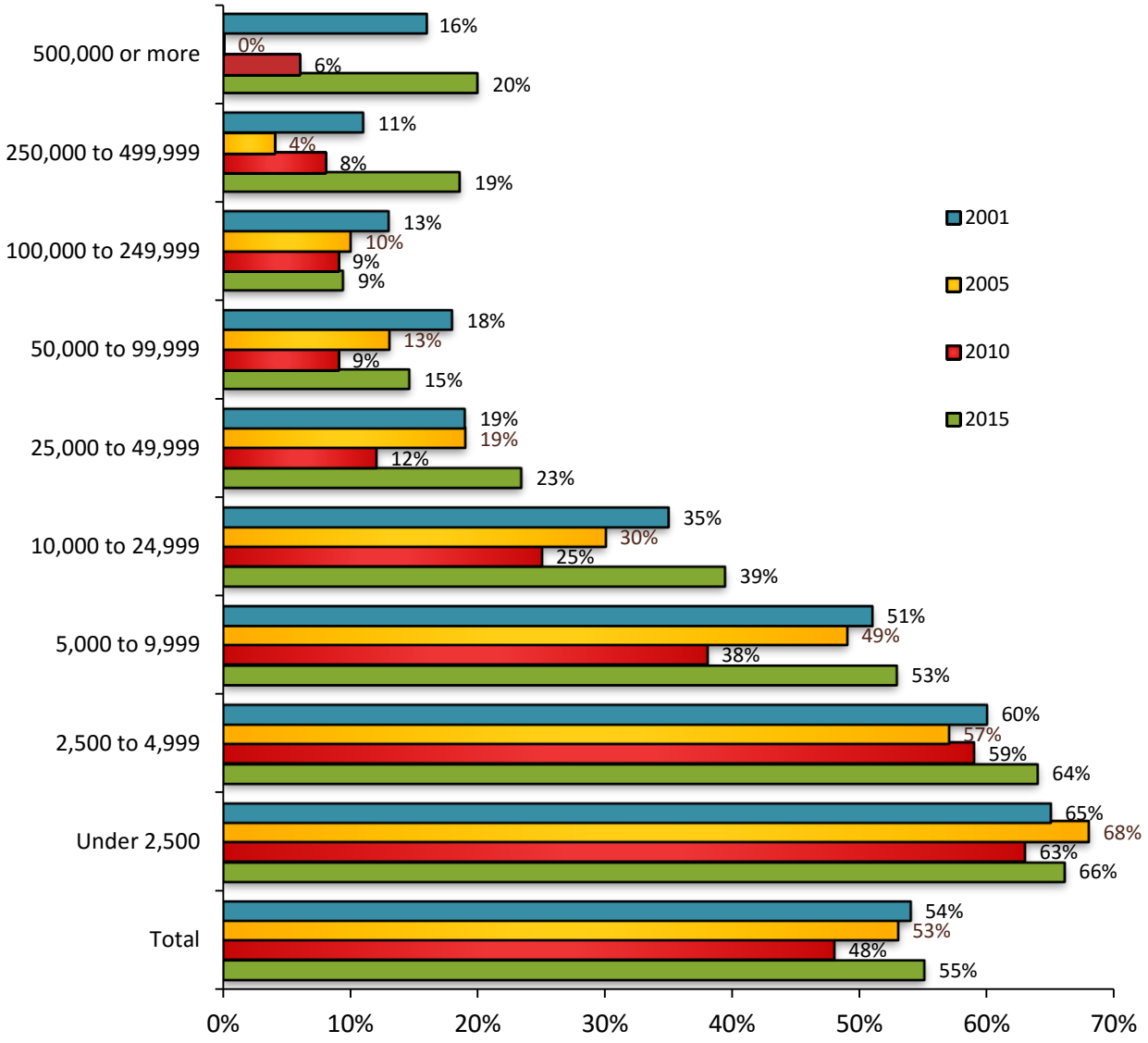
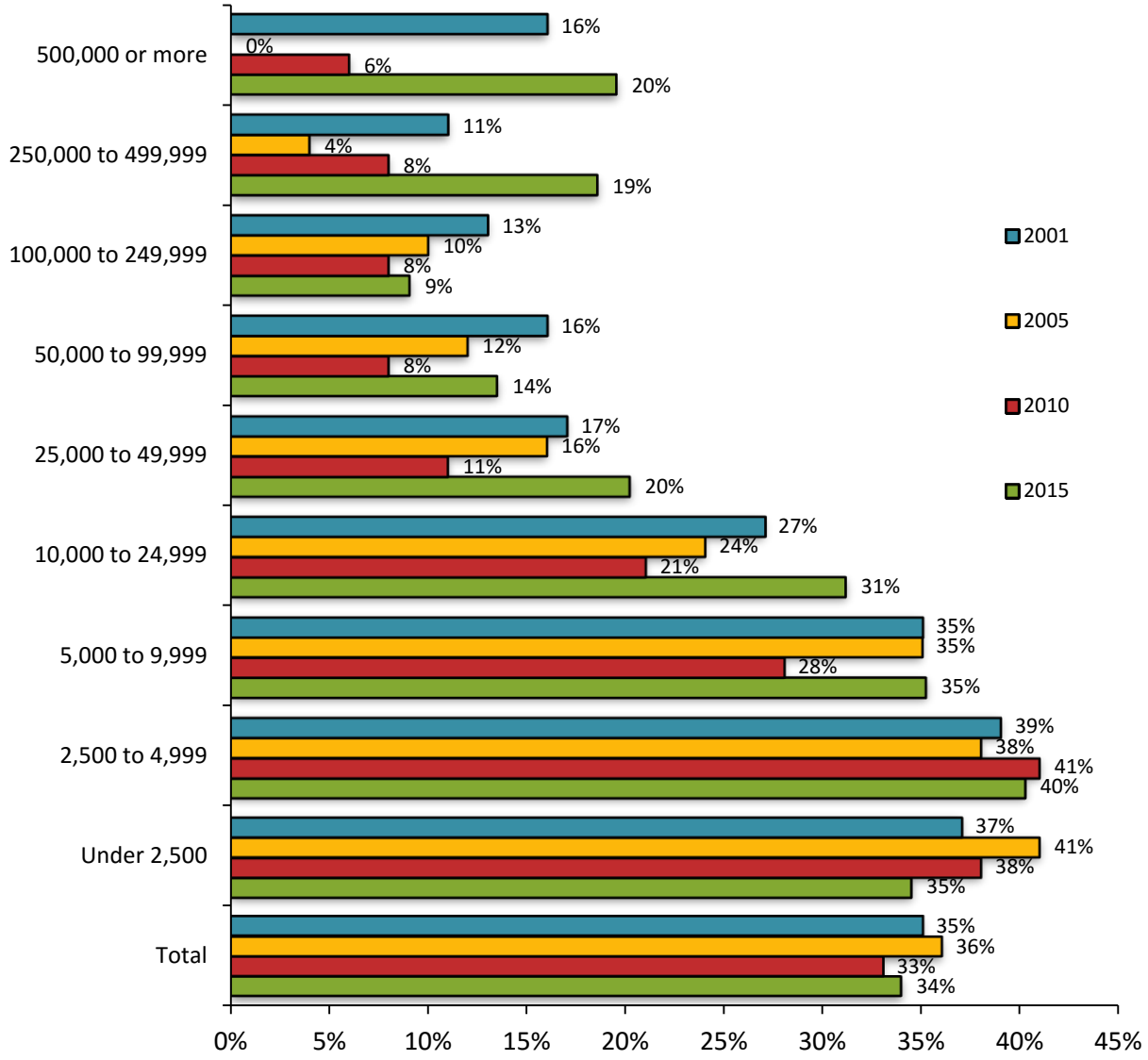


Figure 1-8. Size of Need Among All Departments: Percent That Provide EMS and Need Training by Size of Community, for Four Studies



Note that the survey question summarized in Figures 1-7 and 1-8 changed in 2015, so the findings may have slightly changed based on different wording. In previous surveys, the results were based on the question/response, "How many of your personnel who perform this [EMS] duty have received formal training (not just on-the-job)? Response: None, Some or Most, but not All." In 2015, the finding is based on the question, "What percentage of department personnel performing this [EMS] duty are certified to the following levels? a. No certification; b. First responder; c. EMT-Basic; d. EMT Intermediate (EMT/I); e. EMT with Advanced Life Support (ALS) or local equivalent; f. EMT-Paramedic of equivalent." The results in Figures 1-7

and 1-8 are based on any reporting of, "No certification," which was calculated as 100% minus the percentages of the certification options.

Figure 1-7 shows how well departments that perform EMS are doing in providing formal training to all involved personnel. Figure 1-8 shows departments with a need for additional training, out of all departments. A department that does not perform EMS is not included in the Figure 1-7 statistics but is counted in the denominator in the Figure 1-8 statistics. The difference between the two graphs reflects the change in the percent of departments that perform EMS.

Size of need comparisons: Size of need represents the percent of departments that are responsible for a service and need training, out of all departments. The percentages in Figures 1-6 and 1-8 marked "Size of need" can be compared with each other to see which service needing formal training accounts for the largest share of departments. For example, there is a greater need for training for structural firefighting (49% of all departments in Figure 1-6) compared to the need for EMS training (34% in Figure 1-8) overall.

A possible explanation for the cases in Figures 1-7 and 1-8 where a later survey shows a greater need than an earlier survey is that because newly hired personnel and personnel newly assigned to EMS must be trained, the percentage of involved personnel with formal training can go down as well as up for an individual department. Also, departments new to EMS may begin providing service before all involved personnel are formally trained.

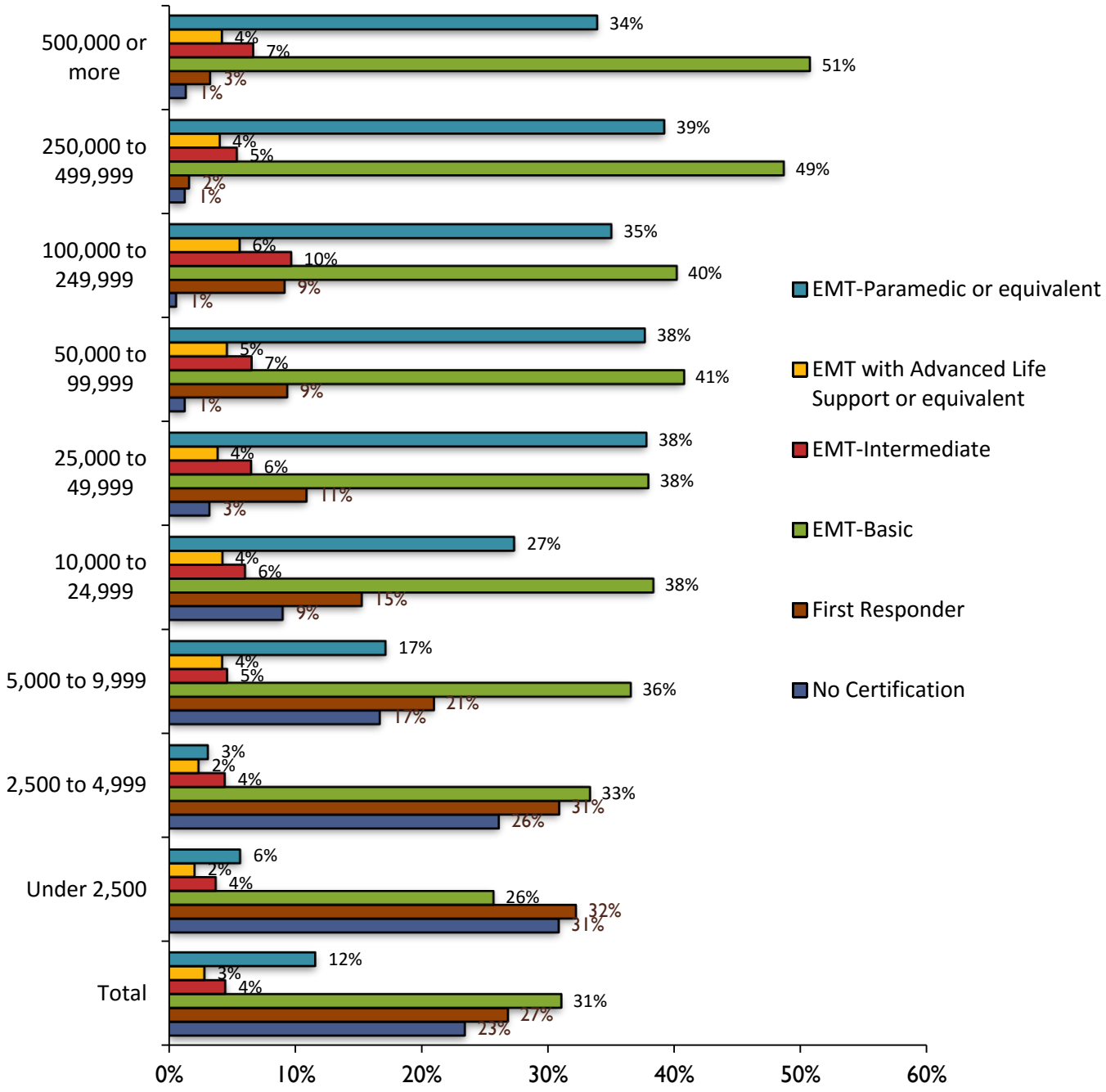
Table 1-20 and Figure 1-9 show what percentage of personnel have been certified to specific levels of EMS training, among departments that provide EMS. These numbers reflect average percentages in each category, which is different from determining any certification vs. none.

Table 1-20 and Figure 1-9 indicate that among departments that provide EMS, in community sizes of 25,000 and over, very few departments lack certified personnel (<5% of personnel are not certified) and approximately one-third of personnel are certified as an EMT Paramedic or equivalent. In community sizes of less than 25,000, the percentage of personnel without certification increases to 31% in the smallest communities (< 2,500), and the percentage of personnel who are certified as an EMT Paramedic decreases to 6% in community sizes of < 2,500.

Tables 1-21 and 1-22 show what percentage of departments have communities that provide ambulance services and if it is a fire-department based service. Many larger departments are in communities that provide ambulance services (80% for communities of 500,000 or more), and of these, about three-quarters are a fire-department based service (78% for populations of 500,000 and over).

Table1-23 summarizes if fire departments provide tactical EMS for law enforcement operations. This was calculated among departments that provide EMS. Over half of the departments perform tactical EMS in populations of 250,000 and over, while less than half of departments provide this service in smaller communities.

Figure 1-9. Level of Certification for Departments Performing Emergency Medical Services by Size of Community, for 2015



Hazardous Material (Hazmat) Response

Roughly three-fourths (78%) of departments say that Hazmat response is a role the department performs (see Table 1-24). The majority of departments that do not perform

Hazmat serve rural communities, with less than 2,500 population protected. Even there, many departments (60%) now provide Hazmat.

This 2015 overall estimate of 78% is largely unchanged from 77% in both 2001 and 2010.

Requirements of the U.S. Environmental Protection Agency (EPA) and the U.S. Occupational Safety and Health Administration (OSHA) specify that all assigned personnel must have formal training.

Figure 1-10 show how many of the assigned personnel in departments responsible for Hazmat have received formal training.

Need for departments providing Hazmat: Departments that perform Hazmat response but have not formally trained all their involved personnel constituted 44% of departments that provide Hazmat, down from 73% in 2001 and largely unchanged from 65% in 2010. (See Figure 1-10.)

Size of need among all departments: An estimated 29% of all departments provide Hazmat but have not formally trained all their personnel involved in Hazmat, slightly up from 57% in 2001 and up from 50% in 2010. (See Figure 1-11.)

Figures 1-10 and 1-11 show that for the most part, the smaller communities have the greater need for additional formal training, and there has been progress in achieving formal training for all involved personnel in some communities.

Note that the survey question summarized in Figures 1-10 and 1-11 changed in 2015, so the findings may have slightly changed based on different wording. In previous surveys, the results were based on the question/response, "How many of your personnel who perform this [Hazmat] duty have received formal training (not just on-the-job)? Response: None, Some or Most, but not All." In 2015, the finding is based on the question, "What percentage of department personnel performing this [Hazmat] duty are certified to the following levels? a. No certification; b. Awareness; c. Operational; d. Technician." The result in Figures 1-10 and 1-11 is based on any reporting of, "No certification," which was calculated as 100% minus the percentages of the certification options.

Figure 1-10. Need for Departments Providing Hazmat: Percent with Personnel Who Are Not All Formally Trained, by Size of Community, for Four Studies

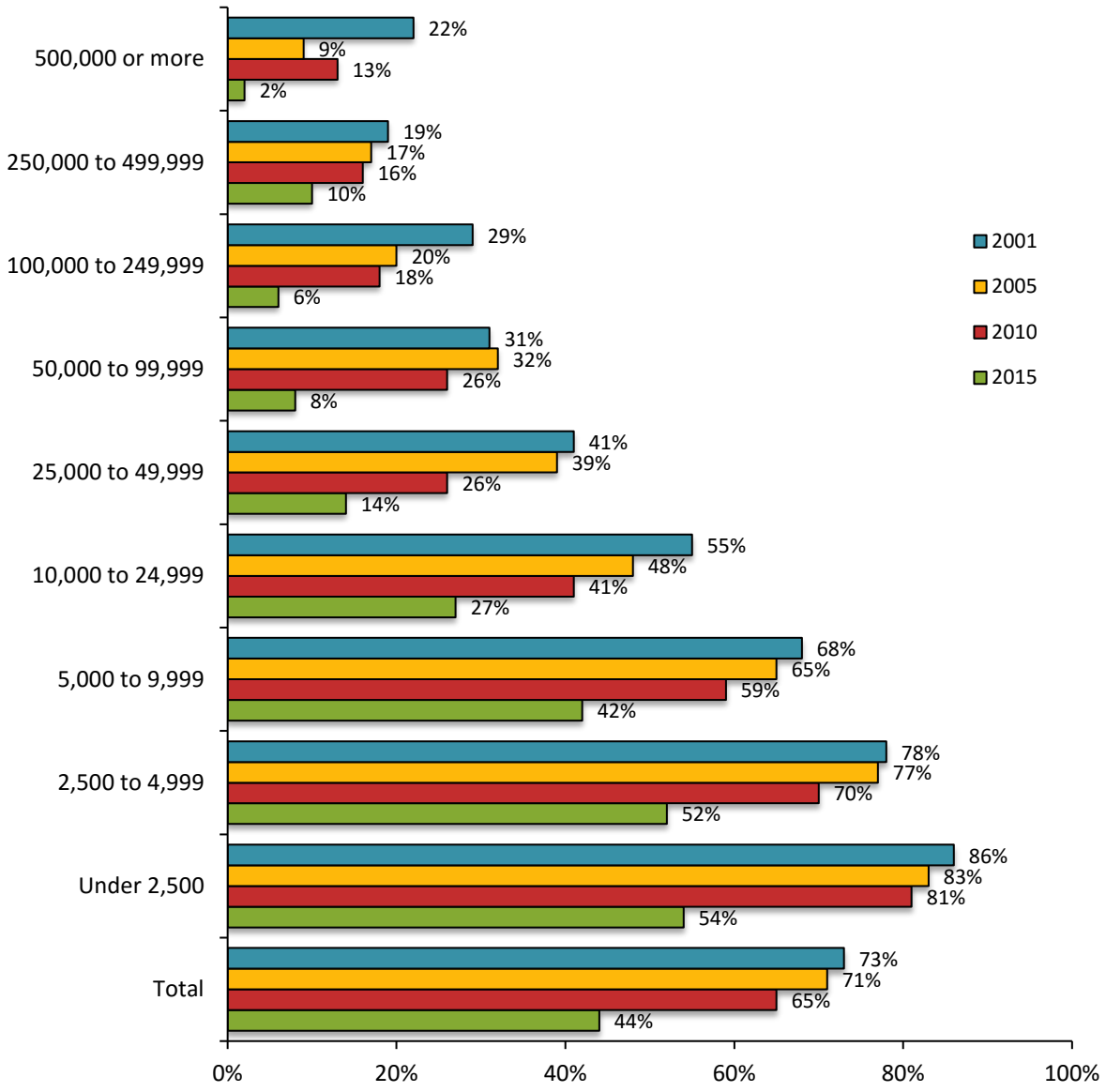


Figure 1-11. Size of Need Among All Departments: Percent That Provide Hazmat and Need Training, by Size of Community, for Four Studies

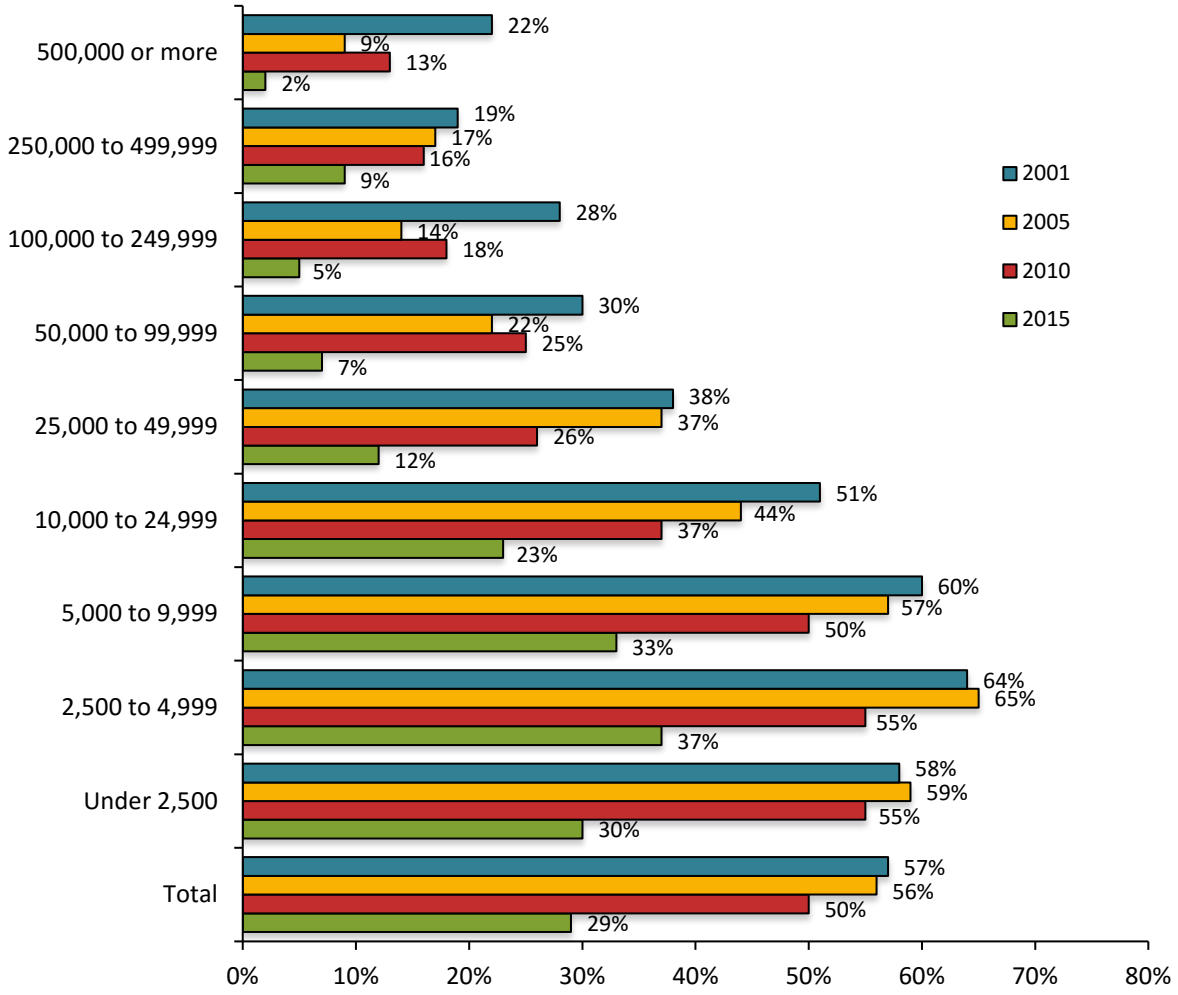


Figure 1-10 shows how well departments that perform Hazmat are doing in providing formal training to all involved personnel. Figure 1-11 shows departments with a need for additional training, out of all departments. A department that does not perform Hazmat is not included in the Figure 1-10 statistics but is counted in the denominator in the Figure 1-11 statistics. The difference between the two graphs reflects the change in the percent of departments that perform Hazmat.

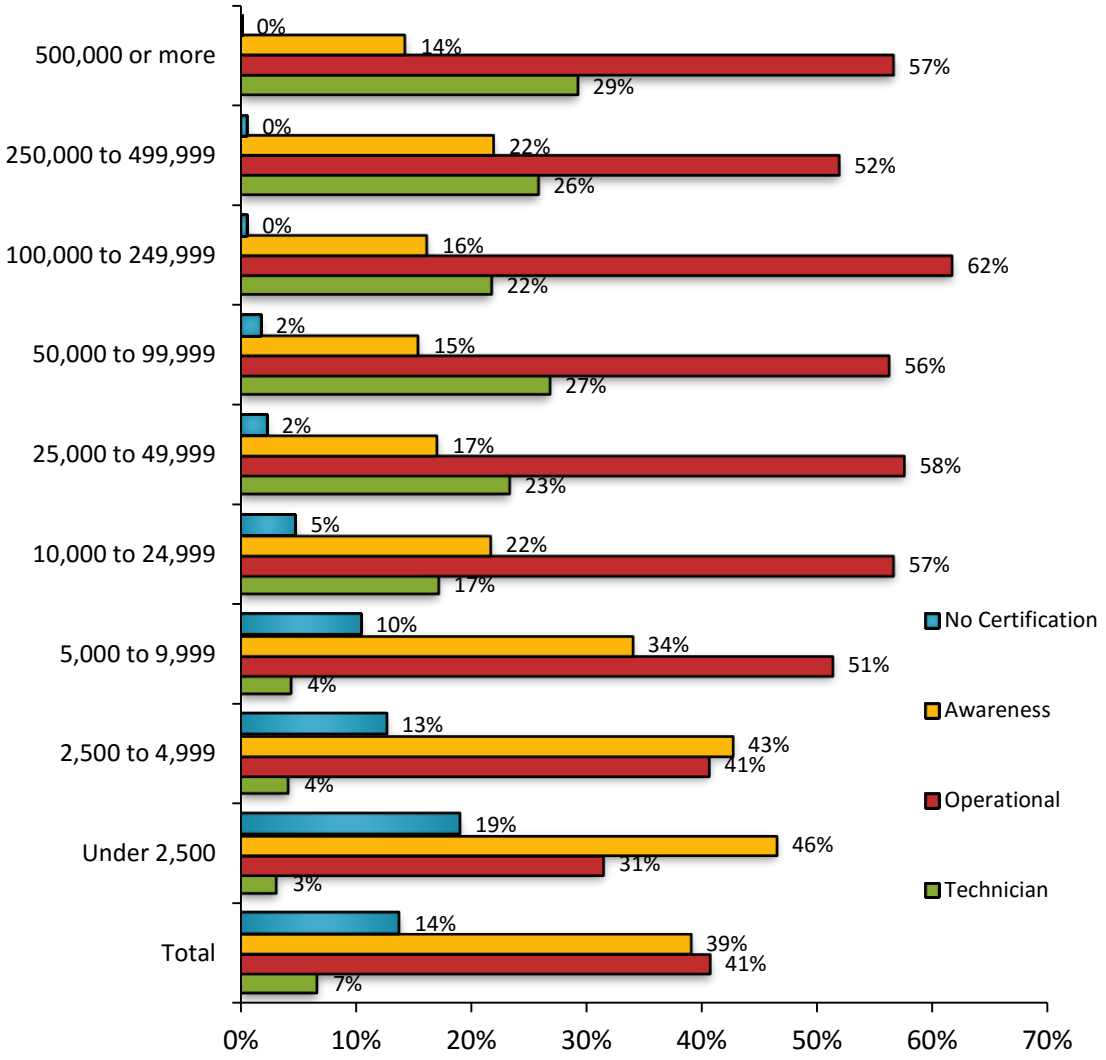
Size of need comparisons: Size of need represents the percent of departments that are responsible for a service and need training, out of all departments. The percentages in Figures 1-6, 1-8 and 1-11 marked "Size of need" can be compared with each other to see which service needing formal training accounts for the largest share of departments. For example, there is a

greater need for Hazmat training (60% of all departments in Figure 1-11) compared to the need for structural firefighting training (49% in Figure 1-6) and EMS training (34% in Figure 1-8) overall.

Here are some of the possible explanations for the cases in Figures 1-10 and 1-11 where a later survey showed a greater need than an earlier survey. Because newly hired personnel and personnel newly assigned to Hazmat must be trained, the percentage of involved personnel with formal training can go down as well as up for an individual department. Also, departments new to Hazmat may begin providing service before all involved personnel are formally trained.

Table 1-25 indicates levels certification of personnel who perform Hazmat, and the same numbers are illustrated in Figure 1-12. This is among departments that provide Hazmat response. The question asked what percentage of personnel are certified to the following levels: Awareness, Operational, and Technician. The numbers reflect average percentages in each category, which is different from determining any certification vs. none.

Fig 1-12. Level of Certification for Departments Providing Hazardous Materials Response (HAZMAT) by Size of Community, for 2015



For larger departments, at least half of their personnel were certified as Operational Hazmat response, and almost a third of personnel were certified as a Hazmat Technician. In smaller communities, there are fewer certified Technicians and more with Hazmat Awareness certification.

Wildland Firefighting

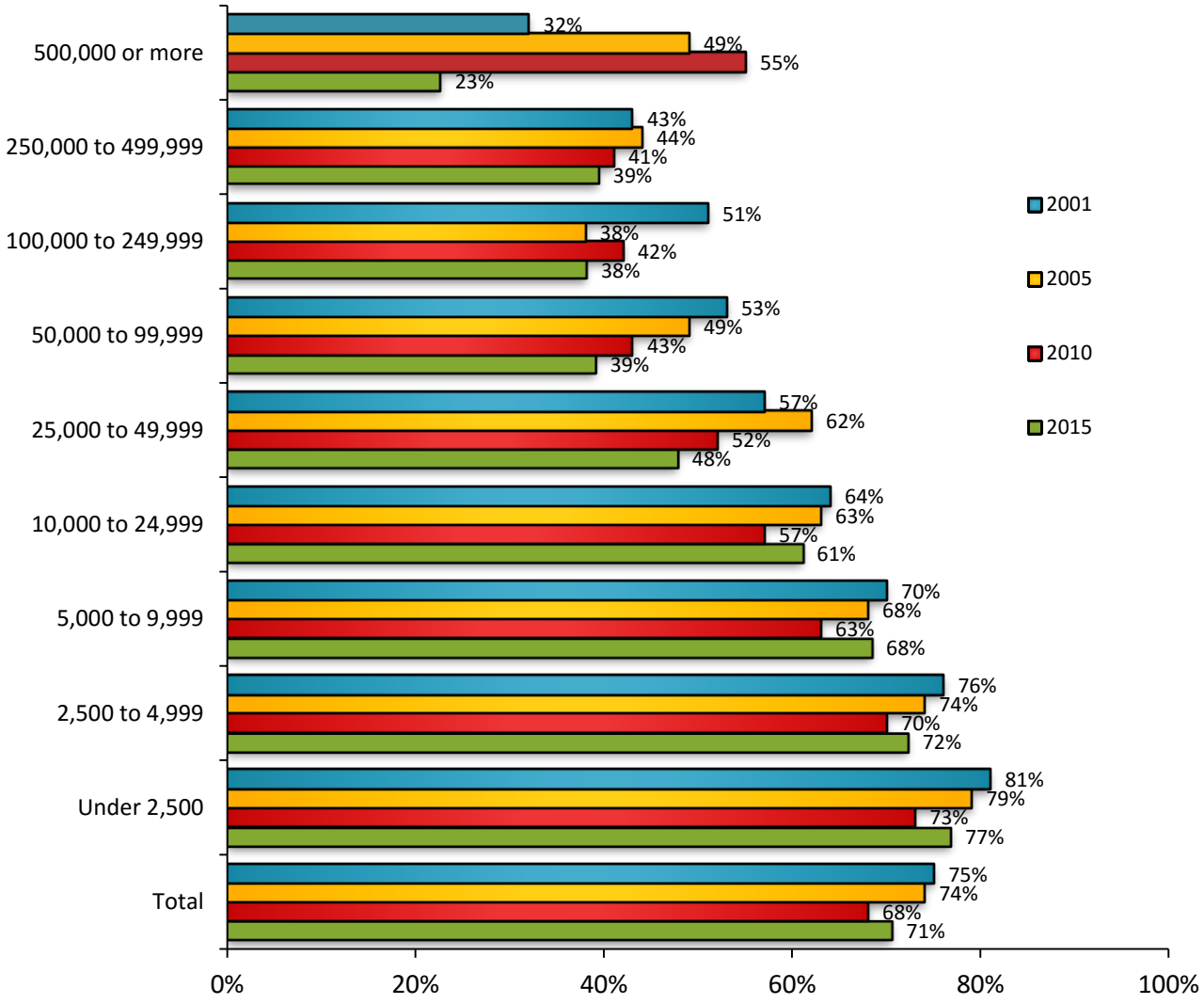
Note that these questions were asked differently in 2015. In previous versions of the survey, "wildland" was not defined. In the 2015 survey, "wildland firefighting" was expanded to "Wildland-Urban Interface (WUI)/wildland (brush, grass, forest) firefighting," which is a more encompassing definition.

Most departments (88%) say that WUI/wildland firefighting is a role the department performs (see Table 1-26). Unlike other services provided by departments, the percent of departments providing WUI/wildland firefighting is highest for the smallest communities. However, even for the largest communities (500,000 or more population protected), 67% of departments report providing this service. The estimated 88% of departments reporting that they perform wildland firefighting is slightly up from 84% in 2001 and nearly unchanged from 86% in 2010.

Table 1-27 shows how many of the assigned personnel in departments responsible for wildland firefighting have received formal training.

Need for departments performing WUI/wildland firefighting: Departments that perform WUI/wildland firefighting but have not formally trained all their involved personnel constituted 71% of departments that provide WUI/wildland firefighting, down from 75% in 2001 and slightly up from 68% in 2010. (See Figure 1-13.)

Figure 1-13. Need for Departments Performing WUI/Wildland Firefighting: Percent with Personnel Who Are Not All Formally Trained by Size of Community, for Four Studies



<u>Size of need among all departments</u>: An estimated 63% of all departments provide WUI/wildland firefighting but have not formally trained all their involved personnel, unchanged from 63% in 2001 and up from 58% in 2010. (See Figure 1-14).

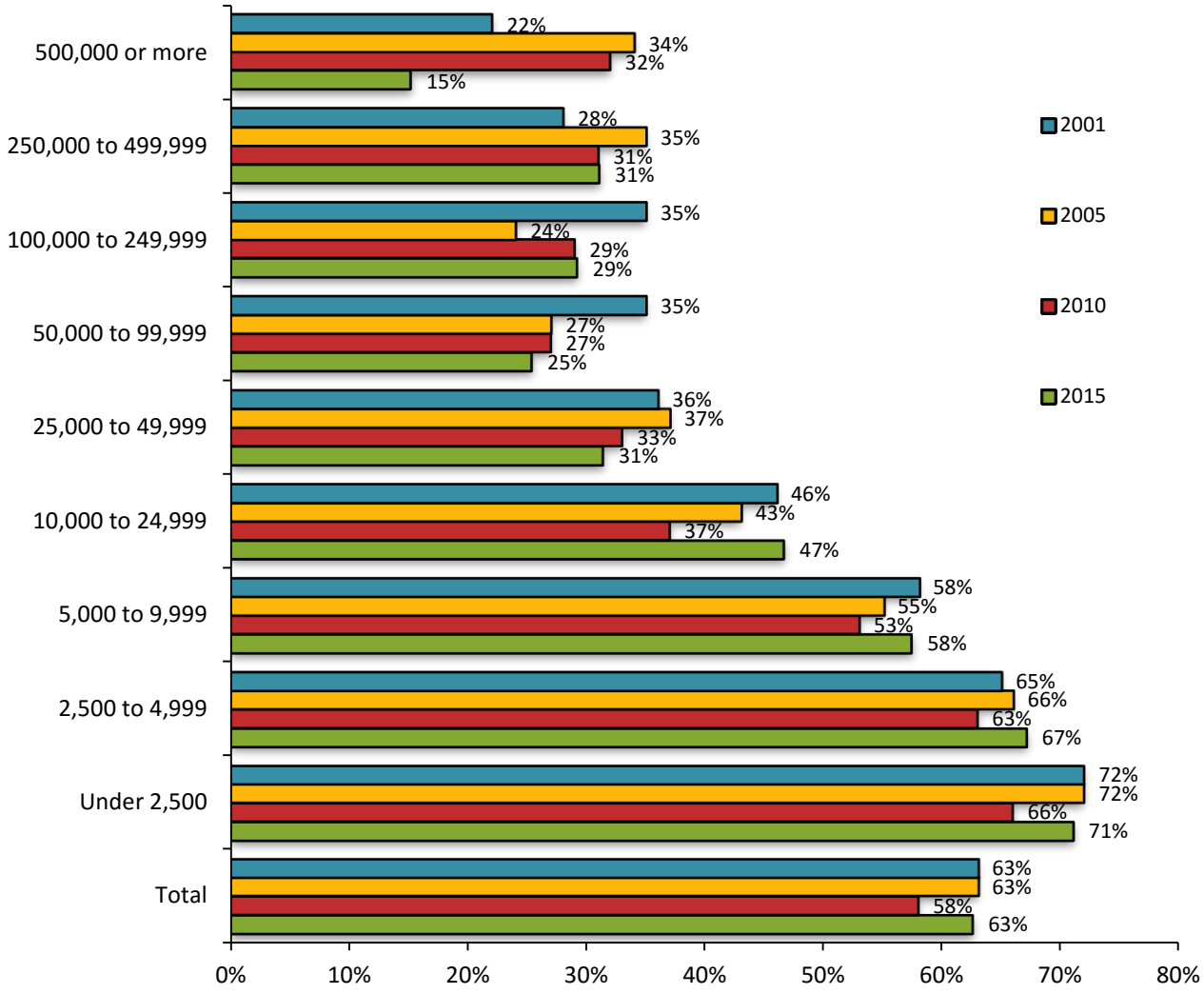
Figures 1-13 and 1-14 show some considerable progress in training for the largest communities but substantial unmet training needs remain in other communities.

Figure 1-13 shows how well departments that perform WUI/wildland firefighting are doing in providing formal training to all involved personnel. Figure 1-14 shows departments with a need for additional training, out of all departments. A department that does not perform

WUI/wildland firefighting is not included in the Figure 1-13 statistics but is counted in the denominator in the Figure 1-14 statistics.

Size of need comparisons: Size of need represents the percent of departments that are responsible for a service and need training, out of all departments. The percentages in Figures 1-6, 1-8, 1-11 and 1-14 marked "Size of need" can be compared with each other to see which service needing formal training accounts for the largest share of departments. For example, there is a greater need for WUI/Wildland firefighting training (63% of all departments in Figure 1-14) and Hazmat training (60% in Figure 1-11) compared to the need for structural firefighting training (49% in Figure 1-6) and EMS training (34% in Figure 1-8) overall.

Figure 1-14. Size of Need Among All Departments: Percent That Perform WUI/Wildland Firefighting and Need Training by Size of Community, for Four Studies



Here are some of the possible explanations for any cases in Figures 1-13 and 1-14 where a later survey shows a greater need than an earlier survey. Because newly hired personnel and personnel newly assigned to wildland firefighting must be trained, the percentage of involved personnel with formal training can go down as well as up for an individual department. Also, departments new to wildland firefighting may begin providing service before all involved personnel are formally trained.

A new question in the 2015 survey was, "Does training include specialized Wildland-Urban Interface firefighting operations training?" This is among departments that perform WUI/Wildland response. Table 1-28 and Figure 1-15 present findings for the responses. Overall, 29% of departments lack specialized training for their personnel, and this percentage was consistent across community sizes.

Another new questions was, "How many of your emergency responders are equipped with wildland fire personal protective clothing?" This is among departments that provide WUI/Wildland response. Survey responses are described in Table 1-29 and Figure 1-16. Overall, 68% of departments were not able to equip all of their emergency responders with wildland fire PPE. This percent ranged from 32% for the largest departments to 66% for the smallest departments.

Figure 1-15. Estimated Percent of Departments who Perform Wildland-Urban Interface and Wildland Fire Operations that Lack Having Specialized Wildland-Urban Interface Fire Operations Training (2015)

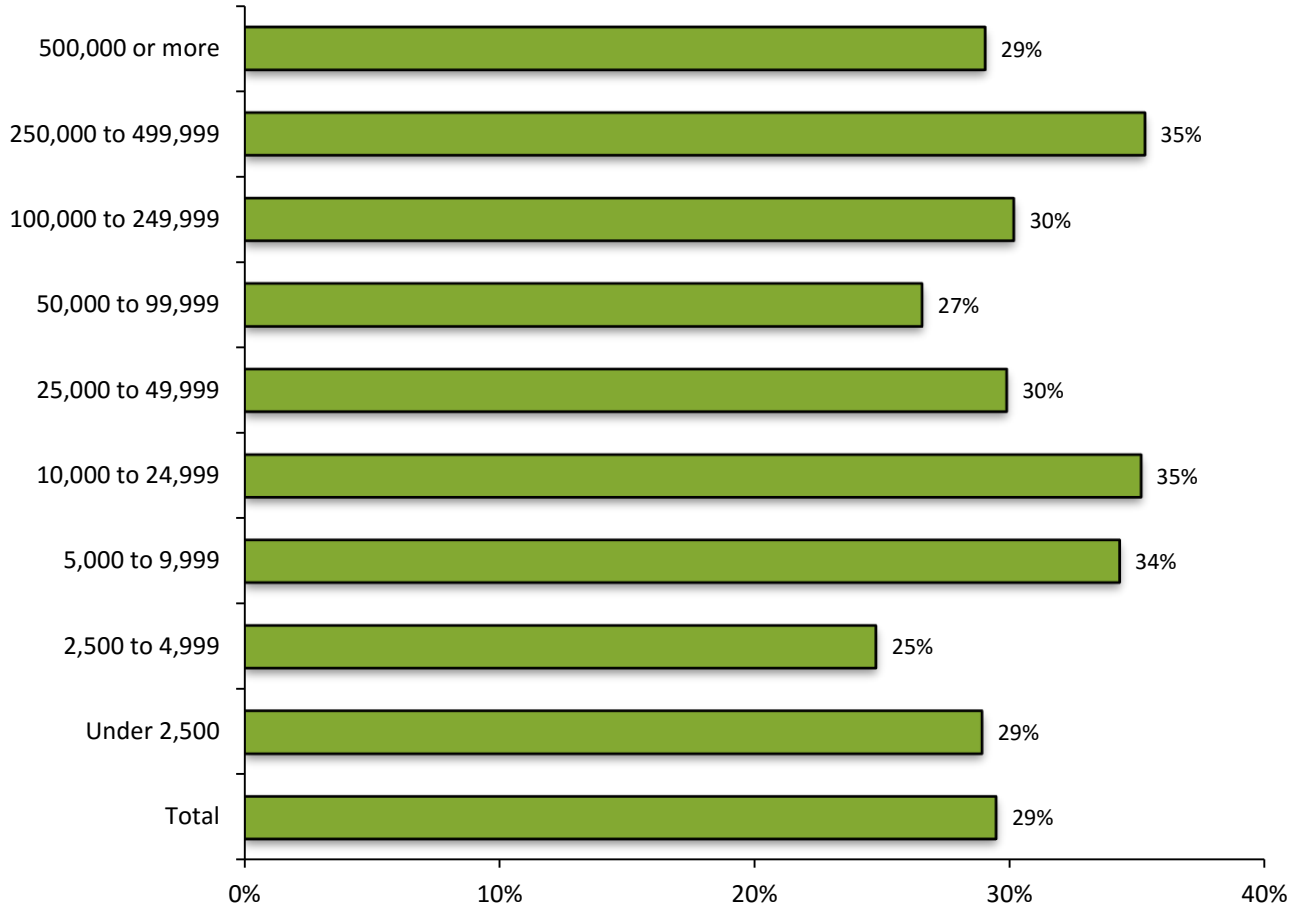
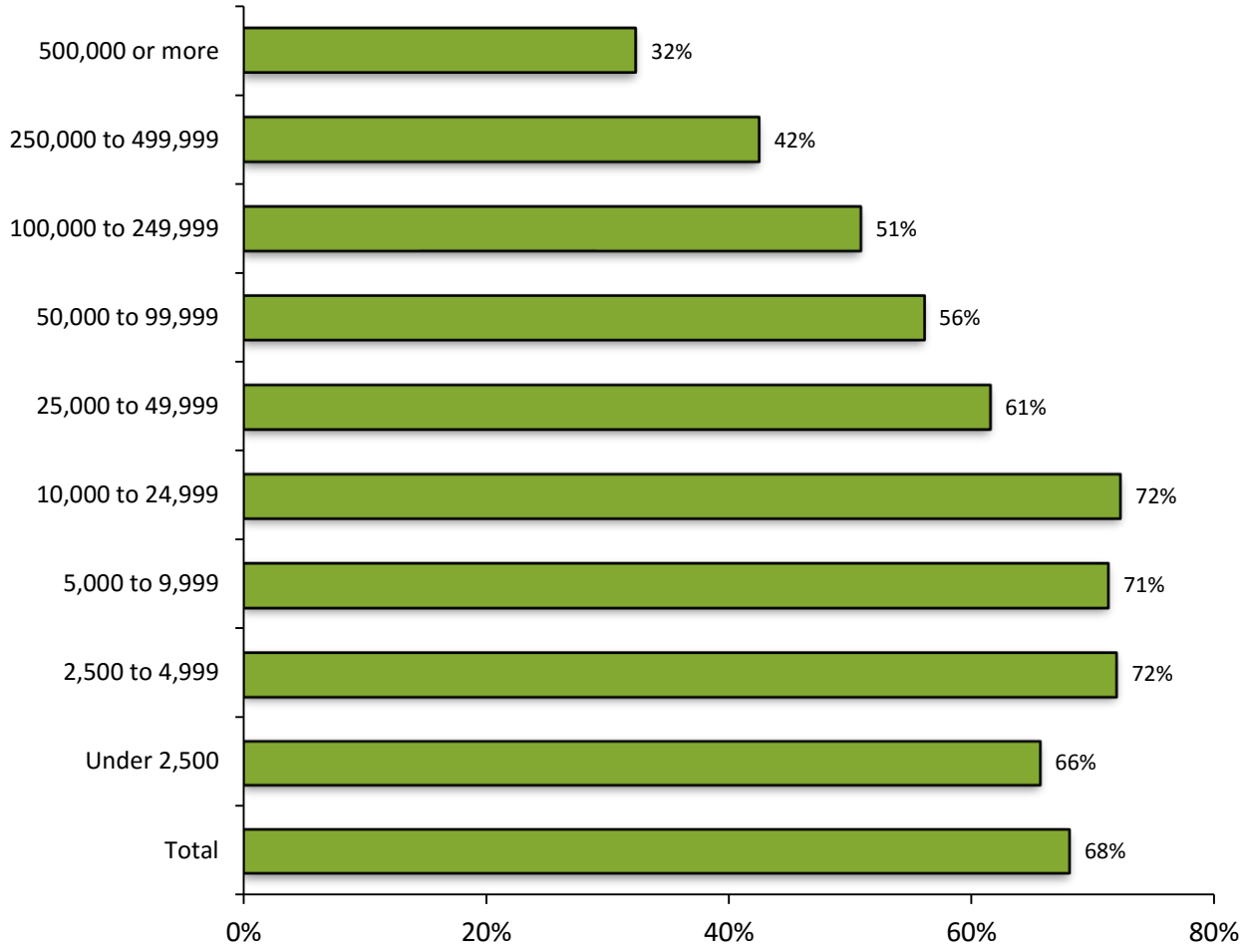


Figure 1-16. Percent of Departments Involved in Wildland-Urban Interface and Wildland Fires That Lack Wildland Fire Personal Protective Clothing (2015)



Technical Rescue

Technical rescue is defined by NFPA 1670, *Standard on Operations and Training for Technical Rescue Incidents,* as the application of special knowledge, skills, and equipment to safely resolve unique and/or complex rescue situations. It is not distinguished from other rescue and EMS incidents in the NFIRS coding for incident type, and so it is not possible to calculate how many such incidents occur each year.

Half of departments (49%) say that technical rescue is a role the department performs (see Table 1-30).

Overall, in 2015, an estimated 49% of departments reported that they perform technical rescue, down from 56% in 2001 and 2010. In the largest communities, almost all departments are responsible for technical rescue (95% in population sizes of 100,000 and over). The smaller the

population protected, the less likely it is that the department provides technical rescue. However, even for the smallest communities (under 2,500 population protected), 39% of departments report providing this service.

Table 1-31 shows how many of the assigned personnel in departments responsible for technical rescue have received formal training.

Need for departments performing technical rescue: Departments that perform technical rescue but have not formally trained all their involved personnel constituted 82% of departments that provide technical rescue, down from 88% in 2001 and 85% in 2010. (See Figure 1-17).

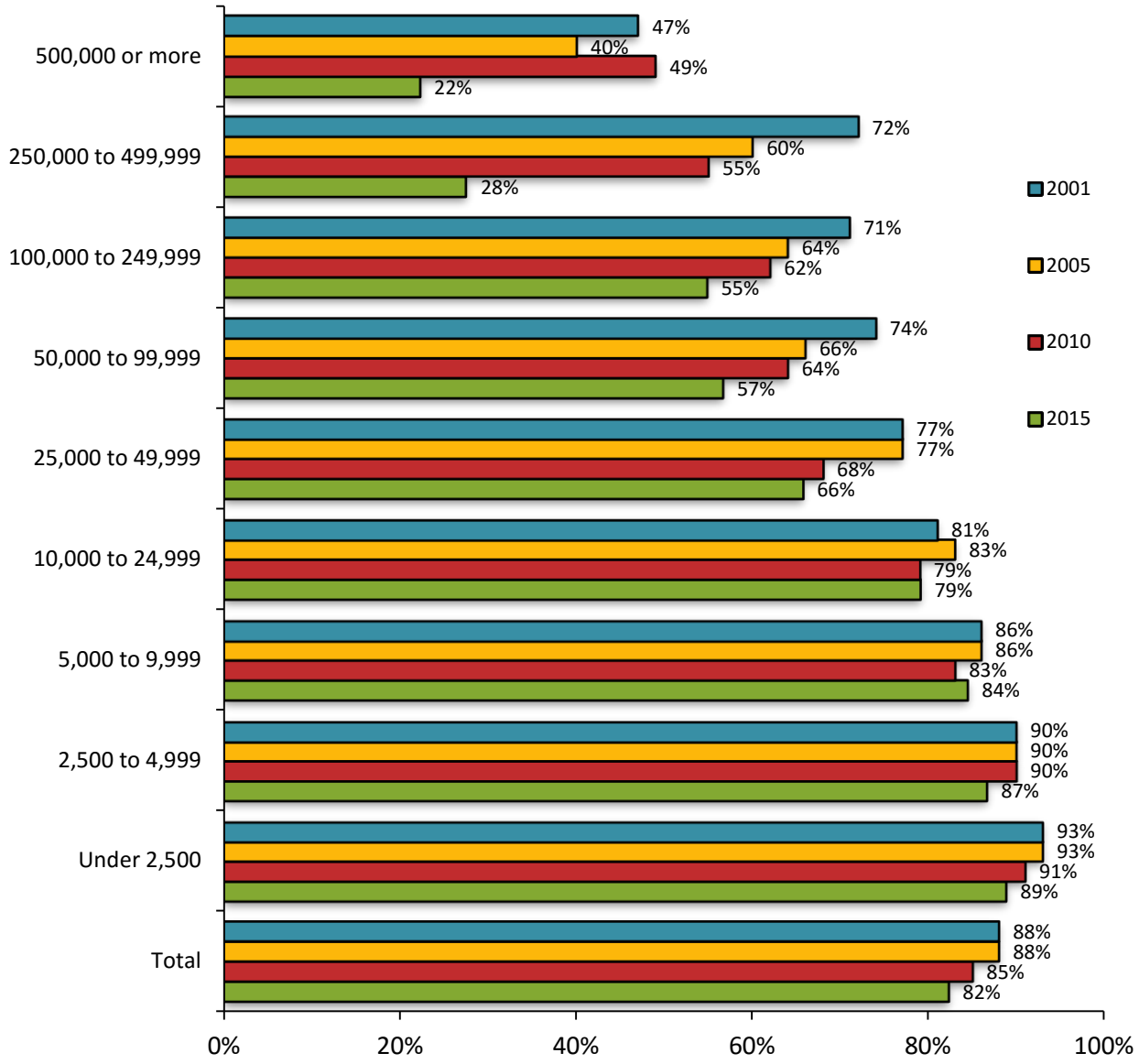
Size of need among all departments: An estimated 40% of all departments provide technical rescue but have not formally trained all their involved personnel, down from 49% in 2001 and 48% in 2010. (See Figure 1-18).

Unlike most other services provided by fire departments, the need for formal training on technical rescue tends to be greater for medium-sized communities. Considerable progress in training has been made for departments protecting communities of 250,000 and over. There has also been progress in reducing the training need across the board, for communities of all sizes.

Figure 1-17 shows how well departments that perform technical rescue are doing in providing formal training to all involved personnel. Figure 1-18 shows departments with a need for additional training, out of all departments. Departments that do not perform technical rescue are not included in the Figure 1-17 statistics but are counted in the denominator in the Figure 1-18 statistics.

Size of need comparisons: Size of need represents the percent of departments that are responsible for a service and need training, out of all departments. The percentages in Figures 1-6, 1-8, 1-11, 1-14 and 1-18 marked "Size of need" can be compared with each other to see which service needing formal training accounts for the largest share of departments. For example, there is a greater need for technical rescue training (40% of all departments in Figure 1-18) compared to the need for EMS training (34% in Figure 1-8). However, there is less need for technical rescue training than for WUI/Wildland training (63% in Figure 1-14), Hazmat training (60% in Figure 1-11) and structural firefighting training (49% in Figure 1-6).

Figure 1-17. Need for Departments Performing Technical Rescue: Percent with Personnel Who Are Not Formally Trained by Size of Community for Four Studies



A possible explanation for cases in Figures 1-17 and 1-18 where a later survey shows a greater need than an earlier survey is that because newly hired personnel and personnel newly assigned to technical rescue must be trained, the percentage of involved personnel with formal training can go down as well as up for an individual department. Also, departments new to technical rescue may begin providing service before all involved personnel are formally trained.

New questions regarding special search and rescue teams were included in the online version of the survey. Respondents were asked if their department had available an urban search and rescue task force, a structural collapse rescue team, and a structural collapse search team. Within these

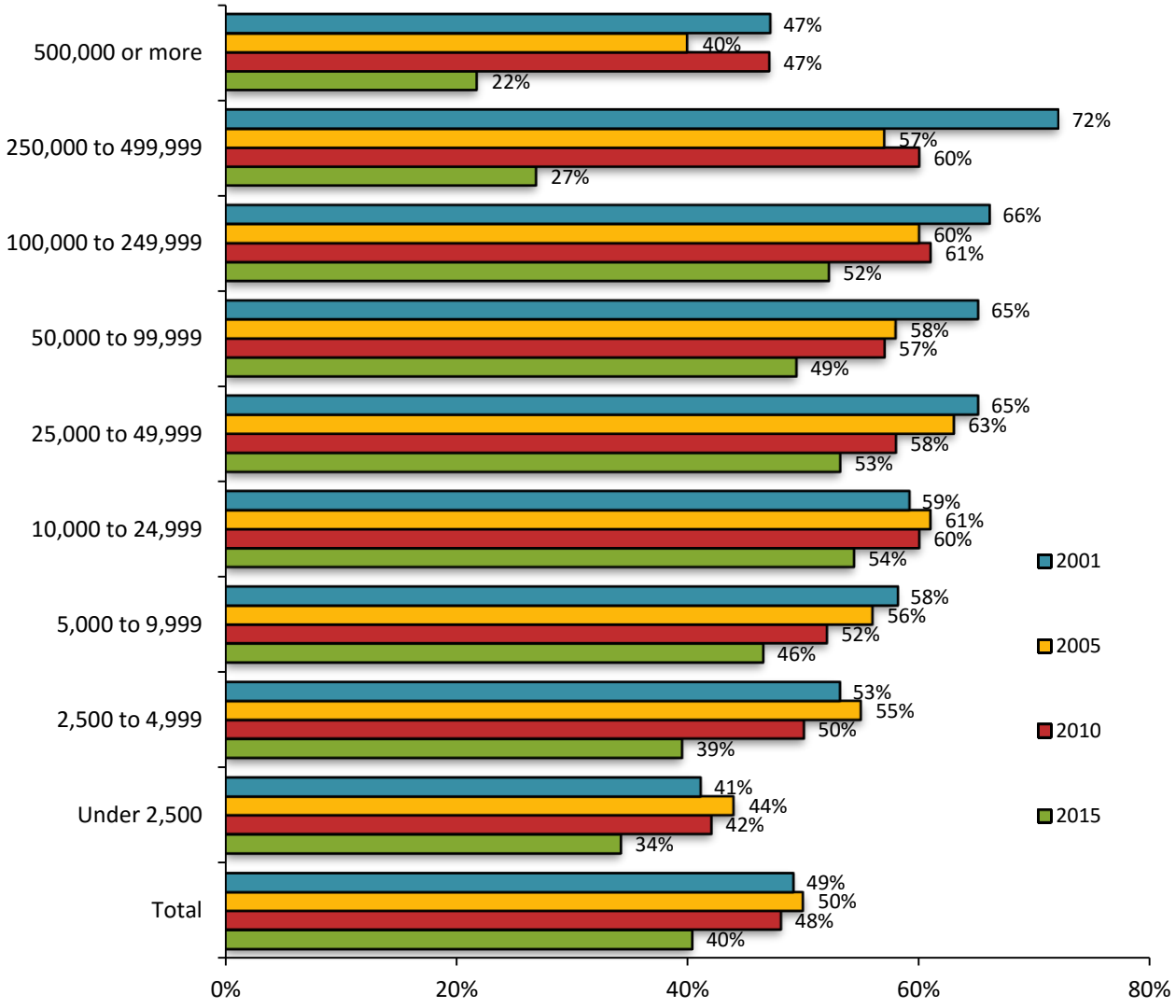
groupings, more specific details were collected on the type and size of team. Results are summarized in Tables 1-32 through 1-42 and illustrated in Figure 1-19.

In the largest communities of 500,000 or more, over 75% of departments had available an urban search and rescue task force, a structural collapse rescue team, and a structural collapse search team (see Table 1-32). These percentages were less than 15% for the smallest departments protecting communities of under 2,500.

Tables 1-33 through 1-36 cover results for departments that had available an urban search and rescue task force. In the largest departments protecting populations of 500,000 or more, 79% owned or supported a 70-person Type 1 Task Force and 72% a 70-person Type 2 Task Force. In medium-sized communities of 50,000 to 100,000, 45% of departments supported or owned such task forces and 61% a 35-person Type 3 Task Force. For departments protecting populations under 2,500, approximately 10-15% supported or owned 70-person Type 1 or 70-person Type 2 Task Forces and 21% a 35-person Type 3 Task Force.

Tables 37-39 describe 6-person Type 1 (heavy), 6-person Type II (medium) and 5-person Type III (light) structural collapse rescue teams. Similarly, Tables 40-42 cover 5-person Type I (heavy), 3-person Type II (medium) and 2-person Type III (light) structural collapse search teams.

Figure 1-18. Size of Need Among All Departments: Percent That Perform Technical Rescue and Need Training by Size of Community, for Four Studies

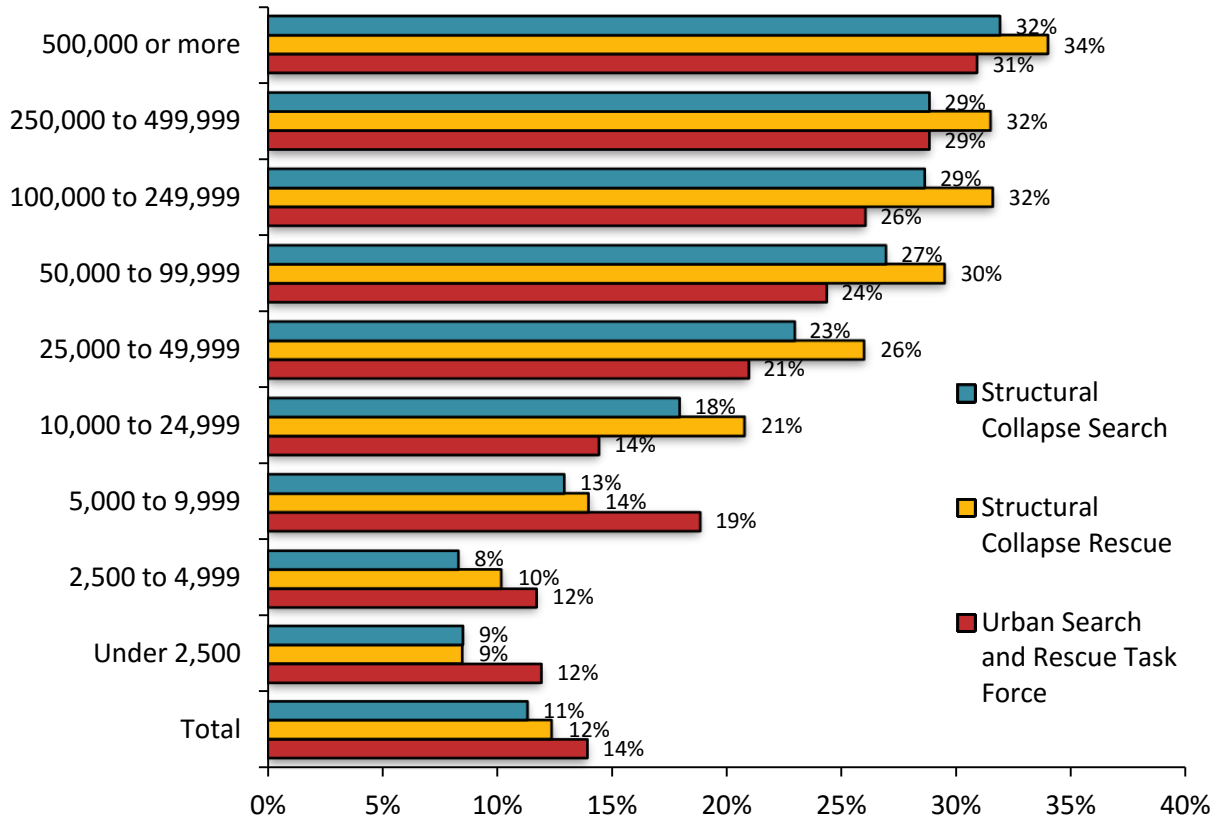


Fire Prevention (Preparedness & Mitigation)

In the 2015 survey, two new questions were introduced regarding fire prevention: "Is this [fire prevention (preparedness & mitigation)] a role your fire department performs? Yes/No" and "If yes, what percentage of the personnel who perform this duty have received formal training (for example, in a classroom or online) at the local, regional or state level (not just on-the-job training)? None (0%); Few (1-25%); Some (26-50%); Many (51-75%); Most (76-99%); and All (100%)."

Table 1-43 shows the percentage of fire departments that perform fire prevention (preparedness and mitigation), by community size. The majority of fire departments conduct fire prevention activities, across all population sizes. Among departments protecting populations of 5,000 or

Figure 1-19. Percent of Departments that have each of the following rescue resources by Size of Community for the 2015 Study



more, 90% perform fire prevention. This percentage drops slightly to 81% in communities of 2,500 to 4,999 and to 66% in communities under 2,500.

Need for departments conducting fire prevention: Table 1-44 and Figure 1-20 describe the need for fire prevention training among departments that perform fire prevention. In the largest departments protecting populations of 500,000 and over, 29% of departments that perform fire prevention have not formally trained all of their involved personnel. This percentage increases as community size gets smaller. For the departments serving the smaller communities of less than 9,999, most departments (89% or greater) have not formally trained all of their personnel involved in fire prevention, preparedness and mitigation.

Size of need among all departments: Figure 1-21 illustrates the need for fire prevention training among all departments. Overall, 68% of departments conduct fire prevention and have not formally trained all of their involved personnel.

Size of need comparisons: Size of need represents the percent of departments that are responsible for a service and need training, out of all departments. The percentages in Figures 1-6, 1-8, 1-11, 1-14, 1-18 and 1-21 marked "Size of need" can be compared with each other to see which service needing formal training accounts for the largest share of departments. For example, there is a greater need for fire prevention training (68%) compared to the needs for WUI/Wildland training (63% in Figure 1-14), Hazmat training (60% in Figure 1-11), structural firefighting training (49% in Figure 1-6), technical rescue training (40% of all departments in Figure 1-18) and EMS training (34% in Figure 1-8).

Figure 1-20. Need for Departments Performing Fire Prevention: Percent with Personnel Who Are Not All Formally Trained by Size of Community for 2015

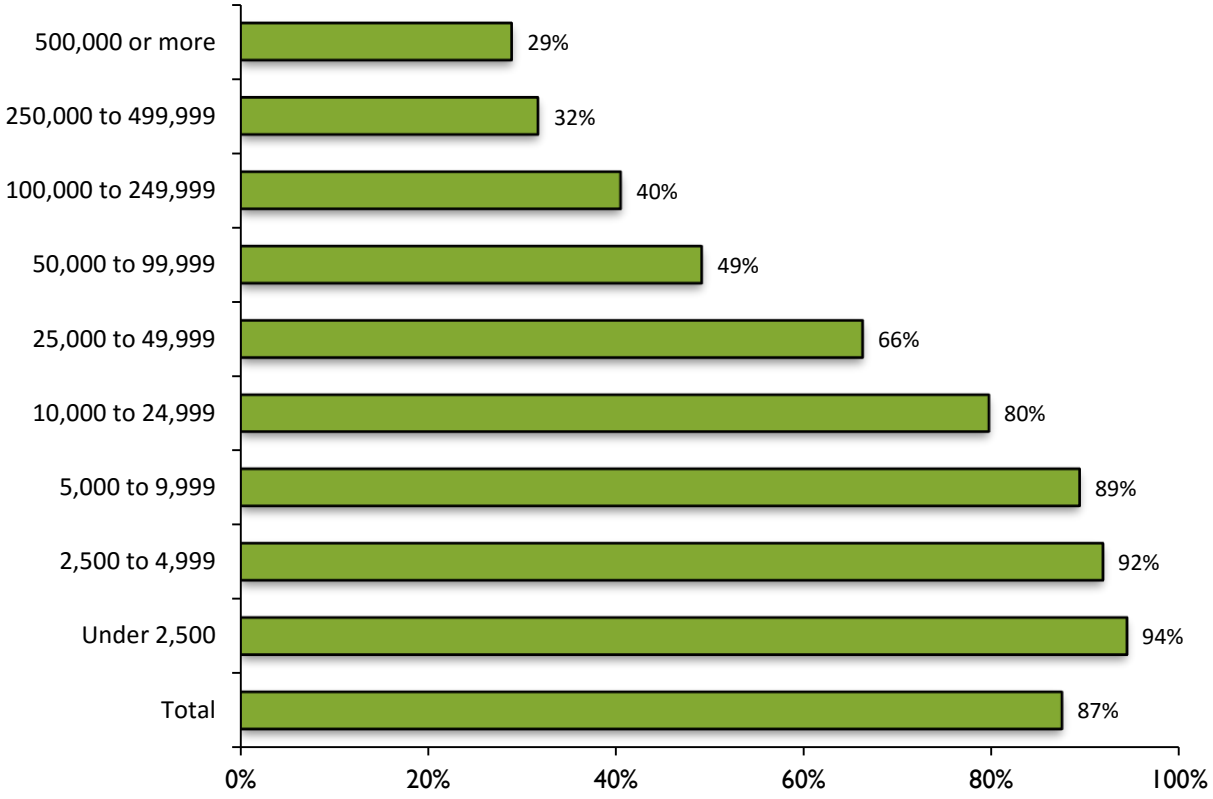
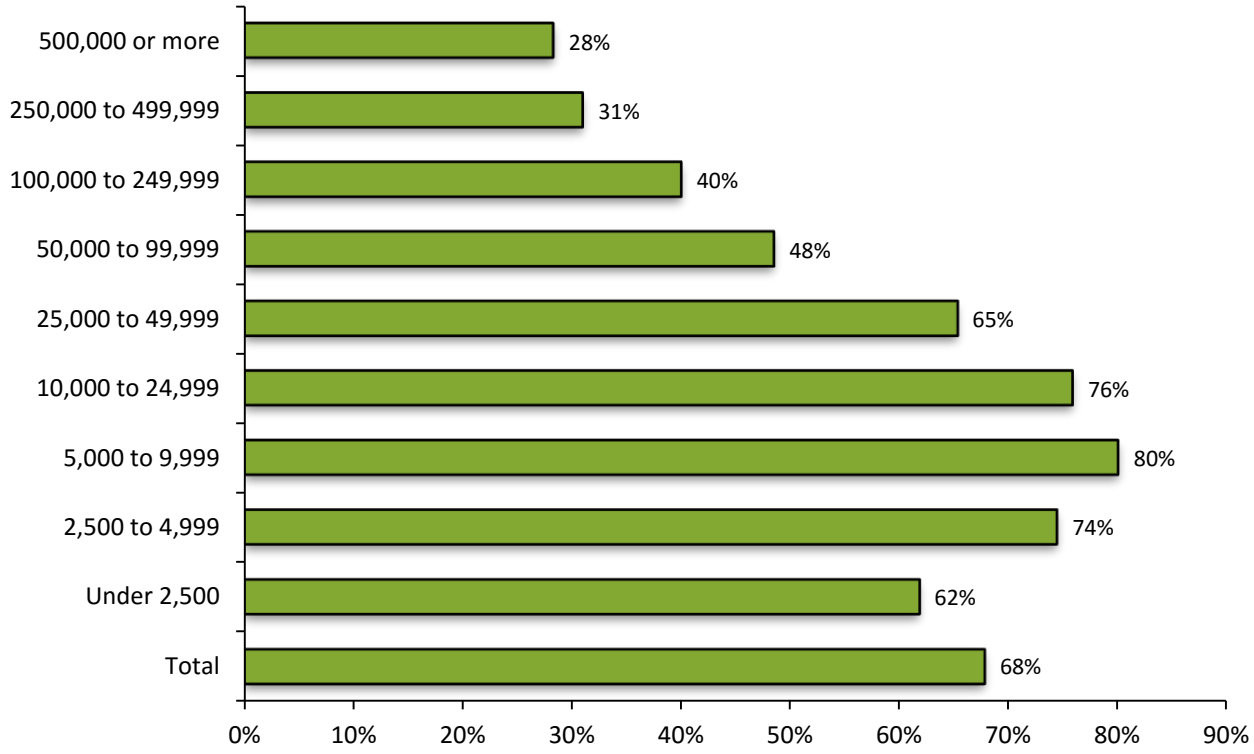


Figure 1-21. Size of Need Among All Departments: Percent That Perform Fire Prevention and Need Training by Size of Community, for 2015



Code Enforcement

Two new questions were introduced in the 2015 survey regarding code enforcement: "Is this [code enforcement] a role your fire department performs? Yes/No" and "If yes, what percentage of the personnel who perform this duty have received formal training (for example, in a classroom or online) at the local, regional or state level (not just on-the-job training)? None (0%); Few (1-25%); Some (26-50%); Many (51-75%); Most (76-99%); and All (100%)."

Table 1-45 describes the percentage of fire departments that perform code enforcement, by community size. In populations of 25,000 and over, at least 83% of departments enforce codes. This percentage decreases to 19% for community sizes under 2,500 in population. The overall percentage is 35%.

Need for departments conducting code enforcement: Table 1-46 and Figure 1-22 show the results for the training need for departments that perform code enforcement. In the largest departments protecting populations of 500,000 and over, 28% of departments that perform code enforcement have not formally trained all of their involved personnel. This percentage increases as community size gets smaller. For the departments serving the smaller communities of less than 9,999, most departments (75% or greater) have not formally trained all of their personnel involved in code enforcement.

Size of need among all departments: Figure 1-23 illustrates the training need for code enforcement among all departments. Overall, 26% of departments conduct code enforcement and have not formally trained all of their involved personnel.

Size of need comparisons: Size of need represents the percent of departments that are responsible for a service and need training, out of all departments. The percentages in Figures 1-6, 1-8, 1-11, 1-14, 1-18, 1-21 and 1-23 marked "Size of need" can be compared with each other to see which service needing formal training accounts for the largest share of departments. For example, the need for code enforcement training (26%) is less than the need for fire prevention training (68% in Figure 1-21), WUI/Wildland training (63% in Figure 1-14), Hazmat training (60% in Figure 1-11), structural firefighting training (49% in Figure 1-6), technical rescue training (40% of all departments in Figure 1-18) and EMS training (34% in Figure 1-8).

Figure 1-22. Need for Departments Performing Code Enforcement: Percent with Personnel Who Are Not All Formally Trained by Size of Community for 2015

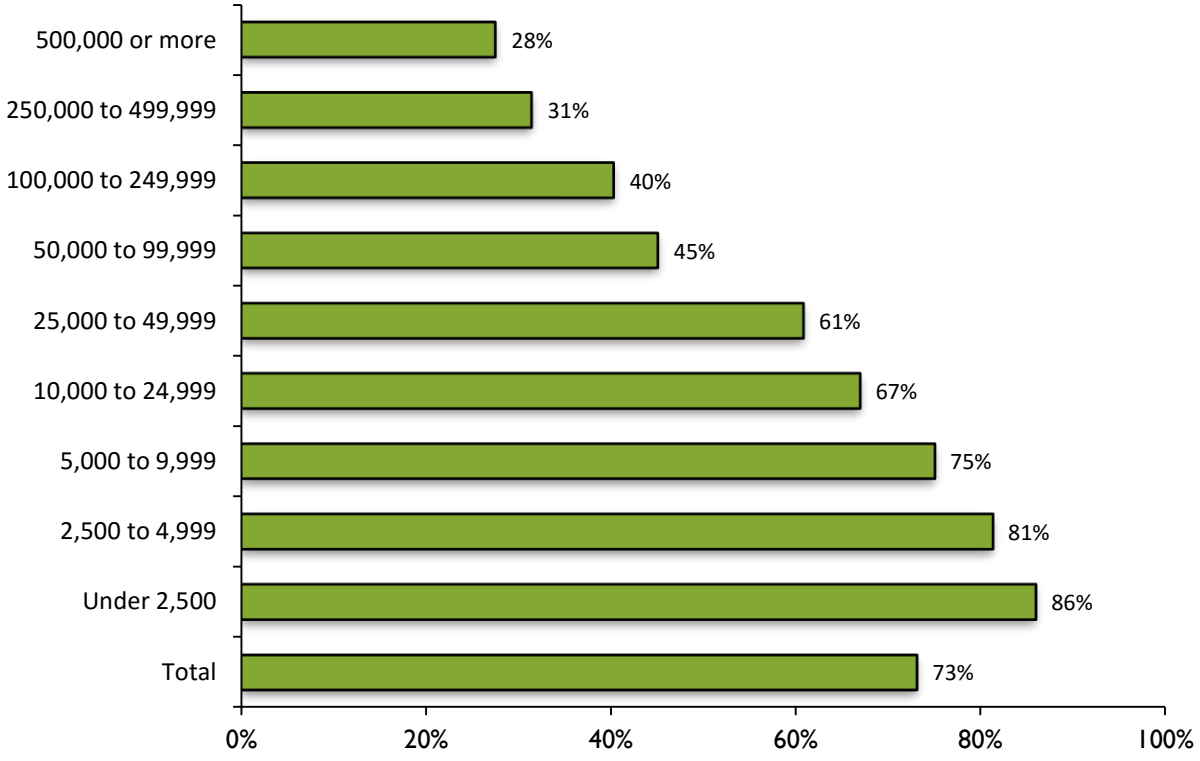
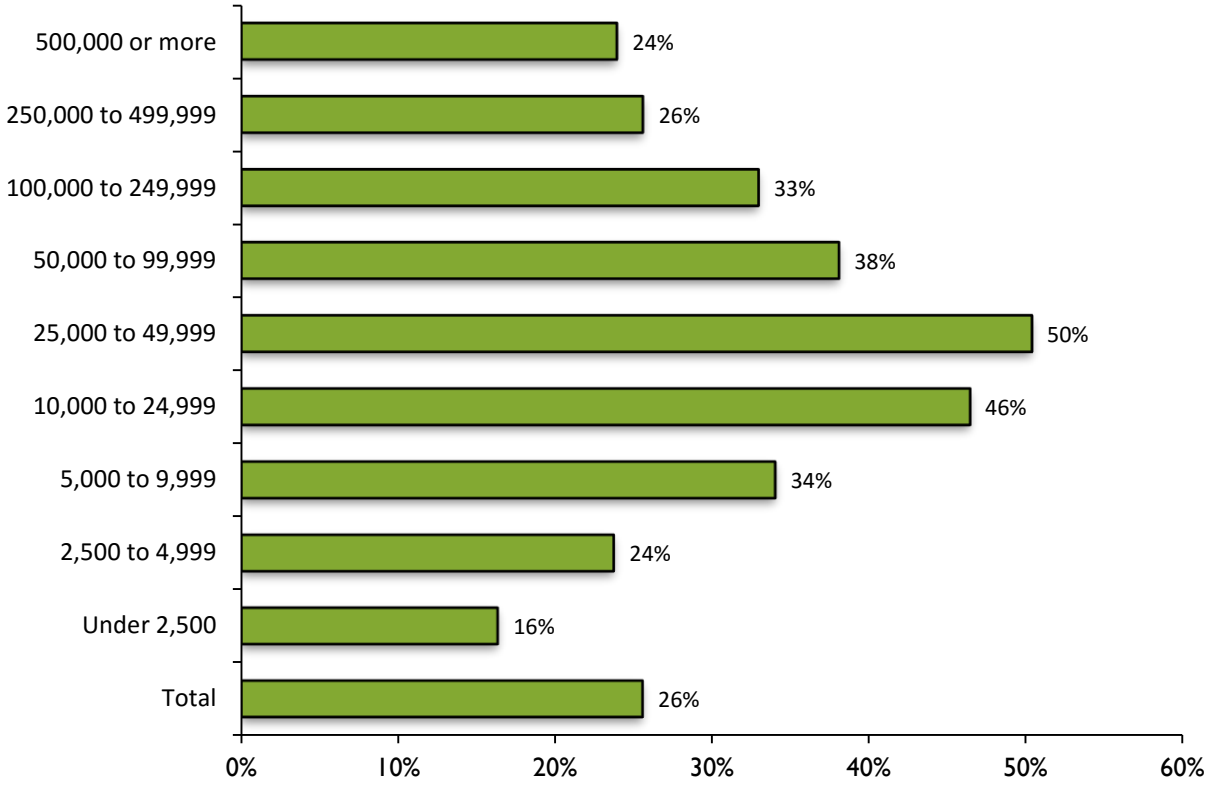


Figure 1-23. Size of Need Among All Departments: Percent That Perform Code Enforcement and Need Training by Size of Community for 2015



Traffic Control

In the 2015 survey, two new questions were introduced regarding traffic control: "Is this [traffic control] a role your fire department performs? Yes/No" and "If yes, what percentage of the personnel who perform this duty have received formal training (for example, in a classroom or online) at the local, regional or state level (not just on-the-job training)? None (0%); Few (1-25%); Some (26-50%); Many (51-75%); Most (76-99%); and All (100%)."

Table 1-47 describes the percentage of fire departments that perform active traffic control, by community size. This percentage increases as the community size decreases. The range is from 28% of departments that perform traffic control in communities of 500,000 or more to 89% of departments in communities under 2,500.

Need for departments providing traffic control: Table 1-48 and Figure 1-24 indicates the need for traffic control training among departments that perform traffic control activities. In the largest departments protecting populations of 500,000 and over, 46% of departments that perform traffic have not formally trained all of their involved personnel. This percentage increases as community size gets smaller. For the departments serving the smaller communities of less than 9,999, most departments (78% or greater) have not formally trained all of their personnel involved in traffic control.

Size of need among all departments: Figure 1-25 illustrates the need for traffic control training among all departments. There is a great need for training in communities of 9,999 or less. Overall, 65% of all departments perform traffic control and have involved personnel who are not all trained.

Size of need comparisons: Size of need represents the percent of departments that are responsible for a service and need training, out of all departments. The percentages in Figures 1-6, 1-8, 1-11, 1-14, 1-18, 1-21, 1-23 and 1-25 marked "Size of need" can be compared with each other to see which service needing formal training accounts for the largest share of departments. For example, the need for traffic control training (65%) is less than the need for fire prevention training (68% in Figure 1-21) but greater than needs for WUI/Wildland training (63% in Figure 1-14), Hazmat training (60% in Figure 1-11), structural firefighting training (49% in Figure 1-6), technical rescue training (40% of all departments in Figure 1-18), EMS training (34% in Figure 1-8) and code enforcement training (26% in Figure 1-23).

NFPA 1091, Standard for Traffic Control Incident Management Professional Qualifications, just published in 2015, identifies the minimum job performance requirements necessary to perform temporary traffic control duties at emergency incidents on or near an active roadway.

Figure 1-24. Need for Departments Performing Traffic Control: Percent with Personnel Who Are Not All Formally Trained by Size of Community for 2015

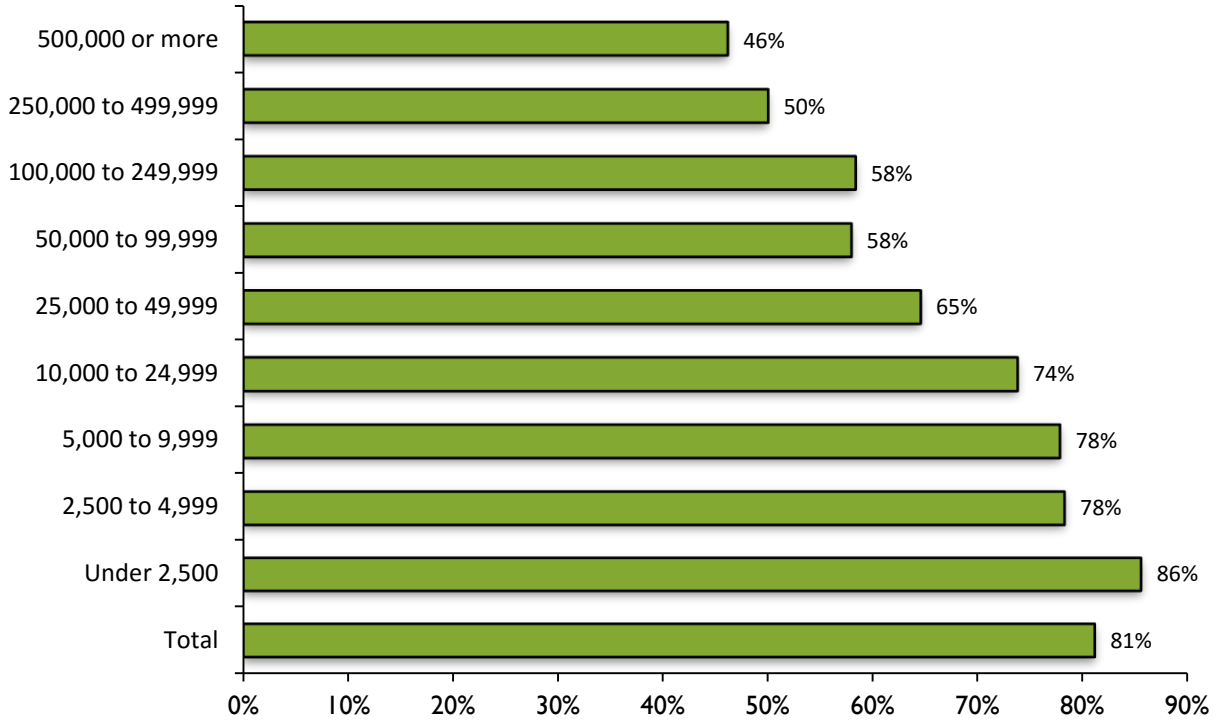
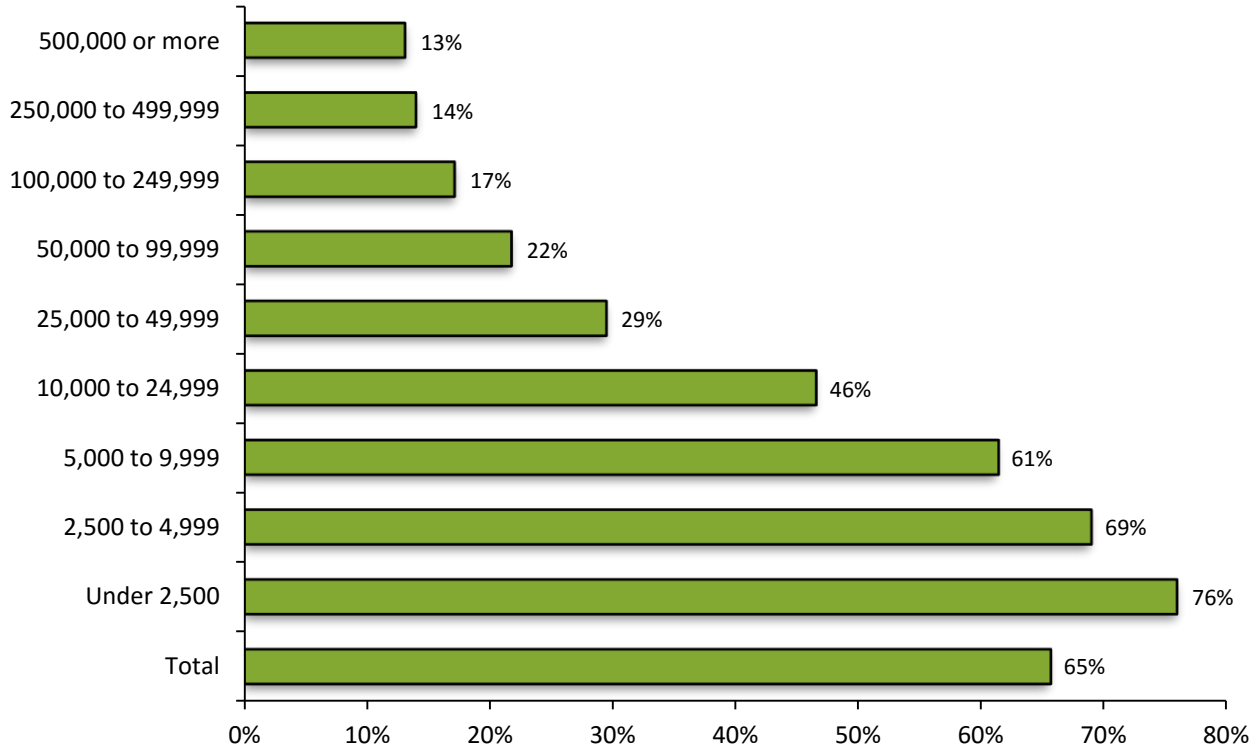


Figure 1-25. Size of Need Among All Departments: Percent That Perform Traffic Control and Need Training by Size of Community for 2015



Active Shooter Response

The following questions were added to the 2015 survey regarding active shooter response: "Is this [active shooter response] a role your fire department performs? Yes/No," "If yes, does your department have SOP's/SOG's in place addressing proper response and action taken at an active shooter event? Yes/No," and "Have your department's personnel received multi-agency training (police, fire, EMS, Sheriffs, etc.) and been tested on the training and special equipment required? Yes/No."

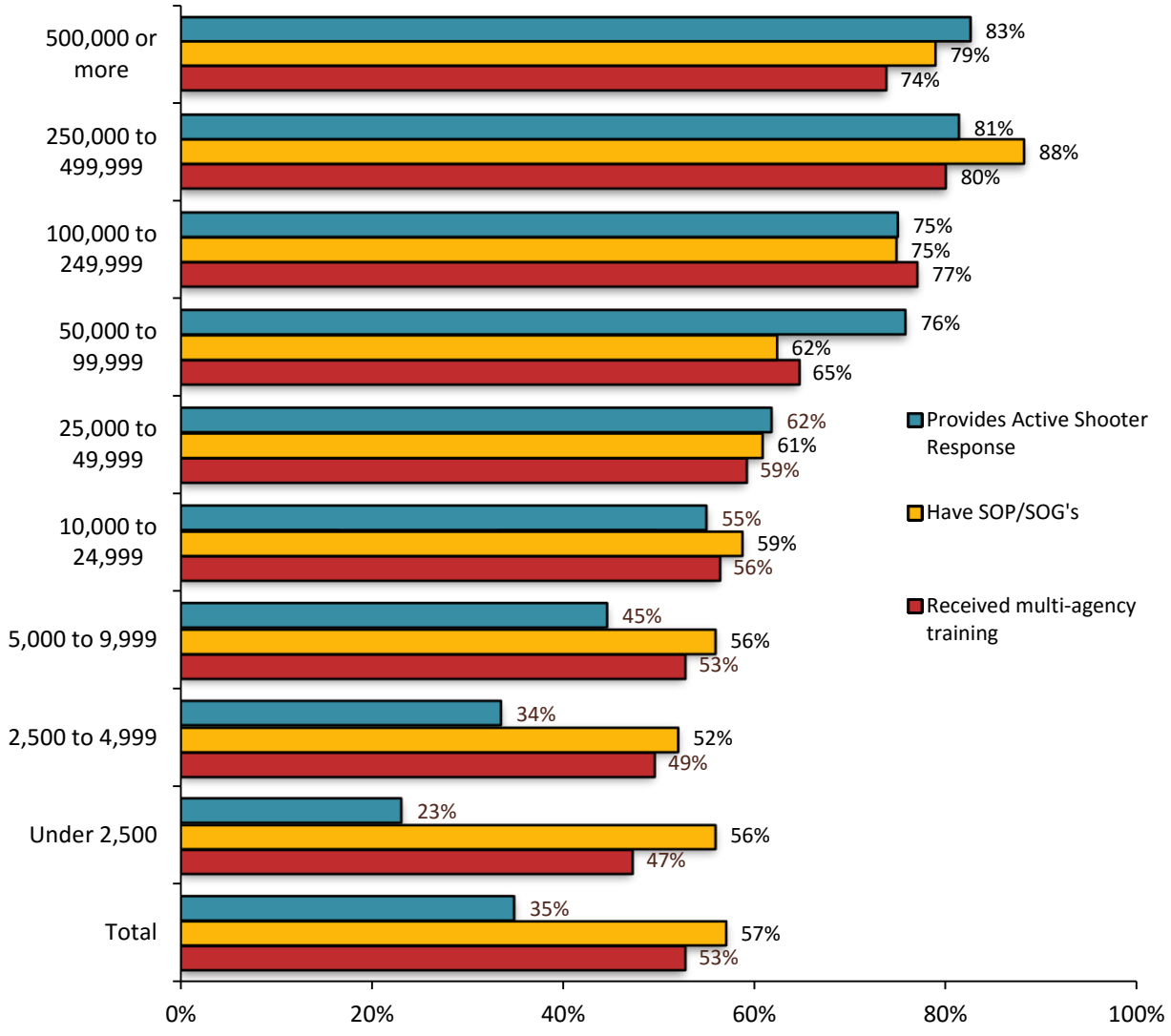
Table 1-49 describes the percentage of departments who respond to active shooter events. Among the largest departments protecting populations of 50,000 and more, at least 75% provide active shooter response. This percentage decreases to 23% in the smallest departments in communities under 2,500 in population. The overall percentage is 35%.

Standard Operating Procedures or Guidelines (SOP/SOG) for active shooter is covered in Table 1-50. Percentages are calculated among departments that respond to active shooter events. More than half of all departments that respond to an active shooter event have a SOP/SOG in place. In the largest departments protecting populations of 100,000 or greater, more than three-quarters have SOP's/SOG's.

Training for active shooter response is described in Table 1-51. Percentages are calculated among departments that respond to active shooter events. More than half of the departments in communities of 5,000 or over and almost half of departments in the smaller communities have participated in multi-agency training and been tested on the training and special equipment required. This percentage increases as the population protected increases.

Results for the active shooter survey responses are illustrated in Figure 1-26.

Figure 1-26. Percent of All Departments That Perform Active Shooter Response and of Those Which Have SOP/SOG's and Have Received Muliti-Agency Training and Testing by Size of Community, for 2015



Programs to Maintain and Protect Firefighter Health

Table 1-52 indicates whether departments have a program to maintain basic firefighter fitness and health, such as is required in NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program*.

Overall, 27% of departments have a program to maintain basic firefighter fitness and health, up from 20% in 2001 and down from 30% in 2010.

Figure 1-27. Percent of Departments Without a Program to Maintain Basic Firefighter Fitness and Health by Size of Community for Four Studies

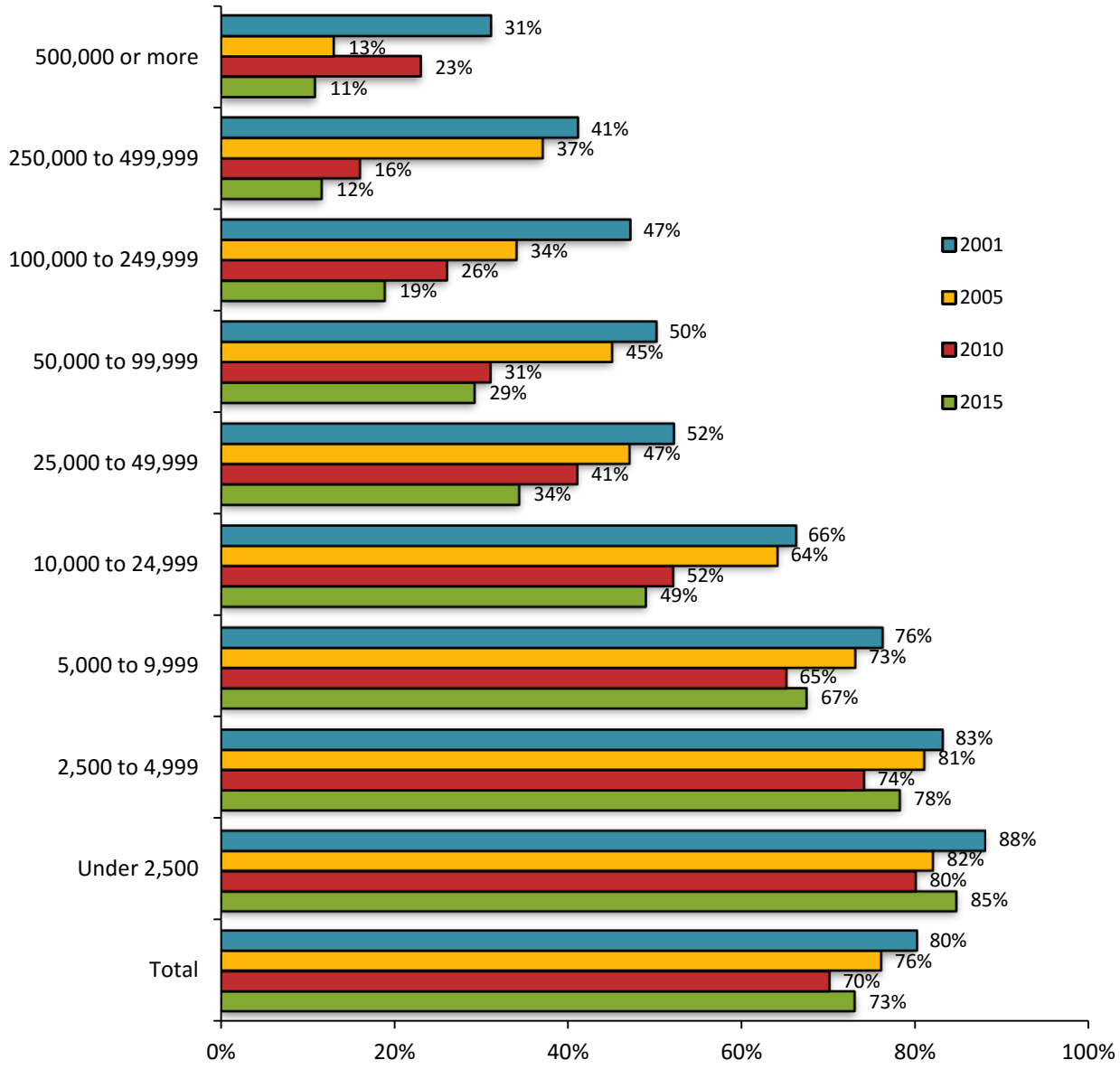


Figure 1-27 shows the percentage of departments that are lacking such programs, by size of population protected, and for each of the four Needs Assessment Studies. There has been considerable progress in this area for larger departments, but the majority of departments protecting communities of less than 10,000 population – and therefore most overall – still do not have these programs.

In 2015, an estimated 716,000 firefighters worked in departments without programs to maintain basic firefighter fitness and health, down from 792,000 in 2001 and up from 682,000 in 2010.

Table 1-E estimates how many firefighters, career or volunteer, are in departments without such programs, by size of population protected.

Table 1-E. Estimated Number of Firefighters in Fire Departments Without a Program to Maintain Basic Firefighter Fitness and Health, by Size of Community Protected (Q. 20)

Population Protected	Estimated Firefighters Without Program to Maintain Fitness
500,000 or more	9,000
250,000 to 499,999	3,000
100,000 to 249,999	10,000
50,000 to 99,999	14,000
25,000 to 49,999	25,000
10,000 to 24,999	63,000
5,000 to 9,999	85,000
2,500 to 4,999	171,000
Under 2,500	335,000
Total	716,000
Percent of all firefighters	62%

The above projections are based on 4,871 departments reporting on Question 22.
Numbers are shown to the nearest 1,000 and may not sum to totals due to rounding.

In terms of percents, 62% of firefighters worked in departments without such programs in 2015, down from 73% in 2001 and slightly up from 61% in 2010.

Figure 1-28 shows results for new questions regarding firefighter fitness and health. One result is the percentage of departments that have a program associated with the IAFC/IAFF Wellness-Fitness Initiative. This is also covered in Table 1-53. Percentages are calculated based on those departments that have a fitness and health program. The percentage ranges from 80% for the largest departments (protecting populations of 500,000 or more) to 16% for departments in communities of 2,500 to 4,999.

A second result in Figure 1-28 is the percentage of departments that have a fitness and health program that includes a physical examination for all firefighters (also in Table 1-54). This is among departments that have a fitness and health program. This percentage is 85% or greater for departments protecting populations of 10,000 or more and decreases to 69% in the smallest

communities of 2,500 or less. Figure 1-29 and Table 1-55 contain detail about the frequency of physical examinations: for new firefighters only, every 6 months or annually, every 2 years, every 3 years or other. Many of the departments that have physical exams conduct them every 6 months or annually (greater than 50%), for departments protecting populations of 10,000 or more. Close to half of the departments in smaller communities conduct physical exams every 6 months or annually.

A third result in Figure 1-28 is the percentage of departments that have a fitness and health program that includes a fitness assessment for all firefighters (also in Table 1-56). Again, the percentages are calculated based on departments that have a fitness and health program. Programs more likely to include a physical examination compared to a fitness assessment in all communities. The percentage of fitness assessments is greater than 75% for departments protecting populations for 50,000 or more and greater than 50% for smaller departments. Table 1-57 describes the frequency of fitness assessments. The majority of departments conduct fitness assessments every 6 months or annually.

Figure 1-28. Percent of Departments That Have a Basic Firefighter Fitness and Health Program that is Associated With the IAFC/IAFF Wellness Fitness Initiative, Includes a Physical Exam and Fitness Assessment, by Size of Community for the 2015 Study

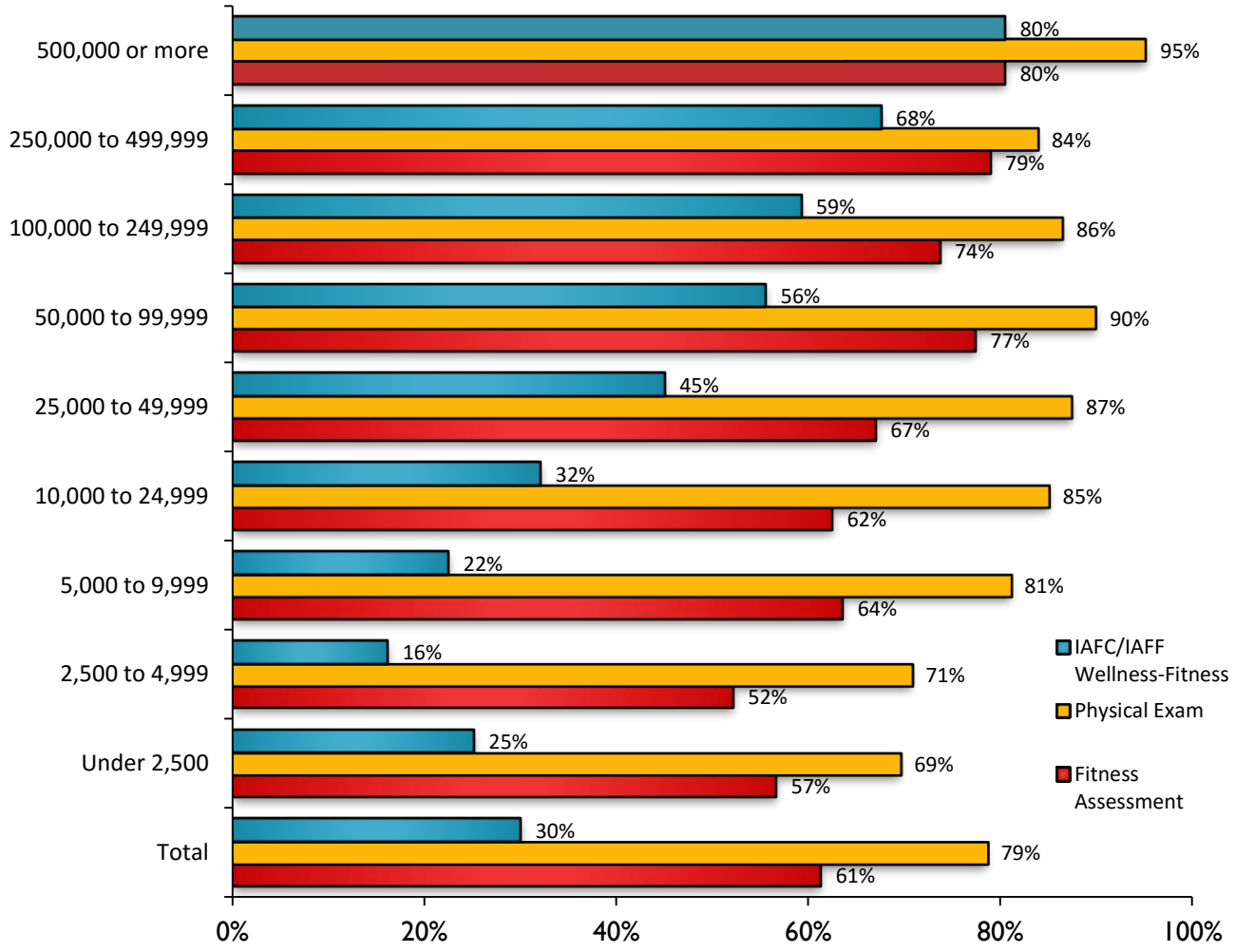
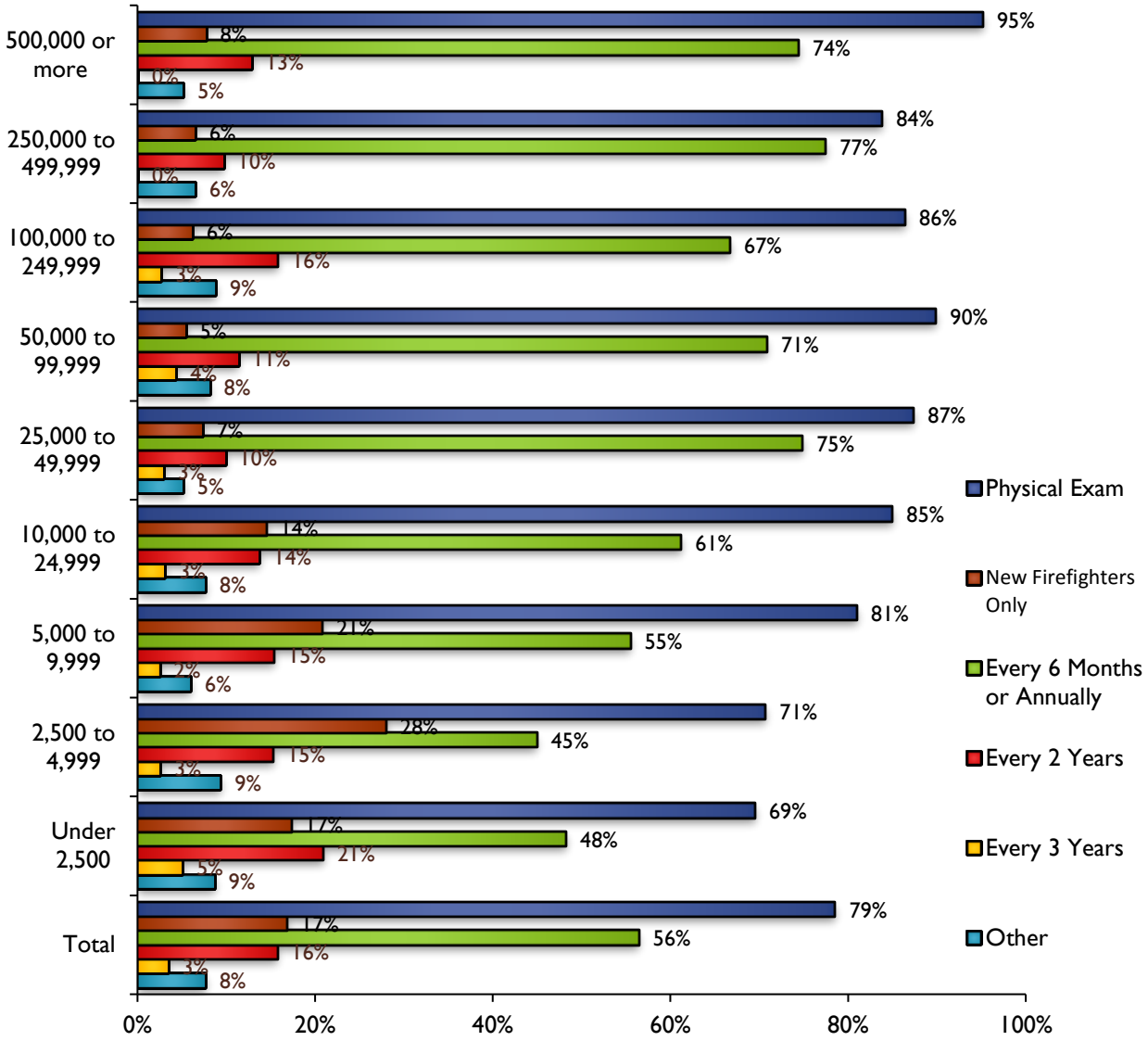


Figure 1-29. Percent of Departments having Physical Exams and the Frequency of those Exams as a Percent of Departments That Have Physical Exams, by Size of Community for the 2015 Study



Behavioral Health Program

A new question was added to the 2015 survey, "Does your department have a behavioral health program?" Table 1-58 and Figure 1-30 describe responses by community size.

In the largest departments protecting populations of 500,000 or more, three-quarters (76%) reported having a behavioral health program. This percentage dropped to 10% in the smallest departments serving community sizes under 2,500. Overall, 20% of departments reported offering a behavioral health program.

While firefighters have access to behavioral support programs at the national level, it is important to reinforce support at the local level. This will also have an impact on changing the stigma surrounding behavioral, mental and emotional health issues.

Program for Infection Control/PPE Decontamination

In the 2015 survey, the wording of the question was changed from a "program for infectious disease control" to an "infection control/PPE decontamination program (infectious and communicable disease hazards)." Table 1-59 and Figure 1-30 contain the responses by community size.

With the revised question, 61% of departments indicated they have a program for infection control/PPE decontamination, down from 64% in 2001 and 68% in 2010. More than 95% of departments protecting at least 50,000 in population have such programs. For the smallest communities (less than 2,500 population protected), 43% of departments reported having such programs.

There is a considerable need for increasing infection control and PPE decontamination programs for departments in the smaller communities.

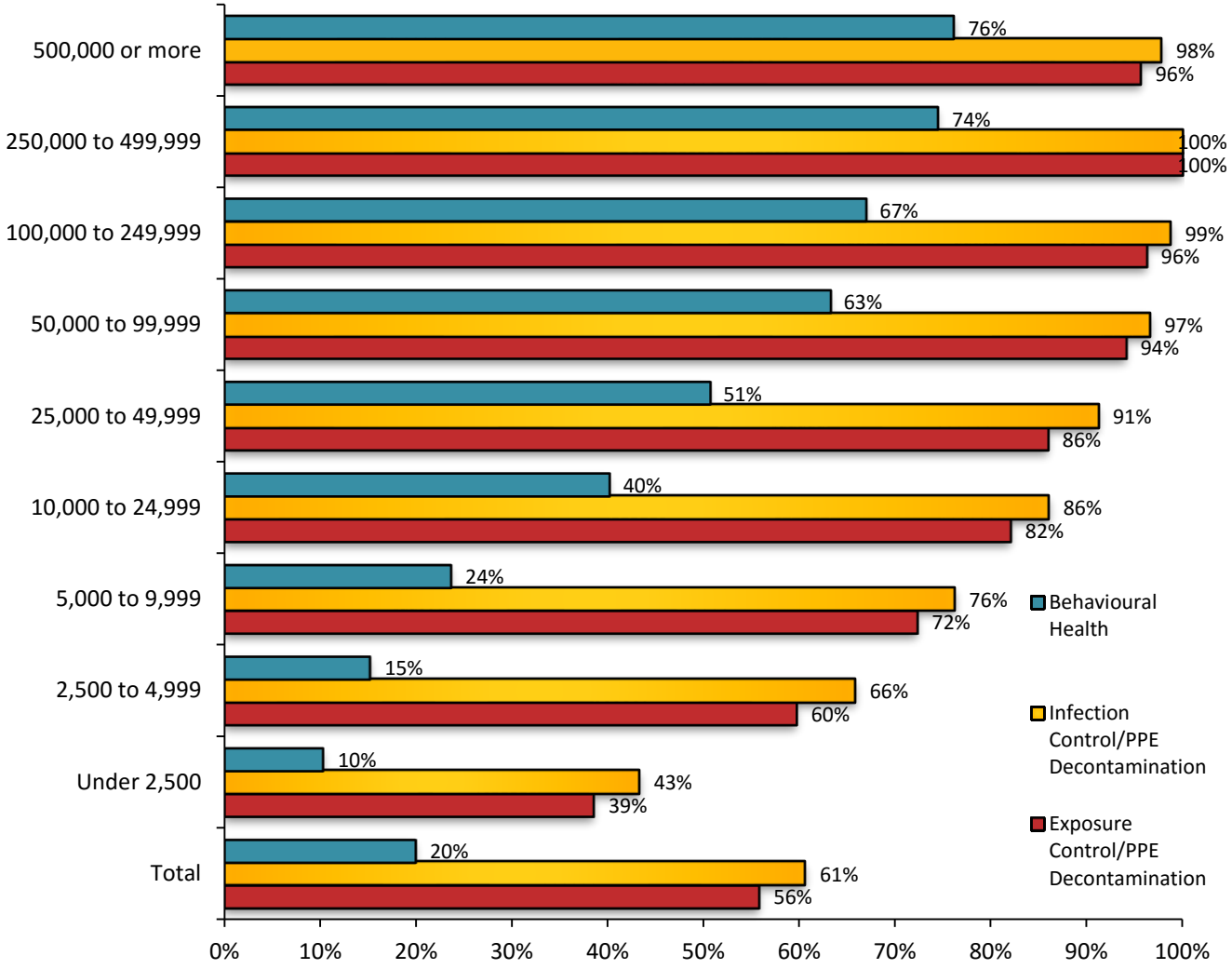
Program for Exposure Control/PPE Decontamination

A new question was added to the 2015 survey addressing, "Does your department have an exposure control/PPE decontamination program (carcinogen and other toxic hazards)?" Table 1-60 and Figure 1-30 describe responses by community size.

Overall, more than half of departments report having an exposure control/PPE decontamination program. More than 94% of departments in community sizes of 50,000 or more in population have such programs. In the smallest communities (< 2,500 population), 39% of departments have an exposure control/PPE decontamination program.

There is a considerable need for increasing exposure control and PPE decontamination programs for departments in the smaller communities.

Figure 1-30. Percent of Departments with Behavioral Health, Infection Control/PPE Decontamination and Exposure Control/PPE Decontamination Programs, by Size of Community for the 2015 Study



Air Quality Monitoring

In 2015, a new question was added regarding air quality, "Does your department monitor air quality at the fireground? (Check all that apply): O2 (Oxygen), HCN (Cyanide), CO (Carbon Monoxide), Volatile organic compounds (VOC), None." Responses by community size are presented in Table 1-61 and Figure 1-31.

Overall, 37% of departments do not conduct any air quality monitoring at the fireground.

In larger departments serving communities of 10,000 or greater, most departments (>75%) monitor carbon monoxide, many departments (>50%) monitor oxygen and fewer monitor

cyanide. Very few departments (less than 5-7%) measure Volatile organic compounds (VOC). Fifty percent of the departments in the smallest communities under 2,500 population measure none of these components.

Figure 1-31. Percent of Departments that Monitor Air Quality at the Fireground by Gas Type and Size of Community (2015)

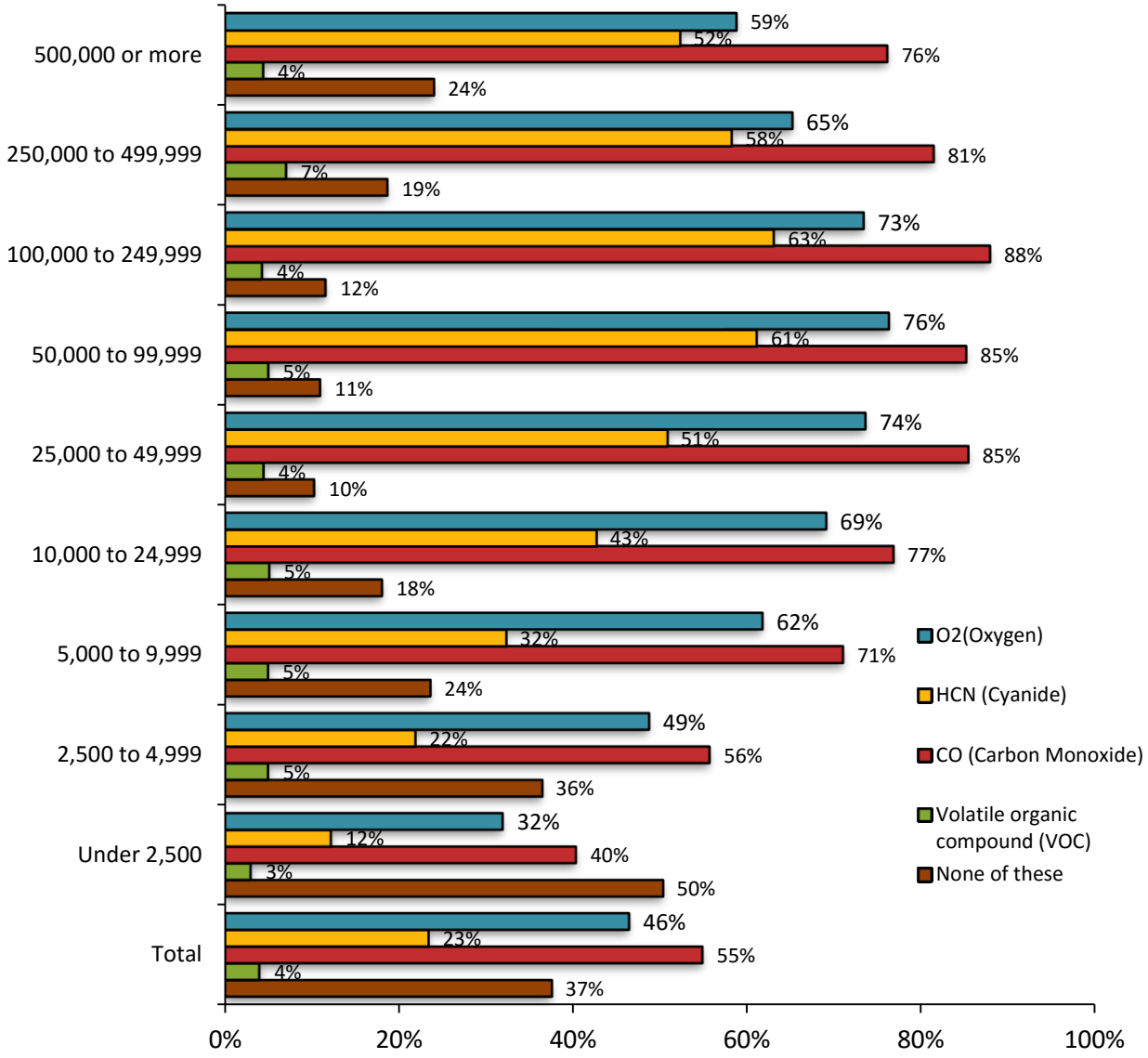


Table 1-1
Number of Departments and Percent of US Population Protected,
by Type of Department
(Q. 1, 6, 11)

Type of Department	Number	Percent	Percent of US Population Protected
All Career	2,083	7.9%	47.7%
Mostly Career	1,461	5.6%	15.6%
Mostly Volunteer	4,655	17.7%	16.5%
All Volunteer	18,123	68.9%	20.3%
Total	26,322	100.0%	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

Type of department is broken down into four categories. All-career departments are comprised of 100% career firefighters. Mostly-career departments are comprised 51%-99% career firefighters, while mostly-volunteer departments are comprised of 1 to 50% career firefighters and All-volunteer departments are comprised of 100% volunteer firefighters.

The above projections are based on 4,988 departments reporting on Questions 1, 6 and 11. Numbers may not add to totals due to rounding.

Q. 1: Population (number of permanent residents) your department has primary responsibility to protect (excluding mutual aid areas).

Q. 6: Total number of full-time (career) uniformed firefighters
How many are female?

Q. 11: Total number of active part-time (including call or volunteer) firefighters
How many are female?

Table 1-2
Department Type, by Community Size
(Q. 1, 6, 11)

Population of Community	All Career Number Depts	All Career Percent	Mostly Career Number Depts	Mostly Career Percent	Mostly Volunteer Number Depts	Mostly Volunteer Percent	All Volunteer Number Depts	All Volunteer Percent	Total Number Depts	Total Percent
500,000 to 999,999	40	71.7%	13	23.9%	2	4.4%	0	0.0%	56	100.0%
250,000 to 499,999	47	77.3%	8	13.6%	4	6.8%	1	2.3%	61	100.0%
100,000 to 249,999	200	79.9%	37	14.8%	12	4.7%	1	0.6%	250	100.0%
50,000 to 99,999	326	67.5%	88	18.2%	55	11.5%	41	2.9%	483	100.0%
25,000 to 49,999	526	47.7%	253	22.9%	253	22.9%	71	6.4%	1,103	100.0%
10,000 to 24,999	593	20.0%	608	20.5%	1,073	36.3%	686	23.2%	2,960	100.0%
5,000 to 9,999	123	3.3%	272	7.4%	1,382	37.3%	1,926	52.0%	3,703	100.0%
2,500 to 4,999	61	1.3%	95	2.0%	979	20.5%	3,638	76.2%	4,773	100.0%
Under 2,500	166	1.3%	88	0.7%	894	6.9%	11,785	91.1%	12,933	100.0%
Total	2,084	7.9%	1,461	5.6%	4,655	17.7%	18,123	68.9%	26,322	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

Type of department is broken into four categories. All-career departments are comprised of 100% career firefighters. Mostly-career departments are comprised of 51 to 99% career firefighters, while mostly-volunteer departments are comprised of 1 to 50% career firefighters All-volunteer departments are comprised of 100% volunteer firefighters.

The above projections are based on 4,988 departments reporting on Questions 1, 6 and 11. Numbers may not add to totals due to rounding.

Q. 1: Population (number of permanent residents) your department has primary responsibility to protect (excluding mutual aid areas)
Q. 6: Total number of full-time (career) uniformed firefighters
Q. 11: Total number of active part-time (including call or volunteer) firefighters How many are female?

Table 1-3
Number of Male and Female Firefighters among Career and Volunteer Firefighters (Q.1, 6, 11)

	Career			Volunteer			
Population Protected	**Male**	**Female**	**Sub-Total**	**Male**	**Female**	**Sub-Total**	**Total**
500,000 or more	70,000	2,850	72,850	3,550	2,750	6,300	79,150
250,000 to 499,999	24,350	1,200	25,550	2,600	950	3,550	29,100
100,000 to 249,999	46,750	1,700	48,450	1,550	2,150	3,700	52,150
50,000 to 99,999	40,200	1,650	41,850	5,650	1,250	6,900	48,750
25,000 to 49,999	47,250	1,300	48,550	19,600	3,200	22,800	71,350
10,000 to 24,999	50,250	1,950	52,200	68,450	8,850	77,300	129,500
5,000 to 9,999	16,100	1,250	17,350	98,450	9,600	108,050	125,400
2,500 to 4,999	13,600	3,250	16,850	180,600	20,700	201,300	218,150
Under 2,500	8,350	9,150	17,500	336,550	41,700	378,250	395,750
Total	316,850	24,300	341,150	717,000	91,150	808,150	1,149,300

Source: NFPA 2015 Survey of the Needs of the US Fire Service

The above projections are based on 5,032 departments reporting on Questions 1, 6 and 11

Q. 1: Population (number of permanent residents) your department has primary responsibility to protect (excluding mutual aid areas)
Q. 6: Total number of full-time (career) uniformed firefighters. How many are female?
Q.11: Total number of active part-time (including call or volunteer) firefighters. How many are female?

Note the number of volunteer firefighters for communities of 25,000 or more and the number of career firefighters for communities of less than 10,000 may change considerably from year to year because of their small size and variability

Note that these results are based on a sample survey, and as a result there is a 95% confidence interval associated with each estimate. Based on the data reported by the fire departments responding to the 2015 Survey of the needs of the US Fire Service, NFPA is confident that the actual number of career firefighters falls between 335,850 to 346,450; and the actual number of volunteers fall between 801,800 to 814,500.

Table 1-4
For All- or Mostly- Volunteer Departments,
Average Number of Volunteer Firefighters Responding Weekdays During the Day,
Percent of Departments by Community Size (Q. 11).

	Average Number of Volunteer Firefighters as a Percent								
Population of Community	**1**	**2**	**3**	**4**	**5-9**	**10-14**	**15-19**	**20 or more**	**Total**
25,000 to 49,999	0.0%	9.2%	6.9%	6.9%	29.0%	23.7%	6.9%	17.6%	100.0%
10,000 to 24,999	4.4%	8.5%	7.7%	9.4%	33.7%	18.5%	6.0%	11.8%	100.0%
5,000 to 9,999	2.5%	7.5%	7.0%	11.6%	41.0%	16.7%	8.1%	5.7%	100.0%
2,500 to 4,999	2.0%	7.8%	10.0%	13.3%	41.1%	16.9%	5.6%	3.3%	100.0%
Under 2,500	1.7%	7.6%	10.5%	15.7%	42.7%	13.5%	5.6%	2.7%	100.0%

Source: NFPA 2015 Survey of the Needs of the US Fire Service

A mostly-volunteer department might respond with some career firefighters as well, but this question asked only about volunteers responding.

The above projections are based on 3,409 departments reporting on Question 11 and comprised of all- or mostly volunteer firefighters. Numbers may not add to totals due to rounding.

Q11: Average number of call/volunteer personnel available who responded to emergencies during weekdays: Days.

Reference for definition of need: NFPA 1720.

Table 1-5
For All- or Mostly -Volunteer Departments,
Average Number of Volunteer Firefighters Responding Weekdays During the Night,
Percent of Departments by Community Size
(Q. 11)

Population of Community	Average Number of Volunteer Firefighters as a Percent								
	1	2	3	4	5-9	10-14	15-19	20 or more	Total
25,000 to 49,999	0.0%	0.8%	2.3%	8.5%	17.7%	11.5%	14.6%	44.6%	100.0%
10,000 to 24,999	0.6%	4.4%	3.8%	4.2%	18.5%	21.0%	13.0%	34.5%	100.0%
5,000 to 9,999	0.9%	2.5%	2.9%	2.9%	19.4%	23.7%	17.9%	29.9%	100.0%
2,500 to 4,999	0.7%	1.6%	2.3%	2.9%	21.7%	27.1%	21.9%	21.8%	100.0%
Under 2,500	0.6%	1.4%	4.3%	4.3%	29.3%	28.4%	16.5%	16.5%	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

A mostly-volunteer department might respond with some career firefighters as well, but this question asked only about volunteers responding.

The above projections are based on 3,422 departments reporting on Question 11 and comprised of all- or mostly volunteer firefighters. Numbers may not add to totals due to rounding.

Q11: Average number of call/volunteer personnel available who responded to emergencies during weekdays: Nights.

Reference for definition of need: NFPA 1720

Table 1-6
For All- or Mostly -Volunteer Departments
Average Number of Volunteer Firefighters Responding Weekends During the Day
Percent of Departments by Community Size
(Q. 11)

Population of Community	Average Number of Volunteer Firefighter as a Percentage								
	1	2	3	4	5-9	10-14	15-19	20 or more	Total
25,000 to 49,999	0.0%	1.5%	3.8%	5.4%	20.8%	16.9%	16.2%	35.4%	100.0%
10,000 to 24,999	1.3%	4.4%	3.8%	5.2%	25.7%	19.6%	12.7%	27.3%	100.0%
5,000 to 9,999	0.7%	4.9%	4.2%	3.2%	25.2%	25.9%	16.1%	19.7%	100.0%
2,500 to 4,999	0.9%	1.9%	3.3%	4.7%	28.9%	27.8%	18.1%	14.4%	100.0%
Under 2,500	0.8%	1.8%	3.0%	5.7%	35.4%	27.1%	14.1%	11.9%	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

A mostly-volunteer department might respond with some career firefighters as well, but this question asked only about volunteers responding.

The above projections are based on 3,418 departments reporting on Question 11 and comprised of all- or mostly volunteer firefighters. Numbers may not add to totals due to rounding.

Q11: Average number of call/volunteer personnel available who responded to emergencies during weekends: Days.

Reference for definition of need: NFPA 1720

Table 1-7
For All- or Mostly -Volunteer Departments,
Average Number of Volunteer Firefighters Responding Weekends During the Night,
Percent of Departments by Community Size
(Q. 11)

Population of Community	Average Number of Volunteer Firefighter as a Percentage								
	1	2	3	4	5-9	10-14	15-19	20 or more	Total
25,000 to 49,999	0.0%	0.8%	2.3%	6.9%	13.8%	13.8%	16.9%	45.4%	100.0%
10,000 to 24,999	1.2%	3.8%	2.5%	4.0%	14.8%	21.1%	15.4%	37.2%	100.0%
5,000 to 9,999	0.9%	2.9%	2.7%	2.3%	15.3%	23.3%	19.1%	33.4%	100.0%
2,500 to 4,999	0.8%	1.1%	1.9%	3.3%	18.6%	24.8%	23.4%	26.1%	100.0%
Under 2,500	0.6%	1.4%	2.3%	3.7%	26.3%	30.3%	16.4%	18.9%	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

A mostly-volunteer department might respond with some career firefighters as well, but this question asked only about volunteers responding.

The above projections are based on 3,418 departments reporting on Question 11 and comprised of all- or mostly volunteer firefighters. Numbers may not add to totals due to rounding.

Q11: Average number of call/volunteer personnel available who responded to emergencies during weekends: Nights.

Reference for definition of need: NFPA 1720

Table 1-8
For All- or Mostly-Career Departments,
Minimum Number of Career Firefighters Assigned to an Engine/Pumper Apparatus,
Percent of Departments by Community Size
(Q. 7)

	Minimum Number of Career Firefighters as a Percent						
Population of Community	**1**	**2**	**3**	**4**	**5 or more**	**Not Applicable**	**Total**
500,000 to 999,999	0.0%	2.2%	32.6%	54.4%	10.9%	0.0%	100.0%
250,000 to 499,999	2.3%	2.3%	46.5%	41.9%	7.0%	0.0%	100.0%
100,000 to 249,999	1.2%	6.1%	63.6%	23.0%	4.9%	1.2%	100.0%
50,000 to 99,999	1.7%	15.5%	62.3%	14.8%	2.7%	3.0%	100.0%
25,000 to 49,999	5.9%	26.8%	47.4%	11.7%	2.3%	5.9%	100.0%
10,000 to 24,999	12.4%	34.2%	29.9%	8.5%	1.8%	13.3%	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above projections are based on 1,751 reporting on Question 7 and comprised of all or mostly-career firefighters. Numbers may not add to totals due to rounding.

Q. 7: Minimum number of on-duty career/paid personnel assigned to an engine/pumper.

Reference for definition of need: NFPA 1710

Table 1-9
For All- or Mostly-Career Departments
Number of Career Firefighters Typically Staffing an Engine/Pumper Apparatus
Percent of Departments by Community Size
(Q. 8)

Population of Community	Number of Career Firefighters as a Percent					
	1	2	3	4	5 or more	Total
500,000 to 999,999	0.0%	0.0%	32.6%	63.0%	4.4%	100.0%
250,000 to 499,999	2.3%	2.3%	48.8%	46.5%	0.0%	100.0%
100,000 to 249,999	1.2%	4.9%	67.1%	25.0%	0.6%	100.0%
50,000 to 99,999	1.7%	12.1%	65.0%	17.2%	1.0%	100.0%
25,000 to 49,999	4.1%	21.1%	53.3%	14.9%	1.5%	100.0%
10,000 to 24,999	10.1%	26.8%	37.5%	12.7%	2.5%	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above projections are based on 1,750 departments reporting on Question 8 and comprised of all- or mostly-career firefighters. Numbers may not add to totals due to rounding.

Q. 8: Minimum number of on-duty career/paid personnel typically staffing an engine/pumper.

Reference for definition of need: NFPA 1710.

Table 1-10
For All- or Mostly-Career Departments,
Minimum Number of Career Firefighters Assigned to a Ladder Truck/Aerial Apparatus
Percent of Departments by Community Size
(Q. 9)

Population of Community	Minimum Number of Career Firefighters as a Percent						
	1	2	3	4	5 or more	Not Applicable	Total
500,000 to 999,999	0.0%	0.0%	26.7%	55.6%	17.8%	0.0%	100.0%
250,000 to 499,999	0.0%	2.3%	27.9%	60.5%	7.0%	2.3%	100.0%
100,000 to 249,999	1.2%	8.5%	47.0%	33.5%	5.5%	4.3%	100.0%
50,000 to 99,999	2.7%	16.9%	44.3%	21.3%	2.0%	12.8%	100.0%
25,000 to 49,999	8.1%	24.2%	29.6%	10.3%	0.6%	27.2%	100.0%
10,000 to 24,999	13.8%	24.0%	12.6%	3.3%	0.6%	45.7%	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above projections are based on 1,739 reporting on Question 9 and comprised of all or mostly-career firefighters. Numbers may not add to totals due to rounding.

Q. 9: Minimum number of on-duty career/paid personnel assigned to a ladder truck/aerial.

Reference for definition of need: NFPA 1710

Table 1-11
For All- or Mostly-Career Departments,
Minimum Number of Career Firefighters Typically Staffing a Ladder/Aerial Apparatus,
Percent of Departments by Community Size
(Q. 10)

Population of Community	Minimum Number of Career Firefighter as a Percent						
	1	2	3	4	5 or more	Not Applicable	Total
500,000 to 999,999	0.0%	0.0%	28.3%	56.5%	13.0%	2.2%	100.0%
250,000 to 499,999	0.0%	2.3%	34.9%	60.5%	0.0%	2.3%	100.0%
100,000 to 249,999	1.8%	6.7%	48.2%	38.4%	0.6%	4.3%	100.0%
50,000 to 99,999	2.7%	15.9%	48.7%	19.3%	1.7%	11.8%	100.0%
25,000 to 49,999	7.9%	24.7%	32.4%	10.5%	1.1%	23.4%	100.0%
10,000 to 24,999	12.5%	23.2%	14.8%	5.5%	0.4%	43.6%	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above projections are based on 1,738 departments reporting on Question 10 and comprised of all- or mostly-career firefighters. Numbers may not add to totals due to rounding.

Q. 10: Minimum number of on-duty career/paid personnel typically staffing a ladder truck/aerial.
Reference for definition of need: NFPA 1710

Table 1-12
Percentage of Departments Reporting Active Members with Specific Types of Support or Auxiliary Roles and No Direct Firefighting Activities
(Q. 12)

	Percentage of Fire Departments							
Population Protected	**First Aid**	**Directing Traffic**	**Command Post Ops**	**Rehab**	**Water supply**	**Communications**	**Logistics**	***Other**
500,000 or more	11.1%	0.0%	0.0%	44.4%	11.1%	55.6%	44.4%	88.9%
250,000 to 500,000	0.0%	0.0%	0.0%	20.0%	20.0%	60.0%	20.0%	100.0%
100,000 to 250,000	33.3%	23.8%	23.8%	28.6%	23.8%	52.4%	52.4%	42.9%
50,000 to 100,000	17.0%	17.0%	29.8%	14.9%	23.4%	44.7%	51.1%	38.3%
25,000 to 50,000	19.1%	22.7%	34.5%	20.0%	24.5%	31.8%	52.7%	39.1%
10,000 to 25,000	25.9%	23.2%	34.6%	20.5%	23.8%	32.8%	50.3%	29.5%
5,000 to 10,000	31.3%	35.7%	44.9%	19.9%	18.0%	22.7%	49.3%	21.3%
2,500 to 5,000	41.8%	39.4%	54.4%	24.5%	13.9%	19.8%	51.3%	19.1%
2,500 or less	36.0%	46.4%	57.3%	26.0%	13.8%	24.5%	38.4%	15.4%
Total	32.9%	36.4%	47.8%	23.1%	17.3%	26.1%	46.3%	22.4%

Source: NFPA 2015 Survey of the Needs of the US Fire Service.

The above table is a percentage breakdown is based on 1,934 fire departments reporting on Question 12.

Q. 12: How many active members of your fire department only fill support or auxiliary roles and have no direct firefighting activities? Respondents were asked to check all that apply: first aid, directing traffic, command post ops, rehab, water supply, communications, logistics and other.

Table 1-13
Number of Departments Reporting Active Members with Specific Types of Support or Auxiliary Roles and No Direct Firefighting Activities (Q.12)

	Number of Fire Departments								
Population Protected	**First Aid**	**Directing Traffic**	**Command Post Ops**	**Rehab**	**Water supply**	**Communications**	**Logistics**	***Other**	**Total Number Depts**
500,000 or more	6	0	0	25	6	31	25	50	56
250,000 to 500,000	0	0	0	23	23	70	23	117	117
100,000 to 250,000	83	60	60	71	60	131	131	107	250
50,000 to 100,000	82	82	144	72	113	216	247	185	483
25,000 to 50,000	211	251	381	221	271	351	582	431	1,103
10,000 to 25,000	767	687	1,025	606	704	972	1,489	874	2,960
5,000 to 10,000	1,159	1,323	1,662	739	667	841	1,826	790	3,703
2,500 to 5,000	1,993	1,882	2,596	1,169	664	947	2,448	910	4,773
2,500 or less	4,657	6,007	7,415	3,365	1,780	3,170	4,970	1,996	12,933
Total	8,656	9,582	12,576	6,084	4,546	6,873	12,195	5,907	26,322

Source: NFPA 2015 Survey of the Needs of the US Fire Service.

The above table breakdown and projections are based on 1,934 fire departments reporting on Question 12.

*See details of Other in Table 1-14.

Q. 12: How many active members of your fire department only fill support or auxiliary roles and have no direct firefighting activities? Respondents were asked to check all that apply: first aid, directing traffic, command post ops, rehab, water supply, communications, logistics and other.

Table 1-14 Count and Percentage of 'Other' as Specified by Fire Departments Who Checked 'Other' as a Support or Auxiliary Role (Q. 12)

	Population Protected										
Other Category	**500,000 or more**	**250,000 to 500,000**	**100,000 to 250,000**	**50,000 to 100,000**	**25,000 to 50,000**	**10,000 to 25,000**	**5,000 to 10,000**	**2,500 to 5,000**	**2,500 or less**	**Total**	**Percent**
Administrative	5	4	5	6	18	26	27	21	35	147	28.0%
Medical	2	0	2	1	4	8	2	5	13	37	7.0%
Fundraising	0	0	0	0	3	8	7	4	13	35	6.7%
Food/Water/Runners	0	0	1	0	1	4	8	12	8	34	6.5%
Fire Prevention	2	0	1	7	5	7	5	3	3	33	6.3%
Auxiliary	0	0	0	0	5	9	8	4	6	32	6.1%
Chaplain	0	0	0	2	3	12	3	6	3	29	5.5%
Safety Officer	0	0	0	0	3	8	5	4	2	22	4.2%
Property Maintenance	1	0	1	0	4	1	3	5	6	21	4.0%
Fleet Maintenance	1	0	1	0	5	4	3	3	3	20	3.8%
Photographer	0	0	0	0	2	11	4	3	0	20	3.8%
Equipment Maintenance	0	1	1	1	1	4	3	4	2	17	3.2%
Junior Firefighters	0	0	0	1	1	2	2	2	5	13	2.5%
Fire Marshal/Inspector	0	0	0	3	3	2	2	1	1	12	2.3%
Other Members	0	0	0	0	1	3	0	1	7	12	2.3%
Specialty Positions	1	0	0	1	1	0	3	2	2	10	1.9%
Investigator	0	0	1	0	3	3	1	0	2	10	1.9%
Training	0	0	1	0	3	2	0	1	0	7	1.3%
Planning Operations	1	0	0	1	2	2	0	0	0	6	1.1%
Dispatch	3	0	0	0	0	0	1	0	1	5	1.0%
Emergency Management	0	0	0	0	0	0	0	3	0	3	0.6%
Total	16	5	14	23	68	116	87	84	112	525	100.0%
Percent	3.0%	1.0%	2.7%	4.4%	13.0%	22.1%	16.6%	16.0%	21.3%	100.0%	

Table 1-14 (Continued): Count and Percentage of 'Other' As Specified by Fire Departments Who Checked 'Other' As a Support or Auxiliary Role (Q. 12)

The above table breakdown are based on 434 fire departments that checked 'other' on Question 12. The reason the total is 525 is explained by the fact that some fire departments provided more than one type of other specification.

Q. 12: How many active members of your fire department only fill support or auxiliary roles and have no direct firefighting activities? Respondents were asked to check all that apply: first aid, directing traffic, command post ops, rehab, water supply, communications, logistics and other.

***'Other' categorization**

Administration: Human Resources, Finance, Fire Department Secretary, general administrative duties.
Auxiliary: Drivers, extrication specialist, engineer/pump operator (i.e. no direct firefighting responsibilities).
Chaplain: All clergyman activities and responsibilities.
Dispatch: Dispatch operations.
Emergency management: Emergency management operations.
Equipment maintenance: SCBA and tool maintenance including air fills.
Fire prevention: Community risk reduction, public information officer, public education, CERT and other related activities.
Fire marshal/inspectors: code enforcement and inspections.
Fundraising: All fundraising related activities.
Food/water/runners: general support duties while on the fireground as it relates to food and hydration.
Fleet maintenance: Vehicle maintenance activities.
Investigator: Fire investigation activities.
Junior firefighters: interns, pre-fire academy, explorers
Medical: Emergency medical technicians, medical officer, CPR instructor, first aid, AED.
Other members: Board, lifetime and associate members
Photographer: Photography and videography.
Planning operations: Planning activities including rural addressing.
Property maintenance: Fire station/department maintenance activities.
Safety officer: accountability and staging activities.
Specialty positions: Hazmat specialist, foresters, divers, lifeguards, historians.
Training: Training activities.

Source: NFPA 2015 Survey of the Needs of the US Fire Service

Table 1-15
Does Department Provide Structural Firefighting?
by Community Size
(Q. 13a)

Population of Community	Yes		No		Total	
	Number of Depts	Percent	Number of Depts	Percent	Number of Depts	Percent
500,000 or more	56	100.0%	0	0.0%	56	100.0%
250,000 to 499,999	61	100.0%	0	0.0%	61	100.0%
100,000 to 249,999	250	100.0%	0	0.0%	250	100.0%
50,000 to 99,999	481	99.7%	2	0.3%	483	100.0%
25,000 to 49,999	1,094	99.2%	9	0.8%	1,103	100.0%
10,000 to 24,999	2,947	99.6%	13	0.4%	2,960	100.0%
5,000 to 9,999	3,675	99.2%	28	0.8%	3,703	100.0%
2,500 to 4,999	4,710	98.7%	63	1.3%	4,773	100.0%
Under 2,500	12,509	96.7%	424	3.3%	12,933	100.0%
Total	25,783	98.0%	539	2.0%	26,322	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above projections are based on 4,798 departments reporting on Question 13a. Numbers may not add to totals due to rounding.

Q. 13a: Is [structural firefighting] a role your department performs?

Table 1-16
For Departments That Provide Structural Firefighting
What Percentage of the Personnel Who Perform This Duty Have Received Formal Training?
Percent of Departments by Community Size
(Q. 13b)

	All (100%)		Most (76-99%)		Many (51-75%)		Some (26-50%)		Few (1-25%)		None (0%)		Total	
Population of Community	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent
500,000 or more	56	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	56	100.0%
250,000 to 499,999	58	95.4%	1	2.3%	0	0.0%	1	2.3%	0	0.0%	0	0.0%	61	100.0%
100,000 to 249,999	235	93.8%	9	3.7%	3	1.2%	3	1.2%	0	0.0%	0	0.0%	250	100.0%
50,000 to 99,999	457	94.9%	20	4.1%	3	0.7%	2	0.3%	0	0.0%	0	0.0%	481	100.0%
25,000 to 49,999	1,007	92.0%	71	6.5%	11	1.1%	2	0.2%	2	0.0%	0	0.0%	1,094	100.0%
10,000 to 24,999	2,347	79.6%	465	15.8%	74	2.5%	35	1.2%	26	0.0%	0	0.0%	2,947	100.0%
5,000 to 9,999	2,328	63.4%	866	23.6%	279	7.6%	154	4.2%	43	0.0%	0	0.1%	3,675	100.0%
2,500 to 4,999	2,270	48.2%	1,404	19.8%	436	9.3%	373	7.9%	215	0.0%	13	0.3%	4,710	100.0%
Under 2,500	4,157	33.2%	3,461	27.7%	1,687	13.5%	1,382	11.1%	1,611	0.1%	210	1.7%	12,509	100.0%
Total	12,913	50.1%	6,297	24.4%	2,495	9.7%	1,953	7.6%	1,897	0.1%	228	0.9%	25,783	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service
The above projections are based on 4,798 departments reporting yes to Question 13a and also reporting on Question 13b. Numbers may not add to totals due to rounding.

Q. 13b: [If structural firefighting is a role your department performs; yes on Q. 13a], what percentage of the personnel who perform this duty have received formal training (not just on-the-job)?

Reference for definition of need: NFPA 1500 and 1001

Table 1-17
For Departments That Provide Structural Firefighting,
Percentage of Personnel That Have Been Certified to Level I,
Percent of Departments by Community Size
(Q. 13c)

Population Protected	All (100%)	Most (76-99%)	Many (51-75%)	Some (26-50%)	Few (1-25%)	None (0%)
500,000 or more	91.1%	8.9%	0.0%	0.0%	0.0%	0.0%
250,000 to 499,999	90.7%	9.3%	0.0%	0.0%	0.0%	0.0%
100,000 to 249,999	89.0%	8.5%	0.0%	2.4%	0.0%	0.0%
50,000 to 99,999	90.5%	7.1%	1.0%	0.3%	0.0%	1.0%
25,000 to 49,999	79.1%	13.1%	4.0%	2.7%	0.6%	0.4%
10,000 to 24,999	59.6%	23.9%	8.1%	4.5%	3.6%	0.3%
5,000 to 9,999	36.8%	28.2%	13.5%	10.5%	9.6%	1.4%
2,500 to 4,999	23.2%	24.3%	15.9%	12.9%	20.0%	3.8%
Under 2,500	18.1%	16.6%	13.2%	15.2%	26.9%	10.1%
Total	31.2%	20.0%	12.3%	11.9%	18.6%	5.9%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above projections are based on 4,798 departments reporting yes to Question 13a and also reporting on Question 13c. Numbers may not add to totals due to rounding.

Q. 13c: [If structural firefighting is a role your department performs], what percentage of the personnel who perform this duty are certified to Firefighter Level I?

Reference for definition of need: NFPA 1500 and 1001

Table 1-18

For Departments That Provide Structural Firefighting
Percentage of Personnel Restricted to Exterior Firefighting Only
Percent of Departments by Community Size
(Q. 13d)

Population of Community	All (100%) Number Depts	Percent	Most (76-99%) Number Depts	Percent	Many (51-75%) Number Depts	Percent	Some (26-50%) Number Depts	Percent	Few (1-25%) Number Depts	Percent	None (0%) Number Depts	Percent	Total Number Depts	Percent
500,000 or more	1	2.2%	1	2.2%	0	0.0%	0	0.0%	2	4.4%	51	91.3%	56	100.0%
250,000 to 499,999	1	2.3%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	60	97.7%	61	100.0%
100,000 to 249,999	0	0.0%	0	0.0%	0	0.0%	2	0.6%	18	7.3%	230	92.1%	250	100.0%
50,000 to 99,999	2	0.3%	3	0.7%	0	0.0%	2	0.3%	31	6.5%	444	92.2%	481	100.0%
25,000 to 49,999	2	0.2%	7	0.6%	7	0.6%	14	1.3%	151	13.8%	913	83.5%	1,094	100.0%
10,000 to 24,999	3	0.1%	16	0.6%	26	0.9%	142	4.8%	912	31.0%	1,848	62.7%	2,947	100.0%
5,000 to 9,999	29	0.8%	33	0.9%	77	2.1%	359	9.8%	1,835	49.9%	1,342	36.5%	3,675	100.0%
2,500 to 4,999	38	0.8%	96	2.0%	229	4.9%	726	15.4%	2,444	51.9%	1,178	25.0%	4,710	100.0%
Under 2,500	173	1.4%	547	4.4%	949	7.6%	2,636	21.1%	5,349	42.8%	2,857	22.8%	12,509	100.0%
Total	249	1.0%	703	2.7%	1,288	5.0%	3,879	15.0%	10,743	41.7%	8,921	34.6%	25,783	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above projections are based on 4,798 departments on Question 13a and also reporting on Question 13d. Numbers may not add to totals due to rounding.

Q. 13d: [If structural firefighting is a role your department performs], what percentage of your fire department's firefighters are restricted to exterior firefighting only?

Reference for definition of need: NFPA 1500 and 1001

Table 1-19
Does Department Provide Emergency Medical Service (EMS)?
by Community Size
(Q. 14a)

Population of Community	Yes Number Depts	Yes Percent	No Number Depts	No Percent	Total Number Depts	Total Percent
500,000 or more	56	100.0%	0	0.0%	56	100.0%
250,000 to 499,999	61	100.0%	0	0.0%	61	100.0%
100,000 to 249,999	242	97.0%	8	3.0%	250	100.0%
50,000 to 99,999	458	94.9%	25	5.1%	483	100.0%
25,000 to 49,999	986	89.4%	117	10.6%	1,103	100.0%
10,000 to 24,999	2,420	81.8%	540	18.2%	2,960	100.0%
5,000 to 9,999	2,589	69.9%	1,114	30.1%	3,703	100.0%
2,500 to 4,999	3,205	67.1%	1,568	32.9%	4,773	100.0%
Under 2,500	7,267	56.2%	5,666	43.8%	12,933	100.0%
Total	17,286	65.7%	9,036	34.3%	26,322	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above projections are based on 4,854 departments reporting on Question 14a. Numbers may not add to totals due to rounding.

Q. 14a: Is [Emergency Medical Service] a service your department provides?

Table 1-20
For Departments That Provide Emergency Medical Service,
Level That Personnel Who Perform This Duty Have Been Certified To,
by Community Size
(Q. 14b)

Population Protected	No Certification	First Responder	EMT Basic	EMT Intermediate	EMT with Advanced Life Support or Local Equivalent	EMT Paramedic or Equivalent	Total
500,000 or more	1.4%	3.3%	50.7%	6.7%	4.2%	33.9%	100.0%
250,000 to 499,999	1.3%	1.6%	48.6%	5.4%	4.0%	39.2%	100.0%
100,000 to 249,999	0.6%	9.1%	40.1%	9.6%	5.6%	35.0%	100.0%
50,000 to 99,999	1.3%	9.3%	40.7%	6.5%	4.6%	37.6%	100.0%
25,000 to 49,999	3.2%	10.9%	37.8%	6.5%	3.8%	37.7%	100.0%
10,000 to 24,999	9.0%	15.2%	38.2%	6.0%	4.2%	27.3%	100.0%
5,000 to 9,999	16.7%	20.9%	36.5%	4.6%	4.2%	17.1%	100.0%
2,500 to 4,999	24.6%	30.8%	33.2%	4.4%	2.3%	3.1%	100.0%
Under 2,500	30.8%	32.2%	25.6%	3.7%	2.0%	5.7%	100.0%
Total	23.1%	26.8%	31.0%	4.5%	2.8%	11.6%	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service
The above projections are based on 4,854 departments reporting yes to Question 14a and also reporting on Question 14b. Numbers may not add to totals due to rounding. Total is a weighted average.

Q. 14b: [If emergency medical services is a service your department provides], what percentage of department personnel performing this duty are certified to the following levels: No Certification, First Responder, EMT-Basic, EMT-Intermediate, EMT with Advanced Life Support or Local Equivalent and EMT-Paramedic or Equivalent?

Reference for definition of need: NFPA 1500

Table 1-21
Does Your Community Provide Ambulance Services?
by Community Size
(Q. 14c)

	Yes		No		Total	
Population of Community	**Number of Communities**	**Percent**	**Number of Communities**	**Percent**	**Number of Depts**	**Percent**
500,000 or more	45	80.0%	11	20.0%	56	100.0%
250,000 to 499,999	55	90.7%	6	9.3%	61	100.0%
100,000 to 249,999	167	66.7%	83	33.3%	250	100.0%
50,000 to 99,999	331	68.5%	152	31.5%	483	100.0%
25,000 to 49,999	797	72.3%	306	27.7%	1,103	100.0%
10,000 to 24,999	2,034	68.7%	926	31.3%	2,960	100.0%
5,000 to 9,999	2,275	61.4%	1,428	38.6%	3,703	100.0%
2,500 to 4,999	2,594	54.4%	2,179	45.6%	4,773	100.0%
Under 2,500	5,440	42.1%	7,493	57.9%	12,933	100.0%
Total	13,738	52.2%	12,584	47.8%	26,322	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above projections are based on 4,545 departments reporting on Question 14c
Numbers may not add to totals due to rounding. Total is a weighted average.

Q. 14c: Does your community provide ambulance services? Y/N

Table 1-22
Is Community-Provided Ambulance Service a Fire-Department Based Service?
by Community Size
(Q. 14d)

	Yes		No		Total	
Population of Community	**Number of Depts**	**Percent**	**Number of Depts**	**Percent**	**Number of Depts**	**Percent**
500,000 or more	35	77.8%	10	22.2%	45	100.0%
250,000 to 499,999	28	51.3%	27	48.7%	55	100.0%
100,000 to 249,999	102	61.1%	65	38.9%	167	100.0%
50,000 to 99,999	216	65.3%	115	34.7%	331	100.0%
25,000 to 49,999	551	69.1%	246	30.9%	797	100.0%
10,000 to 24,999	1,190	58.5%	844	41.5%	2,034	100.0%
5,000 to 9,999	1,104	48.5%	1,171	51.5%	2,275	100.0%
2,500 to 4,999	1,091	42.0%	1,504	58.0%	2,594	100.0%
Under 2,500	1,872	34.4%	3,569	65.6%	5,440	100.0%
Total	6,188	45.0%	7,550	55.0%	13,738	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above projections are based on 4,545 departments on Question 14c and also reporting on Question 14d. Numbers may not add to totals due to rounding.

Q 14c. Does your community provide ambulance services? Y/N

Q 14d. If yes to 14c, is this a fire-department based service?

Table 1-23
Does Department Provide Tactical EMS for Law Enforcement Operations?
by Community Size
(Q. 14e)

Population of Community	Yes Number of Depts	Yes Percent	No Number of Depts	No Percent	Total Number of Depts	Total Percent
500,000 or more	31	54.5%	25	45.5%	56	100.0%
250,000 to 499,999	40	65.1%	21	34.9%	61	100.0%
100,000 to 249,999	115	47.5%	127	52.5%	242	100.0%
50,000 to 99,999	172	37.5%	287	62.5%	458	100.0%
25,000 to 49,999	251	25.4%	736	74.6%	986	100.0%
10,000 to 24,999	435	18.0%	1,985	82.0%	2,420	100.0%
5,000 to 9,999	359	13.9%	2,230	86.1%	2,589	100.0%
2,500 to 4,999	255	8.0%	2,950	92.0%	3,205	100.0%
Under 2,500	662	9.1%	6,605	90.9%	7,267	100.0%
Total	2,321	13.4%	14,965	86.6%	17,286	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above projections are based on 4,404 departments on Question 14e. Numbers may not add to totals due to rounding.

Q 14e. Does your fire department provide Tactical EMS for law enforcement operations? Y/N

Table 1-24
Does Department Provide Hazardous Material Response?
by Community Size
(Q. 15a)

Population of Community	Yes Number of Depts	Yes Percent	No Number of Depts	No Percent	Total Number of Depts	Total Percent
500,000 or more	56	100%	0	0.0%	56	100.0%
250,000 to 499,999	60	98%	1	2.3%	61	100.0%
100,000 to 249,999	233	93%	17	6.7%	250	100.0%
50,000 to 99,999	449	93%	35	7.1%	483	100.0%
25,000 to 49,999	977	89%	126	11.4%	1,103	100.0%
10,000 to 24,999	2,613	88%	347	11.7%	2,960	100.0%
5,000 to 9,999	2,996	81%	707	19.1%	3,703	100.0%
2,500 to 4,999	3,631	76%	1,142	23.9%	4,773	100.0%
Under 2,500	7,754	60%	5,179	40.0%	12,933	100.0%
Total	18,769	78%	7,553	22.1%	26,322	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above table projections are based on 4,842 departments reporting on Question 15a. Numbers may not add to totals due to rounding.

Q. 15a: Is [hazardous materials response] a service your department provides?

Table 1-25
For Departments That Provide Hazardous Material Response Level That Personnel Who Perform This Duty Have Been Certified to by Community Size
(Q. 15b)

Population of Community	None	Awareness	Operational	Technician	Total
500,000 or more	0.0%	14.2%	56.6%	29.2%	100.0%
250,000 to 499,999	0.5%	21.9%	51.9%	25.7%	100.0%
100,000 to 249,999	0.5%	16.1%	61.7%	21.7%	100.0%
50,000 to 99,999	1.7%	15.4%	56.2%	26.8%	100.0%
25,000 to 49,999	2.2%	17.0%	57.5%	23.3%	100.0%
10,000 to 24,999	4.7%	21.6%	56.6%	17.1%	100.0%
5,000 to 9,999	10.3%	33.9%	51.3%	4.4%	100.0%
2,500 to 4,999	12.6%	42.7%	40.6%	4.2%	100.0%
Under 2,500	19.0%	46.5%	31.5%	3.1%	100.0%
Total	13.7%	39.0%	40.7%	6.6%	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above projections are based on 3,774 departments reporting yes to Question 15a and also reporting on Question 15b. Numbers may not add to totals due to rounding. Total is a weighted average.

Q. 15b: [If hazardous material response is a service your department provides], what percentage of department personnel performing this duty are certified to the following levels? No Certification, Awareness, Operational, Technician.

Reference for definition of need: NFPA 472

Table 1-26
Does Department Provide Wildland Urban Interface (WUI)/Wildland (Brush, Grass, Forest) Firefighting?
by Community Size
(Q. 16a)

	Yes		No		Total	
Population of Community	**Number Depts**	**Percent**	**Number Depts**	**Percent**	**Number Depts**	**Percent**
500,000 or more	38	67.4%	18	32.6%	56	100.0%
250,000 to 499,999	48	79.1%	13	20.9%	61	100.0%
100,000 to 249,999	192	76.8%	58	23.2%	250	100.0%
50,000 to 99,999	314	65.1%	169	34.9%	483	100.0%
25,000 to 49,999	726	65.8%	377	34.2%	1,103	100.0%
10,000 to 24,999	2,267	76.6%	693	23.4%	2,960	100.0%
5,000 to 9,999	3,114	84.1%	589	15.9%	3,703	100.0%
2,500 to 4,999	4,440	93.0%	333	7.0%	4,773	100.0%
Under 2,500	11,986	92.7%	947	7.3%	12,933	100.0%
Total	23,126	87.9%	3,196	12.1%	26,322	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above projections are based on 4,855 departments reporting on Question 16a. Numbers may not add to totals due to rounding.

Q. 16a: Is [Wildland-Urban Interface (WUI)/wildland (brush, grass, forest) firefighting] a role your fire department performs?

Table 1-27
For Departments That Provide WUI/Wildland Firefighting
What Percentage of Personnel Who Perform This Duty Have Received Formal Training?
Percent of Departments by Community Size
(Q. 16b)

	All (100%)		Most (76-99%)		Many (51-75%)		Some (26-50%)		Few (1-25%)		None (0%)		Total	
Population of Community	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent
500,000 or more	29	77.4%	2	6.5%	0	0.0%	0	0.0%	5	12.9%	1	3.2%	38	100.0%
250,000 to 499,999	29	60.6%	9	18.2%	0	0.0%	4	9.1%	6	12.1%	0	0.0%	48	100.0%
100,000 to 249,999	119	61.9%	18	9.5%	5	2.4%	11	5.6%	37	19.1%	3	1.6%	192	100.0%
50,000 to 99,999	192	60.9%	33	10.4%	10	3.1%	16	5.2%	49	15.6%	15	4.7%	314	100.0%
25,000 to 49,999	379	52.2%	127	17.5%	46	6.4%	44	6.1%	95	13.1%	35	4.8%	726	100.0%
10,000 to 24,999	884	39.0%	516	22.8%	229	10.1%	245	10.8%	297	13.1%	97	4.3%	2,267	100.0%
5,000 to 9,999	984	31.6%	946	30.4%	399	12.8%	371	11.9%	281	9.0%	133	4.3%	3,114	100.0%
2,500 to 4,999	1,233	27.8%	1,239	27.9%	642	14.5%	679	15.3%	541	12.2%	107	2.4%	4,440	100.0%
Under 2,500	2,786	23.2%	2,861	23.9%	1,968	16.4%	1,959	16.3%	1,872	15.6%	542	4.5%	11,986	100.0%
Total	6,634	28.7%	5,751	24.9%	3,299	14.3%	3,329	14.4%	3,182	13.8%	932	4.0%	23,126	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above projections are based on 4,855 departments on Question 16a and also reporting on Question 16b. Numbers may not add to totals due to rounding.

Q. 16b: [If WUI/Wildland firefighting is a role your department performs], what percentage of the personnel who perform this duty have received formal training (for example in a classroom or online) at the local, regional or state level (not just on-the-job)?

Reference for definition of Need: NFPA 1051 and 1143

Table 1-28
For Departments That Provide WUI/Wildland Firefighting
Training Includes Specialized Wildland-Urban Interface Firefighting Operations Training?
by Community Size
(Q. 16c)

	Yes		No		Non-Response		Total	
Population of Community	**Number of Depts**	**Percent**	**Number of Depts**	**Percent**	**Number of Depts**	**Percent**	**Number of Depts**	**Percent**
500,000 or more	15	38.7%	11	29.0%	12	32.3%	38	100.0%
250,000 to 499,999	24	50.0%	17	35.3%	7	14.7%	48	100.0%
100,000 to 249,999	79	41.3%	58	30.2%	55	28.6%	192	100.0%
50,000 to 99,999	160	51.0%	84	26.6%	70	22.4%	314	100.0%
25,000 to 49,999	311	42.8%	217	29.9%	199	27.4%	726	100.0%
10,000 to 24,999	1,029	45.4%	796	35.1%	442	19.5%	2,267	100.0%
5,000 to 9,999	1,301	41.8%	1,068	34.3%	745	23.9%	3,114	100.0%
2,500 to 4,999	2,066	46.5%	1,099	24.8%	1,275	28.7%	4,440	100.0%
Under 2,500	4,942	41.2%	3,465	28.9%	3,579	29.9%	11,986	100.0%
Total	9,927	42.9%	6,815	29.5%	6,384	27.6%	23,126	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above projections are based on 4,855 departments reporting on Question 16a Numbers may not add to totals due to rounding.

Q. 16a: Is [WUI/Wildland (brush, grass, forest) firefighting] a role your department performs?

Q. 16c: [If yes to Q. 16a], does training include specialized Wildland-Urban Interface firefighting operations training?

Table 1-29
For Departments That Provide WUI/Wildland Firefighting
Percent of Emergency Responders Equipped with Wildland Fire Personal Protective Clothing
by Community Size
(Q. 16d)

	All (100%)		Most (76-99%)		Many (51-75%)		Some (26-50%)		Few (1-25%)		None (0%)		Total	
Population of Community	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent
500,000 or more	26	67.7%	1	3.2%	0	0.0%	0	0.0%	6	16.1%	5	12.9%	38	100.0%
250,000 to 499,999	28	57.6%	1	3.0%	0	0.0%	3	6.1%	6	12.1%	10	21.2%	48	100.0%
100,000 to 249,999	95	49.2%	11	5.6%	3	1.6%	5	2.4%	38	19.8%	41	21.4%	192	100.0%
50,000 to 99,999	138	44.0%	23	7.3%	3	1.1%	15	4.7%	31	10.0%	104	33.0%	314	100.0%
25,000 to 49,999	280	38.5%	37	5.1%	21	2.9%	37	5.1%	83	11.5%	268	36.9%	726	100.0%
10,000 to 24,999	630	27.8%	247	10.9%	127	5.6%	146	6.5%	266	11.8%	851	37.5%	2,267	100.0%
5,000 to 9,999	897	28.8%	482	15.5%	262	8.4%	243	7.8%	301	9.7%	930	29.9%	3,114	100.0%
2,500 to 4,999	1,248	28.1%	665	15.0%	380	8.6%	456	10.3%	545	12.3%	1,146	25.8%	4,440	100.0%
Under 2,500	4,126	34.4%	1,924	16.1%	967	8.1%	986	8.2%	1,321	11.0%	2,661	22.2%	11,986	100.0%
Total	7,466	32.3%	3,391	14.7%	1,763	7.6%	1,891	8.2%	2,597	11.2%	6,016	26.0%	23,126	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above projections are based on 4,855 departments on Question 16a and also reporting on Question 16d. Numbers may not add to totals due to rounding.

Q. 16d: How many of your emergency responders are equipped with wildland fire personal protective clothing?
Reference for definition of need: NFPA 1051 and 1143

Table 1-30
Does Department Provide Technical Rescue Service?
by Community Size
(Q. 17a)

Population of Community	Yes		No		Total	
	Number of Depts	Percent	Number of Depts	Percent	Number of Depts	Percent
500,000 or more	55	97.8%	1	2.2%	56	100.0%
250,000 to 499,999	60	97.7%	1	2.3%	61	100.0%
100,000 to 249,999	238	95.1%	12	4.9%	250	100.0%
50,000 to 99,999	421	87.1%	62	12.9%	483	100.0%
25,000 to 49,999	892	80.9%	211	19.1%	1,103	100.0%
10,000 to 24,999	2,034	68.7%	926	31.3%	2,960	100.0%
5,000 to 9,999	2,037	55.0%	1,666	45.0%	3,703	100.0%
2,500 to 4,999	2,173	45.5%	2,600	54.5%	4,773	100.0%
Under 2,500	4,973	38.5%	7,960	61.5%	12,933	100.0%
Total	12,882	48.9%	13,440	51.1%	26,322	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above projections are based on 4,843 departments reporting on Question 17a. Numbers may not add to totals due to rounding.

Q. 17a: Is [technical rescue] a role your department performs?

Table 1-31
For Departments That Provide Technical Rescue Service
What Percentage of Personnel Who Perform This Duty Have Received Formal Training?
Percent Departments by Community Size
(Q. 17b)

	All (100%)		Most (76-99%)		Many (51-75%)		Some (26-50%)		Few (1-25%)		None (0%)		Total	
Population of Community	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent
500,000 or more	43	77.8%	6	11.1%	0	0.0%	0	0.0%	4	6.7%	0	0.0%	55	95.6%
250,000 to 499,999	43	72.5%	6	10.0%	1	2.2%	1	2.5%	7	12.5%	0	0.0%	60	99.7%
100,000 to 249,999	107	45.2%	17	7.1%	23	9.7%	38	16.1%	52	21.9%	0	0.0%	238	100.0%
50,000 to 99,999	182	43.4%	58	13.7%	46	10.9%	77	18.4%	56	13.3%	2	0.4%	421	100.0%
25,000 to 49,999	306	34.3%	170	19.1%	103	11.6%	154	17.3%	156	17.5%	2	0.3%	892	100.0%
10,000 to 24,999	426	20.9%	380	18.7%	339	16.6%	461	22.7%	413	20.3%	16	0.8%	2,034	100.0%
5,000 to 9,999	316	15.5%	355	17.4%	412	20.2%	470	23.1%	474	23.3%	10	0.5%	2,037	100.0%
2,500 to 4,999	290	13.3%	365	16.8%	416	19.1%	548	25.2%	529	24.4%	25	1.2%	2,173	100.0%
Under 2,500	554	11.2%	564	11.4%	851	17.1%	1,100	22.1%	1,702	34.2%	201	4.0%	4,973	100.0%
Total	2,268	17.6%	1,921	14.9%	2,192	17.0%	2,850	22.1%	3,394	26.3%	256	2.0%	12,882	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service
The above projections are based on 4,843 departments on Question 17a and also reporting on Question 17b. Numbers may not add to totals due to rounding.

Q. 17b: [If technical rescue is a role your department performs], what percentage of the personnel who perform this duty have received formal training (for example in a classroom or online) at the local, regional or state level (not just on-the-job training)?
Reference for definition of Need: NFPA 1500, 1670 and 1006

Table 1-32: Available Rescue Resources within a Department/Jurisdiction by Community Size (Q.17 Part II)

	Urban Search and Rescue Task Force		Structural Collapse Rescue		Structural Collapse Search Team		None of These Available		
Population of Community	Number of Depts	Percent	Number of Depts	Percent	Number of Depts	Percent	Number of Depts	Percent	Number of Depts
500,000 or more	42	76.3%	46	84.2%	43	78.9%	4	7.9%	55
250,000 to 499,999	37	61.8%	40	67.6%	37	61.8%	14	23.5%	60
100,000 to 249,000	124	52.2%	151	63.5%	136	57.4%	66	27.8%	238
50,000 to 99,999	191	45.4%	232	55.1%	212	50.3%	152	36.2%	421
25,000 to 49,999	308	34.6%	384	43.1%	337	37.8%	446	50.0%	892
10,000 to 24,999	417	20.5%	603	29.6%	518	25.5%	1,364	67.0%	2,034
5,000 to 9,999	497	24.4%	370	18.2%	341	16.7%	1,433	70.3%	2,037
2,500 to 4,999	298	13.7%	261	12.0%	211	9.7%	1,788	82.3%	2,173
Under 2,500	689	13.9%	492	9.9%	492	9.9%	4,136	83.2%	4,973
Total	2603	20.2%	2,580	20.0%	2,328	18.1%	9,403	73.0%	

Source: NFPA 2015 Survey of the Needs of the US Fire Service

The above projections are based on 1,565 departments on Question 17 part II that was only made available to online respondents. Numbers may not add to totals due to rounding. Total percent will not equal 100 because the respondents could select more than one option.

Q.17 part II: For each of the following rescue resources, please indicate if they are available within your department/jurisdiction? Urban Search and Rescue Task Force, Structural Collapse Rescue Team, Structural Collapse Search Team.

Table 1-33: Departments with Available Urban Search and Rescue Type 1 Task Force: 70 Person by Community Size (Q. 17 Part III)

	Yes-Host (own resources)		Yes - Support (multi-disciplined)		No - Don't have such rescue resources		Total	
Population of Community	Number of Depts	Percent	Number of Depts	Percent	Number of Depts	Percent	Number of Depts	Percent
500,000 or more	20	48.3%	13	31.0%	9	20.7%	42	100%
250,000 to 499,999	14	38.1%	16	42.9%	7	19.0%	37	100%
100,000 to 249,000	8	6.7%	52	41.7%	64	51.7%	124	100%
50,000 to 99,999	7	3.6%	75	39.3%	109	57.1%	191	100%
25,000 to 49,999	4	1.2%	138	44.7%	167	54.1%	308	100%
10,000 to 24,999	11	2.7%	158	37.8%	248	59.5%	417	100%
5,000 to 9,999	-	0.0%	88	17.6%	409	82.4%	497	100%
2,500 to 4,999	12	4.2%	50	16.7%	236	79.2%	298	100%
Under 2,500	-	0.0%	98	14.3%	591	85.7%	689	100%
Total	77	2.9%	687	26.4%	1,840	70.7%	2,603	100%

Source: NFPA 2015 Survey of the Needs of the US Fire Service

The above projections are based on 1,565 departments on Question 17 part II that was only made available to online respondents. Numbers may not add to totals due to rounding.

Q17 part III: For each of the following rescue resources, please indicate if they are available within your department/jurisdiction?
Urban Search and Rescue Task Force, Type 1 Task Force: 70-person; Yes – Host (own resources); Yes- Support (multi-discipline owned); No- Don't have such resources.

Table 1-34: Departments with Available Urban Search and Rescue Type 2 Task Force: 70 Person by Community Size (Q. 17 Part III)

	Yes-Host (own resources)		Yes – Support (multi-disciplined)		No - Don't have such rescue resources		Total	
Population of Community	Number of Depts	Percent	Number of Depts	Percent	Number of Depts	Percent	Number of Depts	Percent
500,000 or more	19	44.8%	12	27.6%	12	27.6%	42	100.0%
250,000 to 499,999	12	33.3%	11	28.6%	14	38.1%	37	100.0%
100,000 to 249,000	8	6.7%	50	40.0%	66	53.3%	124	100.0%
50,000 to 99,999	9	4.8%	75	39.3%	107	56.0%	191	100.0%
25,000 to 49,999	7	2.4%	141	45.9%	160	51.8%	308	100.0%
10,000 to 24,999	11	2.7%	158	37.8%	248	59.5%	417	100.0%
5,000 to 9,999	-	0.0%	88	17.6%	409	82.4%	497	100.0%
2,500 to 4,999	-	0.0%	37	12.5%	261	87.5%	298	100.0%
Under 2,500	-	0.0%	74	10.7%	615	89.3%	689	100.0%
Total	67	2.6%	645	24.8%	1,892	72.7%	2,603	100.0%

Source: NFPA 2015 Survey of the Needs of the US Fire Service

The above projections are based on 1,565 departments on Question 17 part II that was only made available to online respondents. Numbers may not add to totals due to rounding.

Q17 part III: For each of the following rescue resources, please indicate if they are available within your department/jurisdiction?
Urban Search and Rescue Task Force, Type 2 Task Force: 70-person; Yes – Host (own resources); Yes- Support (multi-discipline owned); No- Don't have such resources.

Table 1-35: Departments with Available Urban Search and Rescue Type 3 Task Force: 35 Person by Community Size (Q. 17 Part III)

	Yes-Host (own resources)		Yes - Support (multi-disciplined)		No - Don't have such rescue resources		Total	
Population of Community	Number of Depts	Percent	Number of Depts	Percent	Number of Depts	Percent	Number of Depts	Percent
500,000 or more	20	0.482759	12	0.275862	10	24.1%	42	100.0%
250,000 to 499,999	16	0.428571	11	0.285714	11	28.6%	37	100.0%
100,000 to 249,000	19	0.15	62	0.5	43	35.0%	124	100.0%
50,000 to 99,999	18	0.095238	98	0.511905	75	39.3%	191	100.0%
25,000 to 49,999	11	0.035294	163	0.529412	134	43.5%	308	100.0%
10,000 to 24,999	39	0.094595	169	0.405405	209	50.0%	417	100.0%
5,000 to 9,999	29	0.058824	146	0.294118	322	64.7%	497	100.0%
2,500 to 4,999	-	0	75	0.25	224	75.0%	298	100.0%
Under 2,500	25	0.035714	123	0.178571	542	78.6%	689	100.0%
Total	177	6.8%	858	33.0%	1,569	60.2%	2,603	100.0%

Source: NFPA 2015 Survey of the Needs of the US Fire Service

The above projections are based on 1,565 departments on Question 17 part II that was only made available to online respondents. Numbers may not add to totals due to rounding.

Q17 part III: For each of the following rescue resources, please indicate if they are available within your department/jurisdiction?
Urban Search and Rescue Task Force, Type 3 Task Force: 35-person; Yes – Host (own resources); Yes- Support (multi-discipline owned); No- Don't have such resources.

Table 1-36: Departments with Available Urban Search and Rescue Type 4 Task Force: 22-Person by Community Size (Q. 17 Part III)

	Yes-Host (own resources)		Yes – Support (multi-disciplined)		No - Don't have such rescue resources		Total	
Population of Community	Number of Depts	Percent	Number of Depts	Percent	Number of Depts	Percent	Number of Depts	Percent
500,000 or more	16	0.37931	10	0.241379	16	37.9%	42	100.0%
250,000 to 499,999	18	0.47619	9	0.238095	11	28.6%	37	100.0%
100,000 to 249,000	29	0.233333	54	0.433333	41	33.3%	124	100.0%
50,000 to 99,999	34	0.178571	96	0.5	61	32.1%	191	100.0%
25,000 to 49,999	47	0.152941	134	0.435294	127	41.2%	308	100.0%
10,000 to 24,999	39	0.094595	192	0.459459	186	44.6%	417	100.0%
5,000 to 9,999	68	0.137255	195	0.392157	234	47.1%	497	100.0%
2,500 to 4,999	37	0.125	99	0.333333	161	54.2%	298	100.0%
Under 2,500	271	0.392857	172	0.25	246	35.7%	689	100.0%
Total	559	21.5%	961	36.9%	1,084	41.6%	2,603	100.0%

Source: NFPA 2015 Survey of the Needs of the US Fire Service

The above projections are based on 1,565 departments on Question 17 part II that was only made available to online respondents. Numbers may not add to totals due to rounding.

Q17 part III: For each of the following rescue resources, please indicate if they are available within your department/jurisdiction?
Urban Search and Rescue Task Force, Type 4 Task Force: 22-person; Yes – Host (own resources); Yes- Support (multi-discipline owned); No- Don't have such resources.

Table 1-37: Departments with Available Structural Collapse Rescue Team: Type I (Heavy): 6-Person by Community Size (Q. 17 Part III)

	Yes-Host (own resources)		Yes - Support (multi-disciplined)		No - Don't have such rescue resources		Total	
Population of Community	Number of Depts	Percent	Number of Depts	Percent	Number of Depts	Percent	Number of Depts	Percent
500,000 or more	37	81.3%	3	6.3%	6	12.5%	46	100.0%
250,000 to 499,999	26	65.2%	4	8.7%	11	26.1%	40	100.0%
100,000 to 249,000	56	37.0%	54	35.6%	41	27.4%	151	100.0%
50,000 to 99,999	45	19.6%	109	47.1%	77	33.3%	232	100.0%
25,000 to 49,999	65	17.0%	170	44.3%	149	38.7%	384	100.0%
10,000 to 24,999	62	10.3%	282	46.7%	259	43.0%	603	100.0%
5,000 to 9,999	39	10.5%	146	39.5%	185	50.0%	370	100.0%
2,500 to 4,999	12	4.8%	87	33.3%	161	61.9%	261	100.0%
Under 2,500	74	15.0%	172	35.0%	246	50.0%	492	100.0%
Total	418	16.2%	1,027	39.8%	1,136	44.0%	2,580	100.0%

Source: NFPA 2015 Survey of the Needs of the US Fire Service

The above projections are based on 1,565 departments on Question 17 part II that was only made available to online respondents. Numbers may not add to totals due to rounding.

Q17 part III: For each of the following rescue resources, please indicate if they are available within your department/jurisdiction?
Structural Collapse Rescue Team, Type I (Heavy): 6-person; Yes – Host (own resources); Yes- Support (multi-discipline owned); No- Don’t have such resources.

Table 1-38: Departments with Available Structural Collapse Rescue Team: Type II (Medium): 6-Person by Community Size (Q. 17 Part III)

	Yes-Host (own resources)		Yes – Support (multi-disciplined)		No - Don't have such rescue resources		Total	
Population of Community	Number of Depts	Percent	Number of Depts	Percent	Number of Depts	Percent	Number of Depts	Percent
500,000 or more	32	68.8%	3	6.3%	12	25.0%	46	100.0%
250,000 to 499,999	25	60.9%	2	4.3%	14	34.8%	40	100.0%
100,000 to 249,000	66	43.8%	45	30.1%	39	26.0%	151	100.0%
50,000 to 99,999	71	30.4%	91	39.2%	71	30.4%	232	100.0%
25,000 to 49,999	94	24.5%	185	48.1%	105	27.4%	384	100.0%
10,000 to 24,999	124	20.6%	321	53.3%	158	26.2%	603	100.0%
5,000 to 9,999	29	7.9%	175	47.4%	166	44.7%	370	100.0%
2,500 to 4,999	25	9.5%	75	28.6%	161	61.9%	261	100.0%
Under 2,500	123	25.0%	172	35.0%	197	40.0%	492	100.0%
Total	588	22.8%	1,070	41.5%	922	35.7%	2,580	100.0%

Source: NFPA 2015 Survey of the Needs of the US Fire Service

The above projections are based on 1,565 departments on Question 17 part II that was only made available to online respondents. Numbers may not add to totals due to rounding.

Q17 part III: For each of the following rescue resources, please indicate if they are available within your department/jurisdiction?
Structural Collapse Rescue Team, Type II (Medium): 6-person; Yes – Host (own resources); Yes- Support (multi-discipline owned); No- Don't have such resources.

Table 1-39: Departments with Available Structural Collapse Rescue Team: Type III (Light): 5-Person by Community Size (Q. 17 Part III)

	Yes-Host (own resources)		Yes - Support (multi-disciplined)		No - Don't have such rescue resources		Total	
Population of Community	Number of Depts	Percent	Number of Depts	Percent	Number of Depts	Percent	Number of Depts	Percent
500,000 or more	30	0.65625	3	0.0625	13	28.1%	46	100.0%
250,000 to 499,999	28	0.695652	5	0.130435	7	17.4%	40	100.0%
100,000 to 249,000	77	0.506849	39	0.260274	35	23.3%	151	100.0%
50,000 to 99,999	84	0.362745	86	0.372549	61	26.5%	232	100.0%
25,000 to 49,999	109	0.283019	181	0.471698	94	24.5%	384	100.0%
10,000 to 24,999	203	0.336449	265	0.439252	135	22.4%	603	100.0%
5,000 to 9,999	68	0.184211	127	0.342105	175	47.4%	370	100.0%
2,500 to 4,999	75	0.285714	99	0.380952	87	33.3%	261	100.0%
Under 2,500	222	0.45	148	0.3	123	25.0%	492	100.0%
Total	895	34.7%	954	37.0%	732	28.4%	2,580	100.0%

Source: NFPA 2015 Survey of the Needs of the US Fire Service

The above projections are based on 1,565 departments on Question 17 part II that was only made available to online respondents. Numbers may not add to totals due to rounding.

Q17 part III: For each of the following, please indicate if they are available within your department/jurisdiction?
Structural Collapse Rescue Team, Type III (Light): 5-person; Yes – Host (own resources); Yes- Support (multi-discipline owned); No- Don’t have such resources.

Table 1-40: Departments with Available Structural Collapse Search Team: Type I (Heavy): 5-Person by Community Size (Q. 17 Part III)

	Yes-Host (Own Resources)		Yes – Support (Multi-Disciplined)		No - Don't Have Such Rescue Resources		Total	
Population of Community	Number of Depts	Percent	Number of Depts	Percent	Number of Depts	Percent	Number of Depts	Percent
500,000 or more	36	83.3%	3	6.7%	4	10.0%	43	100.0%
250,000 to 499,999	26	71.4%	4	9.5%	7	19.0%	37	100.0%
100,000 to 249,000	58	42.4%	48	34.8%	31	22.7%	136	100.0%
50,000 to 99,999	41	19.4%	114	53.8%	57	26.9%	212	100.0%
25,000 to 49,999	47	14.0%	156	46.2%	134	39.8%	337	100.0%
10,000 to 24,999	73	14.1%	265	51.1%	180	34.8%	518	100.0%
5,000 to 9,999	29	8.6%	146	42.9%	166	48.6%	341	100.0%
2,500 to 4,999	12	5.9%	87	41.2%	112	52.9%	211	100.0%
Under 2,500	98	20.0%	148	30.0%	246	50.0%	492	100.0%
Total	422	18.1%	969	41.6%	937	40.3%	2,328	100.0%

Source: NFPA 2015 Survey of the Needs of the US Fire Service

The above projections are based on 1,565 departments on Question 17 part II that was only made available to online respondents. Numbers may not add to totals due to rounding.

Q17 part III: For each of the following rescue resources, please indicate if they are available within your department/jurisdiction?
Structural Collapse Search Team, Type I (Heavy): 5-person; Yes – Host (own resources); Yes- Support (multi-discipline owned); No- Don't have such resources.

Table 1-41: Departments with Available Structural Collapse Search Team: Type II (Medium): 3-Person by Community Size (Q. 17 Part III)

	Yes-Host (own resources)		Yes – Support (multi-disciplined)		No - Don't have such rescue resources		Total	
Population of Community	Number of Depts	Percent	Number of Depts	Percent	Number of Depts	Percent	Number of Depts	Percent
500,000 or more	29	66.7%	4	10.0%	10	23.3%	43	100.0%
250,000 to 499,999	25	66.7%	2	4.8%	11	28.6%	37	100.0%
100,000 to 249,000	64	47.0%	43	31.8%	29	21.2%	136	100.0%
50,000 to 99,999	71	33.3%	89	41.9%	52	24.7%	212	100.0%
25,000 to 49,999	65	19.4%	167	49.5%	105	31.2%	337	100.0%
10,000 to 24,999	124	23.9%	265	51.1%	130	25.0%	518	100.0%
5,000 to 9,999	49	14.3%	136	40.0%	156	45.7%	341	100.0%
2,500 to 4,999	50	23.5%	50	23.5%	112	52.9%	211	100.0%
Under 2,500	148	30.0%	172	35.0%	172	35.0%	492	100.0%
Total	623	26.8%	928	39.9%	777	33.4%	2,328	100.0%

Source: NFPA 2015 Survey of the Needs of the US Fire Service

The above projections are based on 1,565 departments on Question 17 part II that was only made available to online respondents. Numbers may not add to totals due to rounding.

Q17 part III: For each of the following rescue resources, please indicate if they are available within your department/jurisdiction?
Structural Collapse Search Team, Type II (Medium): 3-person; Yes – Host (own resources); Yes- Support (multi-discipline owned); No- Don't have such resources.

Table 1-42: Departments with Available Structural Collapse Search Team: Type III (Light): 2-Person by Community Size (Q. 17 Part III)

	Yes-Host (own resources)		Yes – Support (multi-disciplined)		No - Don't have such rescue resources		Total	
Population of Community	Number of Depts	Percent	Number of Depts	Percent	Number of Depts	Percent	Number of Depts	Percent
500,000 or more	27	0.633333	3	0.066667	13	30.0%	43	100.0%
250,000 to 499,999	25	0.666667	5	0.142857	7	19.0%	37	100.0%
100,000 to 249,000	66	0.484848	41	0.30303	29	21.2%	136	100.0%
50,000 to 99,999	77	0.365591	77	0.365591	57	26.9%	212	100.0%
25,000 to 49,999	87	0.258065	152	0.451613	98	29.0%	337	100.0%
10,000 to 24,999	169	0.326087	231	0.445652	118	22.8%	518	100.0%
5,000 to 9,999	78	0.228571	117	0.342857	146	42.9%	341	100.0%
2,500 to 4,999	37	0.176471	75	0.352941	99	47.1%	211	100.0%
Under 2,500	246	0.5	123	0.25	123	25.0%	492	100.0%
Total	813	34.9%	825	35.4%	691	29.7%	2,328	100.0%

Source: NFPA 2015 Survey of the Needs of the US Fire Service

The above projections are based on 1,565 departments on Question 17 part II that was only made available to online respondents. Numbers may not add to totals due to rounding.

Q17 part III: For each of the following rescue resources, please indicate if they are available within your department/jurisdiction?
Structural Collapse Search Team, Type III (Light): 2-person; Yes – Host (own resources); Yes- Support (multi-discipline owned); No- Don't have such resources.

Table 1-43
Does Department Provide Fire Prevention (Preparedness & Mitigation)?
by Community Size
(Q. 18a)

	Yes		No		Total	
Population of Community	**Number of Depts**	**Percent**	**Number of Depts**	**Percent**	**Number of Depts**	**Percent**
500,000 or more	55	97.8%	1	2.2%	56	100.0%
250,000 to 499,999	60	97.7%	1	2.3%	61	100.0%
100,000 to 249,999	247	98.8%	3	1.2%	250	100.0%
50,000 to 99,999	476	98.6%	7	1.4%	483	100.0%
25,000 to 49,999	1,087	98.6%	16	1.4%	1,103	100.0%
10,000 to 24,999	2,818	95.2%	142	4.8%	2,960	100.0%
5,000 to 9,999	3,319	89.6%	384	10.4%	3,703	100.0%
2,500 to 4,999	3,869	81.1%	904	18.9%	4,773	100.0%
Under 2,500	8,467	65.5%	4,466	34.5%	12,933	100.0%
Total	20,398	77.5%	5,924	22.5%	26,322	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above projections are based on 4,859 departments on Question 18a. Numbers may not add to totals due to rounding.

Q18a. Is this a role [fire prevention] your department performs? Y/N

Table 1-44
For Departments That Provide Fire Prevention (Preparedness & Mitigation), What Percent of Personnel Who Perform This Duty Have Received Formal Training? Percent of Departments by Community Size (Q. 18b)

	All (100%)		Most (76-99%)		Many (51-75%)		Some (26-50%)		Few (1-25%)		None (0%)		Total	
Population of Community	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent
500,000 or more	39	71.1%	7	13.3%	1	2.2%	4	6.7%	4	6.7%	0	0.0%	55	100.0%
250,000 to 499,999	41	68.3%	1	2.4%	3	4.9%	1	2.4%	13	22.0%	0	0.0%	60	100.0%
100,000 to 249,000	147	59.5%	14	5.5%	9	3.7%	9	3.7%	67	27.0%	2	0.6%	247	100.0%
50,000 to 99,999	242	50.9%	56	11.8%	25	5.2%	51	10.7%	97	20.4%	5	1.0%	476	100.0%
25,000 to 49,999	367	33.8%	102	9.3%	95	8.7%	162	14.9%	351	32.3%	12	1.1%	1,087	100.0%
10,000 to 24,999	573	20.3%	404	14.4%	256	9.1%	576	20.4%	922	32.7%	87	3.1%	2,818	100.0%
5,000 to 9,999	353	10.7%	330	9.9%	325	9.8%	668	20.1%	1,404	42.3%	239	7.2%	3,319	100.0%
2,500 to 4,999	316	8.2%	259	6.7%	392	10.1%	759	19.6%	1,783	46.1%	360	9.3%	3,869	100.0%
Under 2,500	476	5.6%	561	6.6%	752	8.9%	1,703	20.1%	3,996	47.2%	980	11.6%	8,467	100.0%
Total	2,554	12.5%	1,735	8.5%	1,857	9.1%	3,933	19.3%	8,636	42.3%	1,684	8.3%	20,398	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above projections are based on 4,859 departments on Question 18a and also reporting on Question 18b. Numbers may not add to totals due to rounding.

Q. 18b: [If fire prevention is a role your department performs], what percentage of the personnel who perform this duty have received formal training (for example in a classroom or online) at the local, regional or state level (not just on-the-job training)?

Reference for definition of need: NFPA 1500, 1670 and 1006

Table 1-45
Does Department Provide Code Enforcement?
by Community Size
(Q. 19a)

	Yes		No		Total	
Population of Community	**Number of Depts**	**Percent**	**Number of Depts**	**Percent**	**Number of Depts**	**Percent**
500,000 or more	49	87.0%	7	13.0%	56	100.0%
250,000 to 499,999	50	81.4%	11	18.6%	61	100.0%
100,000 to 249,999	204	81.7%	46	18.3%	250	100.0%
50,000 to 99,999	408	84.4%	75	15.6%	483	100.0%
25,000 to 49,999	913	82.8%	190	17.2%	1,103	100.0%
10,000 to 24,999	2,052	69.3%	908	30.7%	2,960	100.0%
5,000 to 9,999	1,679	45.3%	2,024	54.7%	3,703	100.0%
2,500 to 4,999	1,393	29.2%	3,380	70.8%	4,773	100.0%
Under 2,500	2,457	19.0%	10,476	81.0%	12,933	100.0%
Total	9,204	35.0%	17,118	65.0%	26,322	100.0%

Source: NFPA 2015 Survey of the Needs of the US Fire Service

The above projections are based on 4,868 departments on Question 19a. Numbers may not add to totals due to rounding.

Q. 19A: Is this a role your department performs?

Table 1-46
For Departments That Provide Code Enforcement
What Percent of Personnel Who Perform This Duty Have Received Formal Training?
Percent of Departments by Community Size
(Q. 19b)

	All (100%)		Most (76-99%)		Many (51-75%)		Some (26-50%)		Few (1-25%)		None (0%)		Total	
Population of Community	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent
500,000 or more	35	72.5%	5	10.0%	2	5.0%	2	5.0%	4	7.5%	0	0.0%	49	100.0%
250,000 to 499,999	34	68.6%	1	2.9%	7	14.3%	1	2.9%	3	5.7%	3	5.7%	50	100.0%
100,000 to 249,999	122	59.7%	8	3.7%	6	3.0%	6	3.0%	63	30.6%	0	0.0%	204	100.0%
50,000 to 99,999	224	54.9%	30	7.4%	18	4.5%	30	7.4%	104	25.4%	2	0.4%	408	100.0%
25,000 to 49,999	358	39.2%	71	7.8%	21	2.3%	90	9.8%	374	41.0%	0	0.0%	913	100.0%
10,000 to 24,999	679	33.1%	185	9.0%	91	4.4%	221	10.8%	870	42.4%	7	0.3%	2052	100.0%
5,000 to 9,999	420	25.0%	86	5.1%	33	2.0%	172	10.2%	940	56.0%	29	1.7%	1679	100.0%
2,500 to 4,999	261	18.7%	89	6.4%	45	3.2%	70	5.0%	891	63.9%	38	2.7%	1393	100.0%
Under 2,500	345	14.1%	125	5.1%	96	3.9%	317	12.9%	1,488	60.6%	86	3.5%	2457	100.0%
Total	2,478	26.9%	600	6.5%	320	3.5%	909	9.9%	4,735	51.4%	164	1.8%	9204	100.0%

Source: NFPA 2015 Survey of the Needs of the US Fire Service

The above projections are based on 4,868 departments on Question 19a and also reporting on Question 19b. Numbers may not add to totals due to rounding.

Q. 19b: [If code enforcement is a role your department performs], what percentage of the personnel who perform this duty have received formal training (for example in a classroom or online) at the local, regional or state level (not just on-the-job training)?

Table 1-47
Does Department Provide Traffic Control?
by Community Size
(Q. 21a)

	Yes		No		Total	
Population of Community	**Number of Depts**	**Percent**	**Number of Depts**	**Percent**	**Number of Depts**	**Percent**
500,000 or more	16	28.3%	40	71.7%	56	100.0%
250,000 to 499,999	17	27.9%	44	72.1%	61	100.0%
100,000 to 249,999	73	29.3%	177	70.7%	250	100.0%
50,000 to 99,999	181	37.4%	302	62.6%	483	100.0%
25,000 to 49,999	502	45.5%	601	54.5%	1,103	100.0%
10,000 to 24,999	1,861	62.9%	1,099	37.1%	2,960	100.0%
5,000 to 9,999	2,911	78.6%	792	21.4%	3,703	100.0%
2,500 to 4,999	4,197	87.9%	576	12.1%	4,773	100.0%
Under 2,500	11,474	88.7%	1,459	11.3%	12,933	100.0%
Total	21,232	80.7%	5,090	19.3%	26,322	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above projections are based on 4,866 departments on Question 21a. Numbers may not add to totals due to rounding.

Q. 21a: Is this a role your department performs?

Table 1-48
For Departments That Provide Traffic Control
What Percent of Personnel Who Perform This Duty Have Received Formal Training?
Percent of Departments by Community Size
(Q. 21b)

	All (100%)		Most (76-99%)		Many (51-75%)		Some (26-50%)		Few (1-25%)		None (0%)		Total	
Population of Community	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent
500,000 or more	9	53.9%	1	7.7%	0	0.0%	1	7.7%	1	7.7%	4	23.1%	16	100.0%
250,000 to 499,999	9	50.0%	3	16.7%	1	8.3%	1	8.3%	3	16.7%	0	0.0%	17	100.0%
100,000 to 249,999	30	41.7%	5	6.3%	8	10.4%	5	6.3%	18	25.0%	8	10.4%	73	100.0%
50,000 to 99,999	76	42.1%	39	21.5%	12	6.5%	15	8.4%	27	15.0%	12	6.5%	181	100.0%
25,000 to 49,999	178	35.5%	93	18.4%	42	8.3%	49	9.7%	106	21.2%	35	6.9%	502	100.0%
10,000 to 24,999	488	26.2%	377	20.3%	224	12.1%	290	15.6%	351	18.9%	130	7.0%	1,861	100.0%
5,000 to 9,999	645	22.2%	645	22.2%	346	11.9%	450	15.5%	597	20.5%	228	7.8%	2,911	100.0%
2,500 to 4,999	912	21.7%	925	22.0%	644	15.4%	517	12.3%	848	20.2%	351	8.4%	4,197	100.0%
Under 2,500	1,655	14.4%	1,827	15.9%	1,501	13.1%	1,750	15.3%	3,098	27.0%	1,644	14.3%	11,474	100.0%
Total	4,001	18.8%	3,914	18.4%	2,777	13.1%	3,076	14.5%	5,051	23.8%	2,411	11.4%	21,232	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service
The above projections are based on 4,866 departments on Question 21a and also reporting on Question 21b. Numbers may not add to totals due to rounding.
Q. 21b: [If traffic control is a role your department performs], what percentage of the personnel who perform this duty have received formal training (for example in a classroom or online) at the local, regional or state level (not just on-the-job training)?

Table 1-49
Does Department Provide Active Shooter Response?
by Community Size
(Q. 20a)

	Yes		No		Total	
Population of Community	**Number of Depts**	**Percent**	**Number of Depts**	**Percent**	**Number of Depts**	**Percent**
500,000 or more	46	82.6%	10	17.4%	56	100.0%
250,000 to 499,999	50	81.4%	11	18.6%	61	100.0%
100,000 to 249,999	188	75.0%	63	25.0%	250	100.0%
50,000 to 99,999	366	75.8%	117	24.2%	483	100.0%
25,000 to 49,999	682	61.8%	421	38.2%	1,103	100.0%
10,000 to 24,999	1,629	55.0%	1,331	45.0%	2,960	100.0%
5,000 to 9,999	1,653	44.6%	2,050	55.4%	3,703	100.0%
2,500 to 4,999	1,597	33.5%	3,176	66.5%	4,773	100.0%
Under 2,500	2,989	23.1%	9,944	76.9%	12,933	100.0%
Total	9,199	34.9%	17,123	65.1%	26,322	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above projections are based on 4,853 departments on Question 20a. Numbers may not add to totals due to rounding.

Q. 20a: Is this a role your department performs?

Table 1-50
Does Department Have Active Shooter Response Standard Operating Procedures or Guidelines? by Community Size
(Q. 20b)

	Yes		No		Total	
Population of Community	**Number of Depts**	**Percent**	**Number of Depts**	**Percent**	**Number of Depts**	**Percent**
500,000 or more	37	78.9%	10	21.1%	46	100.0%
250,000 to 499,999	44	88.2%	6	11.8%	50	100.0%
100,000 to 249,999	140	74.8%	47	25.2%	188	100.0%
50,000 to 99,999	228	62.3%	138	37.7%	366	100.0%
25,000 to 49,999	414	60.8%	268	39.2%	682	100.0%
10,000 to 24,999	956	58.7%	673	41.3%	1,629	100.0%
5,000 to 9,999	925	55.9%	728	44.1%	1,653	100.0%
2,500 to 4,999	830	52.0%	767	48.0%	1,597	100.0%
Under 2,500	1,671	55.9%	1,318	44.1%	2,989	100.0%
Total	5,244	57.0%	3,955	43.0%	9,199	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above projections are based on 4,853 departments on Question 20a and also reporting on Question 20b. Numbers may not add to totals due to rounding.

Q. 20b: Does your department have SOP's/SOG's in place addressing proper response and action taken at an active shooter event? Y/N

Table 1-51
Has Department's Personnel Received Multi-Agency Training and Been Tested on the Training and Special Equipment Required? by Community Size
(Q. 20c)

	Yes		No		Total	
Population of Community	**Number of Depts**	**Percent**	**Number of Depts**	**Percent**	**Number of Depts**	**Percent**
500,000 or more	34	73.7%	12	26.3%	46	100.0%
250,000 to 499,999	40	80.0%	10	20.0%	50	100.0%
100,000 to 249,999	144	77.0%	43	23.0%	188	100.0%
50,000 to 99,999	236	64.5%	130	35.5%	366	100.0%
25,000 to 49,999	402	59.0%	279	41.0%	682	100.0%
10,000 to 24,999	916	56.2%	713	43.8%	1,629	100.0%
5,000 to 9,999	870	52.6%	783	47.4%	1,653	100.0%
2,500 to 4,999	789	49.4%	808	50.6%	1,597	100.0%
Under 2,500	1,408	47.1%	1,581	52.9%	2,989	100.0%
Total	4,840	52.6%	4,359	47.4%	9,199	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above projections are based on 4,853 departments on Question 20a and also reporting on Question 20c. Numbers may not add to totals due to rounding.

Q. 20c: Have your department's personnel received multi-agency training (police, fire, EMS, Sheriffs, etc.) and been tested on the training and special equipment required? Y/N

Table 1-52
Does Department Have a Program
to Maintain Basic Firefighter Fitness and Health?
by Community Size
(Q. 22a)

	Yes		No		Total	
Population of Community	**Number of Depts**	**Percent**	**Number of Depts**	**Percent**	**Number of Depts**	**Percent**
500,000 or more	50	89.1%	6	10.9%	56	100.0%
250,000 to 499,999	54	88.4%	7	11.6%	61	100.0%
100,000 to 249,999	203	81.1%	47	18.9%	250	100.0%
50,000 to 99,999	342	70.7%	141	29.3%	483	100.0%
25,000 to 49,999	724	65.6%	379	34.4%	1,103	100.0%
10,000 to 24,999	1,511	51.0%	1,449	49.0%	2,960	100.0%
5,000 to 9,999	1,204	32.5%	2,499	67.5%	3,703	100.0%
2,500 to 4,999	1,039	21.8%	3,734	78.2%	4,773	100.0%
Under 2,500	1,975	15.3%	10,958	84.7%	12,933	100.0%
Total	7,102	27.0%	19,220	73.0%	26,322	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above projections are based on 4,871 departments on Question 22a. Numbers may not add to totals due to rounding.

Q. 22a: Does your department have a program to maintain basic firefighter fitness and health?

Reference for definition of need: NFPA 1500 and 1583

Table 1-53
Is the Program Associated with the IAFC/IAFF Wellness-Fitness Initiative (WFI)?
by Community Size
(Q. 22b)

	Yes		No		Total	
Population of Community	**Number of Depts**	**Percent**	**Number of Depts**	**Percent**	**Number of Depts**	**Percent**
500,000 or more	40	80.5%	10	19.5%	50	100.0%
250,000 to 499,999	36	67.6%	17	32.4%	54	100.0%
100,000 to 249,999	120	59.2%	83	40.8%	203	100.0%
50,000 to 99,999	190	55.6%	152	44.4%	342	100.0%
25,000 to 49,999	326	45.0%	398	55.0%	724	100.0%
10,000 to 24,999	485	32.1%	1,026	67.9%	1,511	100.0%
5,000 to 9,999	271	22.5%	934	77.5%	1,204	100.0%
2,500 to 4,999	168	16.1%	871	83.9%	1,039	100.0%
Under 2,500	496	25.1%	1,479	74.9%	1,975	100.0%
Total	2,132	30.0%	4,970	70.0%	7,102	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above projections are based on 4,871 departments on Question 22a and reporting on Question 22b. Numbers may not add to totals due to rounding.

Q. 22b: Is the program associated with the IAFC/IAFF Wellness-Fitness Initiative (WFI)? Y/N

Reference for definition of need: NFPA 1500 and 1583

Table 1-54
Does This Program Include a Firefighter Physical Examination for All Firefighters?
by Community Size
(Q. 22c)

	Yes		No		Total	
Population of Community	**Number of Depts**	**Percent**	**Number of Depts**	**Percent**	**Number of Depts**	**Percent**
500,000 or more	47	95.1%	2	4.9%	50	100.0%
250,000 to 499,999	45	83.8%	9	16.2%	54	100.0%
100,000 to 249,999	175	86.4%	28	13.6%	203	100.0%
50,000 to 99,999	307	89.9%	35	10.1%	342	100.0%
25,000 to 49,999	632	87.3%	92	12.7%	724	100.0%
10,000 to 24,999	1,283	84.9%	227	15.1%	1,511	100.0%
5,000 to 9,999	975	81.0%	229	19.0%	1,204	100.0%
2,500 to 4,999	734	70.7%	305	29.3%	1,039	100.0%
Under 2,500	1,372	69.5%	603	30.5%	1,975	100.0%
Total	5,572	78.5%	1,530	21.5%	7,102	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above projections are based on 4,871 departments on Question 22a and reporting on Question 22c. Numbers may not add to totals due to rounding.

Q. 22c: Does this program include a firefighter physical examination for all firefighters? Y/N

Reference for definition of need: NFPA 1500 and 1583

Table 1-55
How Often Does Your Department Complete Firefighter Physical Examination for All Firefighters?
by Community Size
(Q. 22d)

	New Firefighters Only		Every 6 Months or Annually		Every 2 Years		Every 3 Years		Other		Total	
Population of Community	Number of Depts	Percent	Number of Depts	Percent	Number of Depts	Percent	Number of Depts	Percent	Number of Depts	Percent	Number of Depts	Percent
500,000 or more	4	7.7%	37	74.4%	6	12.8%	0	0.0%	3	5.1%	50	100.0%
250,000 to 499,999	3	6.5%	42	77.4%	5	9.7%	0	0.0%	3	6.5%	54	100.0%
100,000 to 249,999	12	6.1%	135	66.7%	32	15.8%	5	2.6%	18	8.8%	203	100.0%
50,000 to 99,999	18	5.4%	242	70.8%	39	11.4%	15	4.3%	28	8.1%	342	100.0%
25,000 to 49,999	53	7.3%	542	74.8%	71	9.9%	21	2.9%	37	5.1%	724	100.0%
10,000 to 24,999	219	14.5%	924	61.2%	207	13.7%	46	3.0%	115	7.6%	1,511	100.0%
5,000 to 9,999	250	20.8%	668	55.4%	185	15.3%	30	2.5%	72	5.9%	1,204	100.0%
2,500 to 4,999	291	28.0%	467	44.9%	159	15.3%	26	2.5%	97	9.3%	1,039	100.0%
Under 2,500	341	17.3%	952	48.2%	412	20.9%	99	5.0%	171	8.6%	1,975	100.0%
Total	1,192	16.8%	4,008	56.4%	1,116	15.7%	243	3.4%	542	7.6%	7,102	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above projections are based on 4,871 departments on Question 22a and reporting on Question 22d. Numbers may not add to totals due to rounding.

Q. 22d: How often? New firefighters only, every 6 months, every 2 years, every 3 years

Reference for definition of need: NFPA 1500 and 1583

Table 1-56
Does This Program Include a Fitness Assessment for All Firefighters?
by Community Size
(Q. 22e)

	Yes		No		Total	
Population of Community	**Number of Depts**	**Percent**	**Number of Depts**	**Percent**	**Number of Depts**	**Percent**
500,000 or more	40	80.5%	10	19.5%	50	100.0%
250,000 to 499,999	43	78.9%	11	21.1%	54	100.0%
100,000 to 249,999	149	73.7%	53	26.3%	203	100.0%
50,000 to 99,999	265	77.4%	77	22.6%	342	100.0%
25,000 to 49,999	485	67.0%	239	33.0%	724	100.0%
10,000 to 24,999	944	62.5%	567	37.5%	1,511	100.0%
5,000 to 9,999	766	63.6%	439	36.4%	1,204	100.0%
2,500 to 4,999	542	52.1%	497	47.9%	1,039	100.0%
Under 2,500	1,119	56.7%	856	43.3%	1,975	100.0%
Total	4,352	61.3%	2,750	38.7%	7,102	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above projections are based on 4,871 departments on Question 22a and reporting on Question 22e. Numbers may not add to totals due to rounding.

Q. 22e: Does this program include a firefighter fitness assessment for all firefighters? Y/N

Reference for definition of need: NFPA 1500 and 1583

Table 1-57
How Often Does Your Department Complete a Fitness Assessment for All Firefighters?
by Community Size
(Q. 22f)

	New Firefighters Only		Every 6 Months or Annually		Every 2 Years		Every 3 Years		Other		Total	
Population of Community	Number of Depts	Percent	Number of Depts	Percent	Number of Depts	Percent	Number of Depts	Percent	Number of Depts	Percent	Number of Depts	Percent
500,000 or more	3	6.1%	41	81.8%	5	9.1%	2	3.0%	0	0.0%	50	100.0%
250,000 to 499,999	4	6.7%	38	70.0%	7	13.3%	0	0.0%	5	10.0%	54	100.0%
100,000 to 249,999	17	8.2%	153	75.5%	19	9.2%	2	1.0%	12	6.1%	203	100.0%
50,000 to 99,999	21	6.2%	282	82.6%	19	5.6%	4	1.2%	15	4.3%	342	100.0%
25,000 to 49,999	84	11.6%	521	72.0%	45	6.3%	10	1.4%	63	8.7%	724	100.0%
10,000 to 24,999	201	13.3%	1,097	72.6%	127	8.4%	27	1.8%	58	3.9%	1,511	100.0%
5,000 to 9,999	220	18.3%	748	62.1%	165	13.7%	31	2.6%	39	3.3%	1,204	100.0%
2,500 to 4,999	198	19.0%	557	53.6%	235	22.6%	12	1.2%	37	3.6%	1,039	100.0%
Under 2,500	210	10.6%	1,206	61.1%	315	15.9%	105	5.3%	140	7.1%	1,975	100.0%
Total	958	13.5%	4,643	65.4%	937	13.2%	194	2.7%	370	5.2%	7,102	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above projections are based on 4,871 departments on Question 22a and reporting on Question 22f. Numbers may not add to totals due to rounding.

Q. 22f: How often? New firefighters only, every 6 months, every 2 years, every 3 years

Reference for definition of need: NFPA 1500 and 1583

Table 1-58
Does Department Have a Program for Behavioral Health?
by Community Size
(Q. 23)

	Yes		No		Total	
Population of Community	**Number of Depts**	**Percent**	**Number of Depts**	**Percent**	**Number of Depts**	**Percent**
500,000 or more	43	76.1%	13	23.9%	56	100.0%
250,000 to 499,999	45	74.4%	16	25.6%	61	100.0%
100,000 to 249,999	167	66.9%	83	33.1%	250	100.0%
50,000 to 99,999	305	63.1%	178	36.9%	483	100.0%
25,000 to 49,999	557	50.5%	546	49.5%	1,103	100.0%
10,000 to 24,999	1,186	40.1%	1,774	59.9%	2,960	100.0%
5,000 to 9,999	874	23.6%	2,829	76.4%	3,703	100.0%
2,500 to 4,999	723	15.2%	4,050	84.8%	4,773	100.0%
Under 2,500	1,328	10.3%	11,605	89.7%	12,933	100.0%
Total	5,228	19.9%	21,094	80.1%	26,322	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above projections are based on 4,789 departments on Question 23. Numbers may not add to totals due to rounding.

Q. 23: Does your department have a Behavioral Health Program?

Reference for definition of need: NFPA 1581

Table 1-59
Does Department Have a Program for Infection Control/PPE Decontamination?
by Community Size
(Q. 24)

	Yes		No		Total	
Population of Community	**Number of Depts**	**Percent**	**Number of Depts**	**Percent**	**Number of Depts**	**Percent**
500,000 or more	55	97.8%	1	2.2%	56	100.0%
250,000 to 499,999	61	100.0%	0	0.0%	61	100.0%
100,000 to 249,999	247	98.8%	3	1.2%	250	100.0%
50,000 to 99,999	467	96.6%	16	3.4%	483	100.0%
25,000 to 49,999	1,006	91.2%	97	8.8%	1,103	100.0%
10,000 to 24,999	2,547	86.0%	413	14.0%	2,960	100.0%
5,000 to 9,999	2,822	76.2%	881	23.8%	3,703	100.0%
2,500 to 4,999	3,142	65.8%	1,631	34.2%	4,773	100.0%
Under 2,500	5,596	43.3%	7,337	56.7%	12,933	100.0%
Total	15,942	60.6%	10,380	39.4%	26,322	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above projections are based on 4,789 departments on Question 24. Numbers may not add to totals due to rounding.

Q. 24: Does your department have an Infection Control/PPE Decontamination Program (infectious and communicable disease hazards)?

Reference for definition of need: NFPA 1581

Table 1-60
Does Department Have a Program for Exposure Control?
by Community Size (Q. 25)

	Yes		No		Total	
Population of Community	**Number of Depts**	**Percent**	**Number of Depts**	**Percent**	**Number of Depts**	**Percent**
500,000 or more	54	95.7%	2	4.3%	56	100.0%
250,000 to 499,999	61	100.0%	0	0.0%	61	100.0%
100,000 to 249,000	241	96.3%	9	3.8%	250	100.0%
50,000 to 99,999	454	94.1%	29	5.9%	483	100.0%
25,000 to 49,999	948	86.0%	155	14.0%	1,103	100.0%
10,000 to 24,999	2,429	82.1%	531	17.9%	2,960	100.0%
5,000 to 9,999	2,678	72.3%	1,025	27.7%	3,703	100.0%
2,500 to 4,999	2,850	59.7%	1,923	40.3%	4,773	100.0%
Under 2,500	4,985	38.5%	7,948	61.5%	12,933	100.0%
Total	14,699	55.8%	11,623	44.2%	26,322	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service
The above projections are based on 4,751 departments on Question 25. Numbers may not add to totals due to rounding.

Q. 25: Does your department have an Exposure Control/PPE Decontamination Program (carcinogen and other toxic hazards)?

Reference for definition of need: NFPA Standard in process

Table 1-61
Does Department Monitor Air Quality at the Fireground?
by Gas Type and Community Size
(Q. 26)

	O2 (Oxygen)		HCN (Cyanide)		CO (Carbon Monoxide)		Volatile Organic Compound (VOC)		None of These		Total
Population of Community	Number of Depts	Percent	Number of Depts	Percent	Number of Depts	Percent	Number of Depts	Percent	Number of Depts	Percent	Number of Depts
500,000 or more	33	58.7%	29	52.2%	43	76.1%	2	4.3%	13	23.9%	56
250,000 to 499,999	40	65.1%	35	58.1%	50	81.4%	4	7.0%	11	18.6%	61
100,000 to 249,999	183	73.3%	158	63.0%	220	87.9%	11	4.2%	29	11.5%	250
50,000 to 99,999	368	76.2%	295	61.1%	411	85.1%	24	5.0%	53	10.9%	483
25,000 to 49,999	811	73.5%	559	50.7%	942	85.4%	49	4.4%	113	10.2%	1,103
10,000 to 24,999	2,043	69.0%	1,259	42.5%	2,273	76.8%	149	5.0%	532	18.0%	2,960
5,000 to 9,999	2,284	61.7%	1,192	32.2%	2,629	71.0%	181	4.9%	870	23.5%	3,703
2,500 to 4,999	2,322	48.6%	1,040	21.8%	2,657	55.7%	235	4.9%	1,734	36.3%	4,773
Under 2,500	4,120	31.9%	1,567	12.1%	5,212	40.3%	379	2.9%	6,497	50.2%	12,933
Total	12,205	46.4%	6,135	23.3%	14,435	54.8%	1,034	3.9%	9,852	37.4%	26,322

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service
The above projections are based on 5,106 departments on Question 26. Numbers may not add to totals due to rounding.

Q. 26: Does your department monitor air quality at the fireground? O2 (Oxygen), HCN (Cyanide), CO (Carbon Monoxide), Volatile Organic Compound (VOC)
Reference for definition of need: NFPA 1581

SECTION 2. FACILITIES AND APPARATUS

Characteristics of Fire Stations Indicating Need

Table 2-1 describes the average number of fire stations per department by size of community. Note that a community may have two or more fire stations, and each fire station may have two or more firefighting companies, each attached to a particular apparatus, such as an engine/pumper.

Table 2-1 also describes the fraction of stations with characteristics that indicate potential needs, specifically age of station over 40 years, or a lack of need, such as the presence of backup power, or exhaust emission control equipment.

Table 2-A converts these figures to total numbers of fire stations with needs of three types, by size of community and overall. The "Total" line is based on summing up the totals for each community size and is used as the basis for the "percent of U.S. total line".

Table 2-A. Number of Fire Stations With Characteristics Indicating Potential Need, by Size of Community Protected (Q.33)

Total Number of Fire Stations With Indicated Characteristics in Communities of This Population Size

Population of Community	Over 40 Years Old	No Backup Power	Not Equipped For Exhaust Emission Control
500,000 or more	1,340	670	640
250,000 to 499,999	480	160	280
100,000 to 249,999	930	330	600
50,000 to 99,999	890	400	750
25,000 to 49,999	1,460	710	1,320
10,000 to 24,999	3,200	2,070	2,840
5,000 to 9,999	2,440	1,630	3,440
2,500 to 4,999	2,860	2,530	5,150
Under 2,500	7,630	8,540	14,100
Total	21,230	17,030	29,120
Percent of U.S. Total	43%	35%	59%

The above projections are based on 5,060 departments reporting on the number of fire stations and the 3,748 fire departments who reported on the 3 subsequent questions within Q33. Numbers are shown to the nearest ten and may not add to totals due to rounding.

Q. 33: Number of fire stations, number over 40 years old, number having backup power, number equipped for exhaust emission control (e.g., diesel exhaust extraction).

Figures 2-1 to 2-3 show how the percentages of departments with these three characteristics have changed across the three surveys.

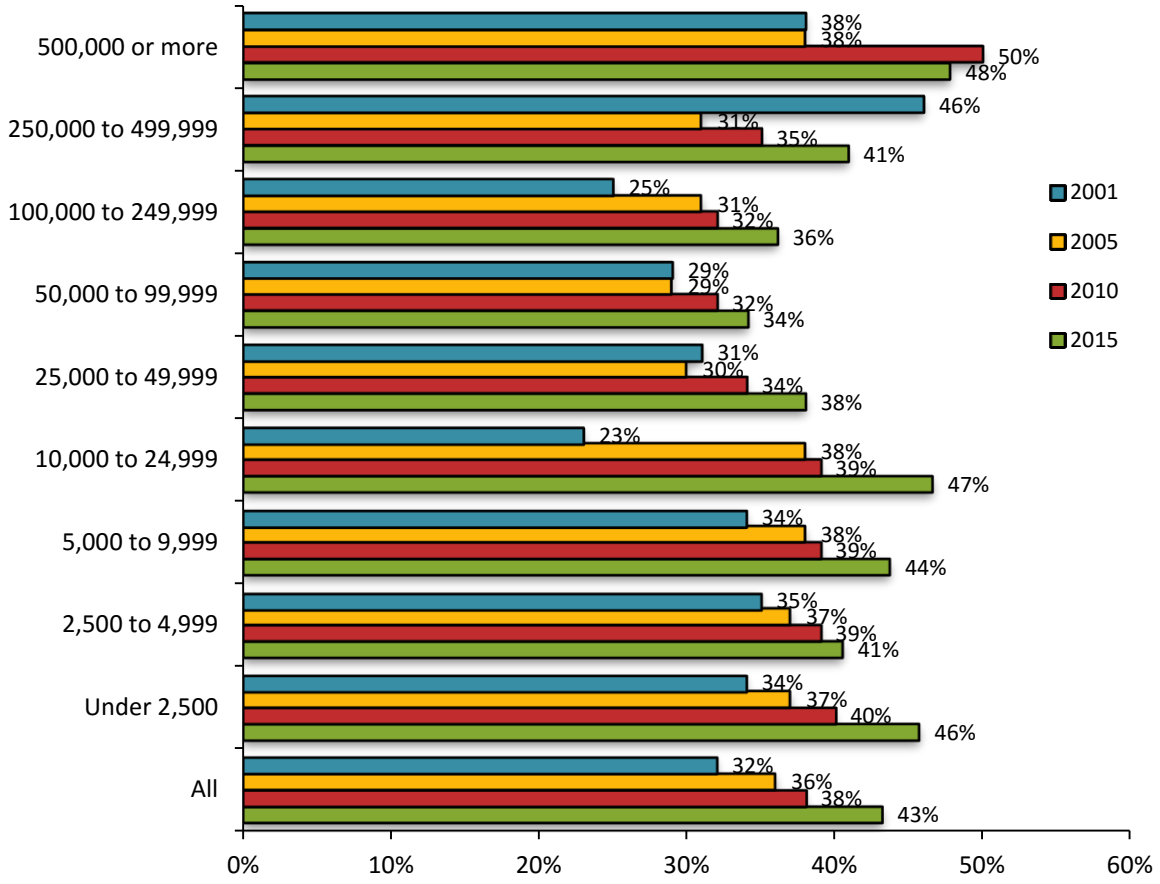
Overall, the percentage of stations over 40 years old has increased over time, from 32% in 2001 to 38% in 2010 to 43% in 2015.

Tight budgets and an absence of grants to support the building of entire new stations would explain these results.

The choice of 40 years as a threshold is somewhat arbitrary. There is no standard or national guidance that identifies 40 years as a recommended maximum age for a station. Nevertheless, the older a building is, the more likely it is to have more problems, and some problems are unlikely to be addressed through repair or maintenance alone.

If the percentage of stations over 40 years old is steadily increasing, then it is likely that the percentage of stations over 50 years old or over 60 years old is also increasing. In fact, it is likely that a large share of the 32% of stations (more than 15,000 stations) that were over 40 years old in 2001 are still standing and are over 55 years old in 2016.

Figure 2-1. Percent of Stations Over 40 Years Old by Size of Community for Four Studies

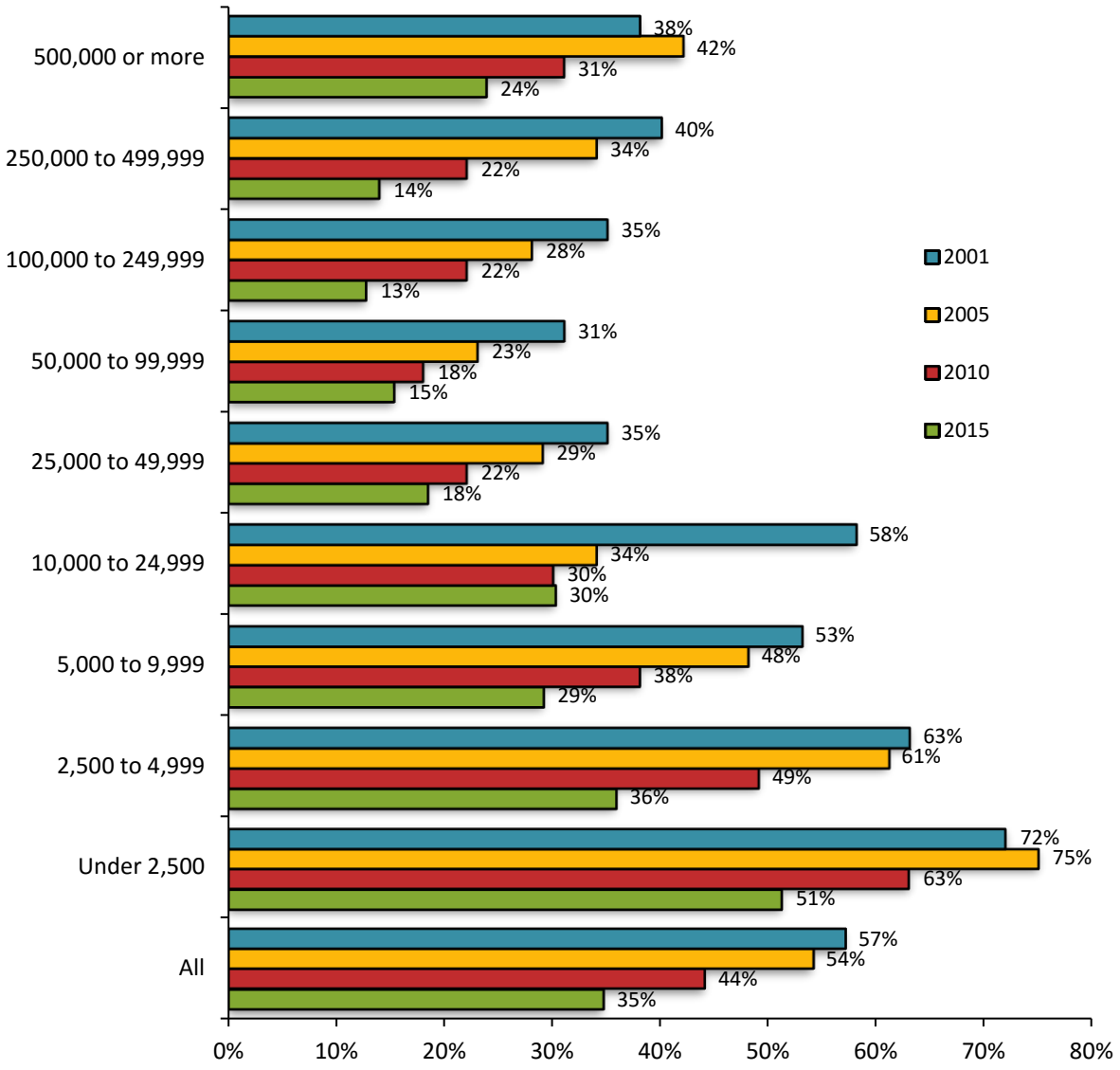


Overall, there has been marked progress, as the percent of stations needing backup power has declined from 57% in 2001 to 44% in 2010 and 35% in 2015.

During 2011-2014, an estimated 2% of the Assistance to Firefighters grant funds were awarded for facility modification projects. It is possible that some of the explanation for progress here lies with those grants.

Progress in meeting this need has been consistent across all community sizes.

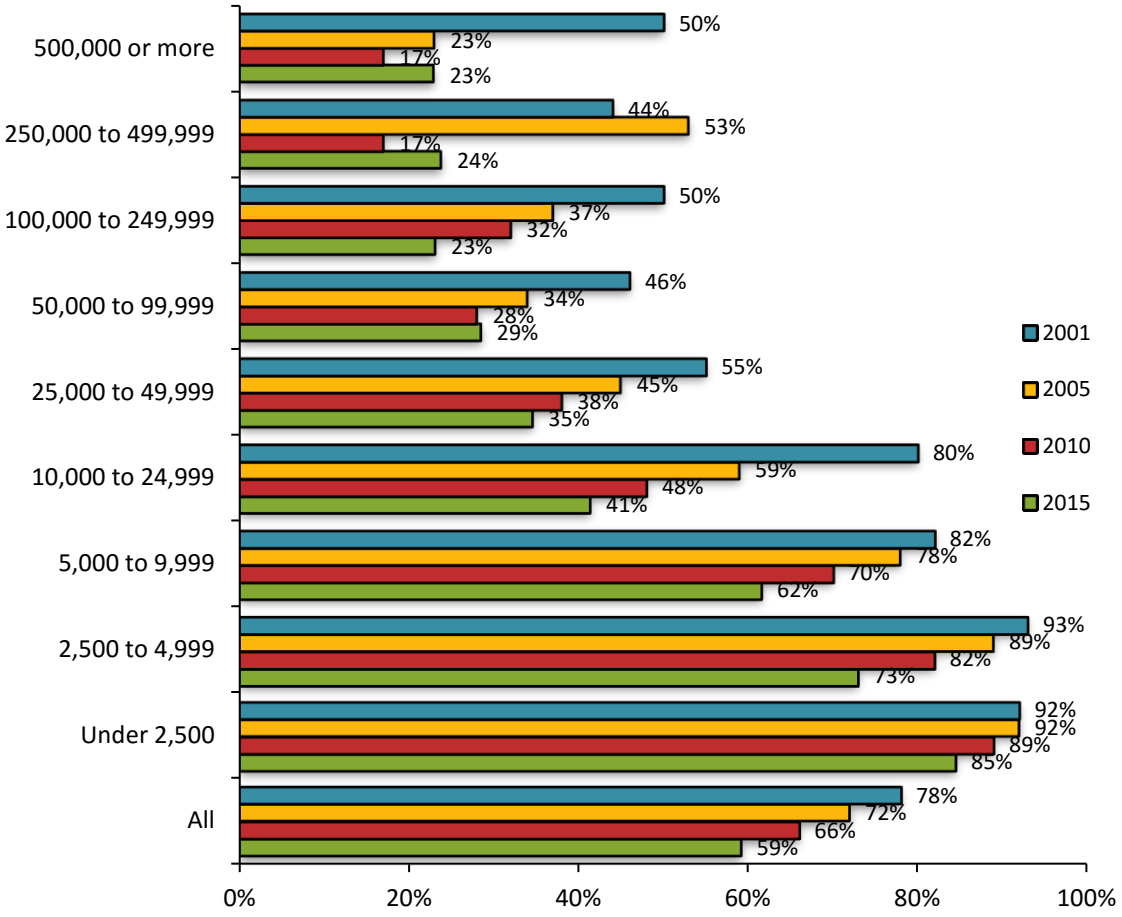
Figure 2-2. Percent of Stations Without Backup Power by Size of Community, for Four Studies



There has been considerable progress with the percent of departments not equipped for exhaust emission control declining from 78% in 2001 to 66% in 2010 and 59% in 2015.

During 2011-2014, an estimated 2% of the Assistance to Firefighters grant funds were awarded for facility modification projects. It is possible that some of the explanation for progress here lies with those grants.

Figure 2-3. Percent of Stations Not Equipped for Exhaust Emission Control by Size of Community, for Four Studies



Adequacy of Number and Coverage of Fire Stations

In addition to needs associated with the condition of fire stations, there are also questions about needs with respect to the number and coverage of fire stations. The number and coverage needed are those required to achieve response with sufficient fire suppression flow within a target period of time. The information contained in the Needs Assessment Survey is not sufficient to perform such a calculation, but a simplified version is possible.

Basis for Analysis of Adequacy of Fire Station Numbers and Coverage

The *Fire Suppression Rating Schedule* of the Insurance Services Office includes a number of guidelines and formulas to use in performing a complete assessment of the adequacy of fire department resources, but for this simplified calculation on adequacy of number of fire stations, Item 560 has a basis: "The built-upon area of the city should have a first-due engine company within 1-½ miles and a ladder-service company within 2-½ miles." [*Fire Suppression Rating Schedule*, New York: Insurance Services Office, Inc., August 1998, p.28] For this simplified calculation, we can use these two numbers as a range for the maximum distance from any point in the community to the nearest fire station.

NFPA 1710 states its requirements in terms of time, specifically, a requirement that 90% of responses by the initial arriving company shall be within 4 minutes. If the first-response area is considered as a circle with the fire station in the middle, and if emergency calls are evenly distributed throughout the response area, then 90% of responses will be within 95% of the distance from the fire station to the boundary of the response area.[1] If the average speed of fire apparatus is 21 mph, as it might be in the downtown area of a city, then the 4-minute requirement corresponds to a 1.5-mile requirement. If the average speed of fire apparatus is 36 mph, as it might be in a suburban or rural area, then the 4-minute requirement corresponds to a 2.5-mile requirement. In a very rural community, the average speed could be even higher, and the allowable distance would be even greater.

Note the limitations in this assumption: Item 560 implies that a larger maximum distance is acceptable for parts of the community that are not "built-upon"; this will be especially relevant for smaller communities. This larger maximum distance may or may not be on the order of the 2 ½ miles cited for ladder-service companies responding in the built-upon area, so the use of 2 ½ miles as an upper bound for calculation is done for convenience rather than through any compelling logic. Item 560 does not reflect variations in local travel speeds or the need for adequate fire flow by the responding apparatus; those issues are addressed elsewhere in the *Fire Suppression Rating Schedule*. This guideline is not a mandatory government requirement or a consensus voluntary standard.

To use this guideline with the data available from the Needs Assessment Survey, it is necessary to have a formula giving the maximum distance from fire station to any point in the community as a function of data collected in the survey. The Rand Institute developed such a formula for expected (i.e., average) distance as part of its extensive research on fire deployment issues in the 1960s and 1970s. (If r is the distance from station to boundary, then the size of the response area is πr^2, and the radius of a circle with area equal to $0.9\pi r^2$ will be $r\sqrt{0.9}$ or approximately 0.95r.

The formula has been developed and tested against actual travel-distance data from selected fire departments for both straight-line travel and the more relevant right-angle travel that characterizes the grid layout of many communities. It has been developed assuming either a random distribution of fire stations throughout the community or an optimal placement of stations to minimize travel distances and times.

The formula is called the square root law: Expected distance = $k \sqrt{(A/n)}$

where k is a proportionality constant

A is the community's area in square miles

n is the number of fire stations

Note the limitations of this approach, cited by the Rand authors: Most importantly, it ignores the effect of natural barriers, such as rivers or railroad tracks. It assumes an alarm is equally likely from any point in the community. It assumes a unit is always ready to respond from the nearest fire station.

If one further assumes that response areas can be approximated by circles with fire stations at the center, then expected distance equals one-half of maximum distance. If response areas are more irregularly shaped, expected distance will be a smaller fraction of maximum distance.

With these assumptions, the number of fire stations will be sufficient to provide acceptable coverage, defined as a maximum travel distance that is less than the ISO-based value, if the following is true:

$$A - \tfrac{1}{2}(n)(D_{max})^2/(k^2) < 0$$

where

A is the community's area in square miles

n is the number of fire stations

D_{max} is the maximum acceptable travel distance (1-½ miles or 2-½ miles)

k is the Rand proportionality constant, which is assumed to be for right-angle travel and is 0.6267 for random station location and 0.4714 for optimal station location

Table 2-B gives the estimates of need based on four calculations (i.e., two possible maximums for travel distances and two possible location distributions for fire stations).

It may be appropriate to use the shorter maximum distance for larger communities and the larger maximum distance for smaller communities. In fact, as noted, if the average speed achievable by fire apparatus is well above 36 mph, an even larger maximum distance is justified under NFPA 1710.

Note also that NFPA 1720, the standard for volunteer fire departments, has no speed of response or distance requirement, reflecting the fact that very low population densities in the smallest communities mean the number of people exposed to long response times may be very small.

Also, while few if any communities will have optimal station locations, it is likely that most will have placements that are considerably better than random.

Table 2-B. Estimated Percent of Fire Departments Lacking Sufficient Fire Stations to Achieve Specified Maximum Travel Distance, by Size of Community Protected, Maximum Travel Distance Specified, and Assumption Regarding Optimality of Fire Station Placement (Q. 2, 33)

	Estimated Percent of Departments With Too Few Stations			
	Random station location		Optimal station location	
Population Protected	Maximum Distance of 1.5 Miles	Maximum Distance of 2.5 Miles	Maximum Distance of 1.5 Miles	Maximum Distance of 2.5 Miles
500,000 or more	89.1%	56.5%	84.8%	23.9%
250,000 to 499,999	83.3%	50.0%	71.4%	31.0%
100,000 to 249,999	93.3%	35.4%	71.3%	21.3%
50,000 to 99,999	91.3%	39.6%	67.1%	18.5%
25,000 to 49,999	91.5%	52.5%	73.5%	28.9%
10,000 to 24,999	93.5%	64.7%	76.3%	47.6%
5,000 to 9,999	93.4%	77.3%	82.2%	64.8%
2,500 to 4,999	92.5%	82.9%	85.4%	74.9%
Under 2,500	92.5%	83.3%	85.7%	75.6%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above projections are based on 4,585 departments reporting on Questions 2 and 33.
Q. 2: Area (in square miles) your department has primary responsibility to protect (exclude mutual aid areas)
Q. 33: Number of fire stations

If 1.5 miles is used for communities of 10,000 or more and 2.5 miles is used for smaller communities, with optimal location used for both, then Table 2-B indicates that 65-76% of departments have too few stations, except for communities of at least 500,000 population, where the percentage is 85%.

Remember the many limitations of this calculation procedure, however; a more complete calculation should be performed before drawing conclusions with regard to any particular community. Computations involving real traffic routes and traffic patterns in GIS software would be more accurate.

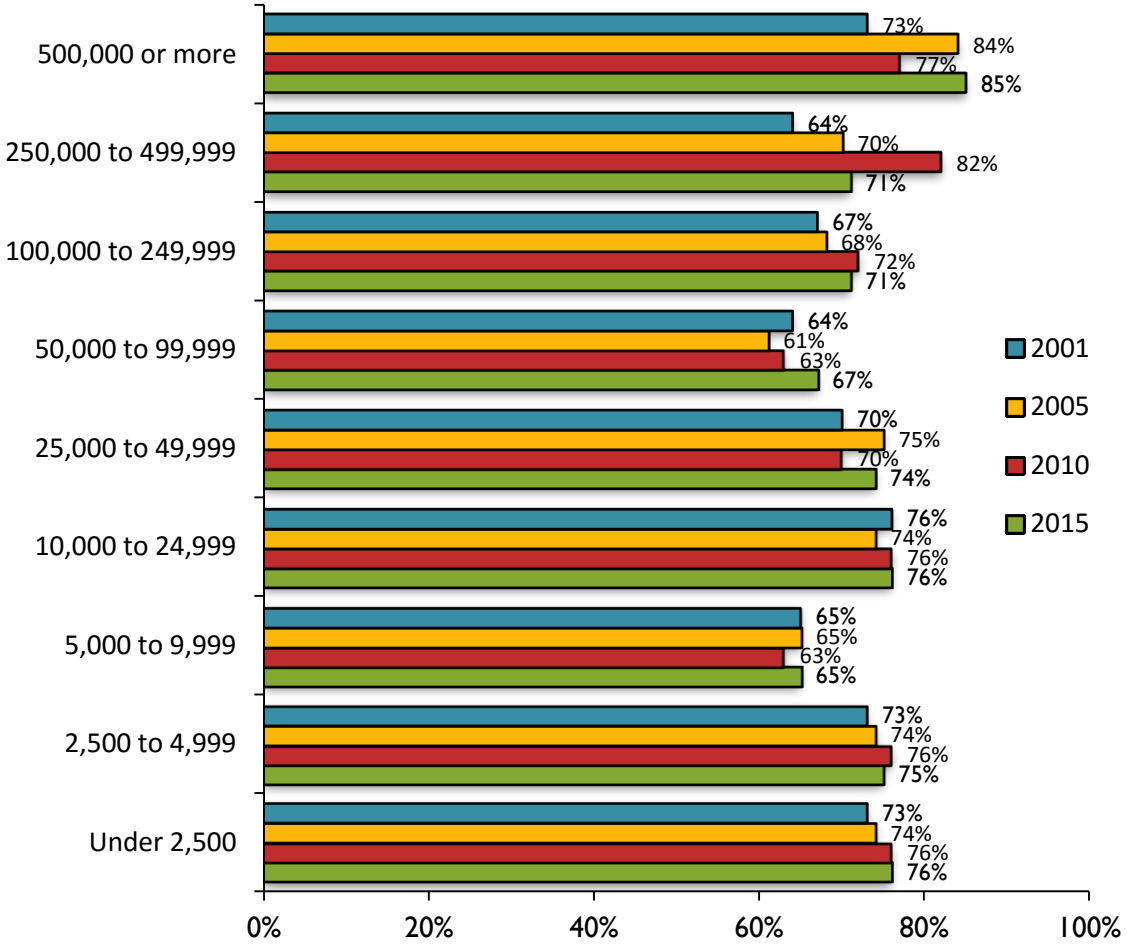
Figure 2-4 shows that the percentage of departments needing more stations is largely unchanged across the four surveys, except for fire departments protecting populations of 500,000 or more which see a greater need for stations and fire departments protecting populations of 250,000-

499,99 which show a lesser need in the recent survey. As in the discussion of Table 2-B, need has been defined based on (a) the use of Rand Corporation models and an assumption of optimal location to estimate travel distance distributions from coverage areas, and (b) the use of ISO guidance to set travel distance requirements, including a criterion of maximum travel distance of 1.5 miles for communities of at least 10,000 population and 2.5 miles for smaller communities.

The percent of departments needing additional stations is around three-fourths for most population protected ranges, and the percentages are also largely unchanged across the surveys for most population protected ranges. In much the same way that the percentages of older stations showed no evidence of significant station-building activity in the past ten years, these

results also show what one would expect if there were few stations being built around the country.

Figure 2-4. Percent of Departments Needing More Stations Based on Coverage Area, ISO Guidance, and Modeled Response Distance by Size of Community, for Four Studies



Apparatus

Table 2-2 characterizes the size of the apparatus fleet inventory, specifically the average number by department of engines/pumpers, ladders/aerials, tankers/tenders and ambulances. Table 2-3 shows the average number of engines/pumpers by age of apparatus. Table 2-4 contains the average number of engines/pumpers, ladders/aerials, tankers/tenders in reserve.

A projection can be done to estimate the number of engines in service, according to the mean age of apparatus within population interval. Table 2-C provides those results by size of community. Vehicle age alone is not sufficient to confirm a need for replacement, but it is indicative of a potential need, which should be examined.

Table 2-C. Number of Engines in Service, Limited to Engines At Least 15 Years Old by Age of Equipment and Size of Community Protected (Q. 34)

	Total Number of Engines in Service of This Age in Fire Departments Protecting Communities of This Population Size		
Population Protected	**15-19 Years Old**	**20-29 Years Old**	**30+ Years Old**
500,000 or more	120	40	0
250,000 to 499,999	100	20	0
100,000 to 249,999	270	80	10
50,000 to 99,999	330	110	0
25,000 to 49,999	650	360	40
10,000 to 24,999	1,810	1,420	330
5,000 to 9,999	2,110	1,740	410
2,500 to 4,999	2,390	2,340	950
Under 2,500	4,910	5,950	3,880
Total	12,690	12,060	5,620
Percent of U.S. Total	18%	17%	8%

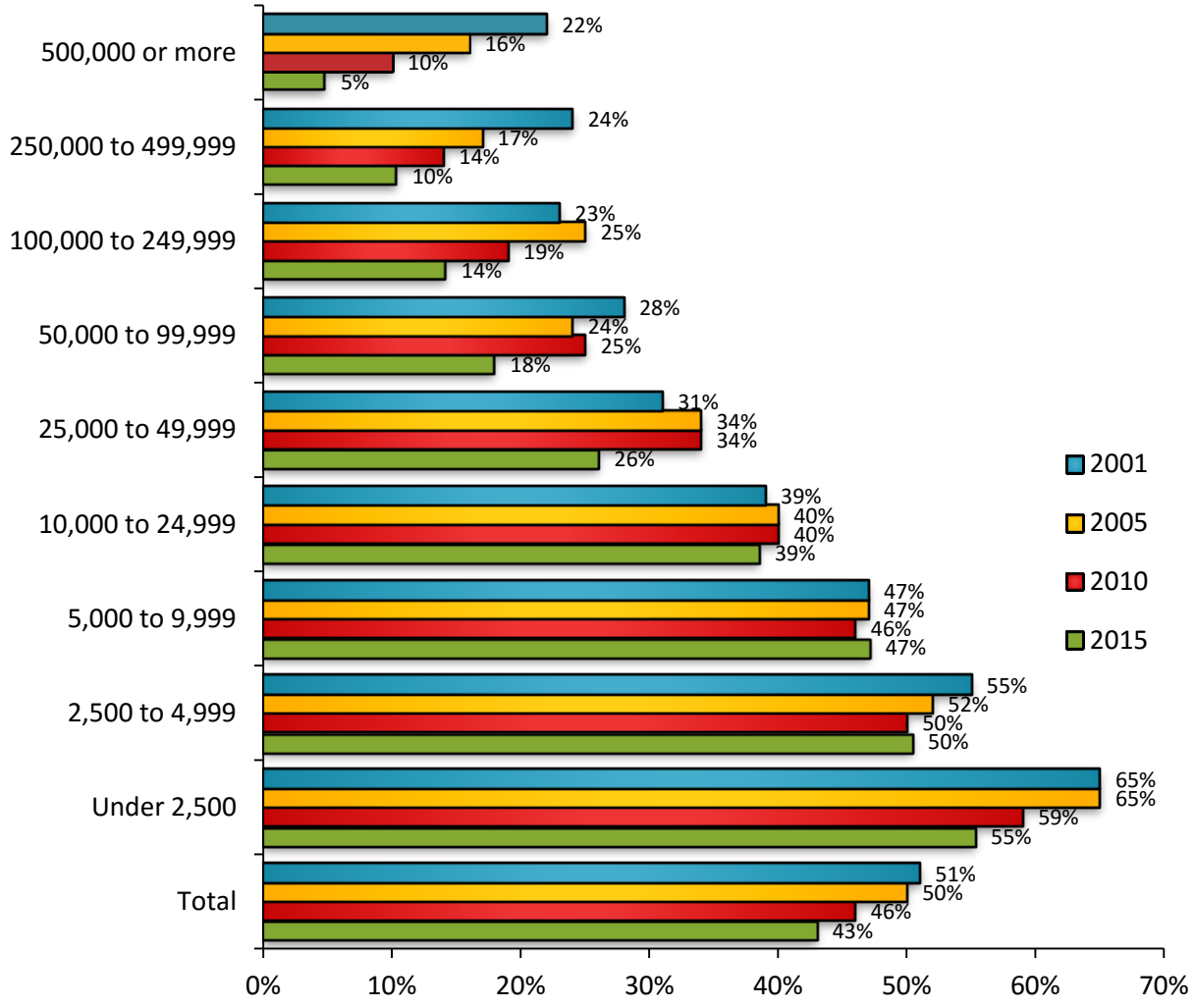
The above projections are based on 5,099 departments reporting on all parts of Question 34. Table 2-2.

Q. 34: Number of engines/pumpers in service. Total, 0-14 years old, 15-19 years old, 15-19 years old, 20-29 or more years old, 30 or more years old

Figure 2-5 shows how the percent of engines 15 years old or older has changed across the four Needs Assessment Surveys.

Figure 2-5 shows some progress in reducing the age profile of the nation's engines and pumpers, particularly for departments in community sizes of 250,000 to 499,999. However, this display understates the size of the improvement, because it takes a significant amount of engine replacement just to keep pace with the normal aging of the apparatus.

Figure 2-5. Percent of Engines and Pumpers That Are At Least 15 Years Old by Size of Community, for Four Studies



For example, without engine replacement nearly all of the 19% of engines that were at least 20 years old in 2005 would have been at least 30 years old in 2015, but the actual percentage of engines that were at least 30 years old in 2015 was 8%.

Table 2-2 also indicates the average number of ambulances or other patient transport vehicles per department, by community size. Communities of less than 10,000 in population average less than one such vehicle per department; and communities with 10,000 to 24,999 in population average less than two. Averages are calculated over all departments, but larger shares of small communities have departments that do not provide EMS; this partially explains their lower numbers of ambulances per department. In larger communities of 25,000 and more, there is an approximate ratio of 2 to 1 for the number of engines to number of ambulances.

Table 2-5 provides information on the percentage of departments with ladder/aerial apparatus. This type of apparatus is of use for buildings at least three stories in height, although it can also be used for shorter buildings with access problems for ground ladders.

Therefore, it is useful to compare the percentage of departments, by community size, having no ladder/aerial apparatus with the percentage having buildings 3 stories high or higher. (See Table 2-6.)

If the percentage of departments without ladder/aerial apparatus is greater than the percentage of departments with no buildings of at least 3 stories in height, then the difference is a measure of the minimum percentage of departments that could justify acquiring a ladder/aerial apparatus but do not have one. Table 2-D provides that comparison.

Table 2-D indicates that across all community sizes, there is a larger percentage of departments without ladder/aerial apparatus compared to the percentage of departments who do not protect buildings at least 3 stories in height. For example, in the smallest communities of 2,500 or less, 47% of departments (90% minus 43%) could justify a ladder/aerial because they protect buildings at least 3 stories in height.

Table 2-D. Departments with No Ladder/Aerial Apparatus vs. Departments with No Buildings of At Least 3 Stories in Height Percent of Departments, by Size of Community Protected (Q. 35)

Population Protected	No Ladder/Aerial Apparatus	No Buildings At Least 3 Stories in Height
500,000 or more	0%	0%
250,000 to 499,999	5%	0%
100,000 to 249,999	4%	1%
50,000 to 99,999	6%	1%
25,000 to 49,999	11%	3%
10,000 to 24,999	26%	6%
5,000 to 9,999	51%	16%
2,500 to 4,999	77%	28%
Under 2,500	90%	43%
Total	53%	21%

The first projection is based on 5,106 departments reporting on the 'in service' and 'reserve' ladder/aerial apparatus. [Q.34]

The second projection is based on 4,973 departments reporting on Question 3.

Q.3: Number of buildings in community that are 3 or more stories in height. None 1-4 5-10 11 or more.

Q.34: Number of each type of apparatus (engines/pumpers, ladder/aerials, tankers/tenders) in service and reserves.

An increasing share of fire departments (43%) have plans for apparatus replacement on a regular schedule, up from 35% in 2001 and 39% in 2010.

Table 2-7 describes whether a department has a plan for apparatus replacement on a regular schedule. This is the kind of long-range, capital-budget type of plan that might be more likely in a community with established sources of revenue for the fire department, as one would expect to see with a career fire department.

Table 2-7 shows that if you combine all departments protecting populations of at least 25,000, which is the population-protected dividing line at which the majority of departments are all- or mostly-career, then three-fourths (75%) of departments or more have such plans. Among departments in the smallest communities of under 2,500 in population, only 29% has such a plan, up from 21% in 2001 and 24% in 2010.

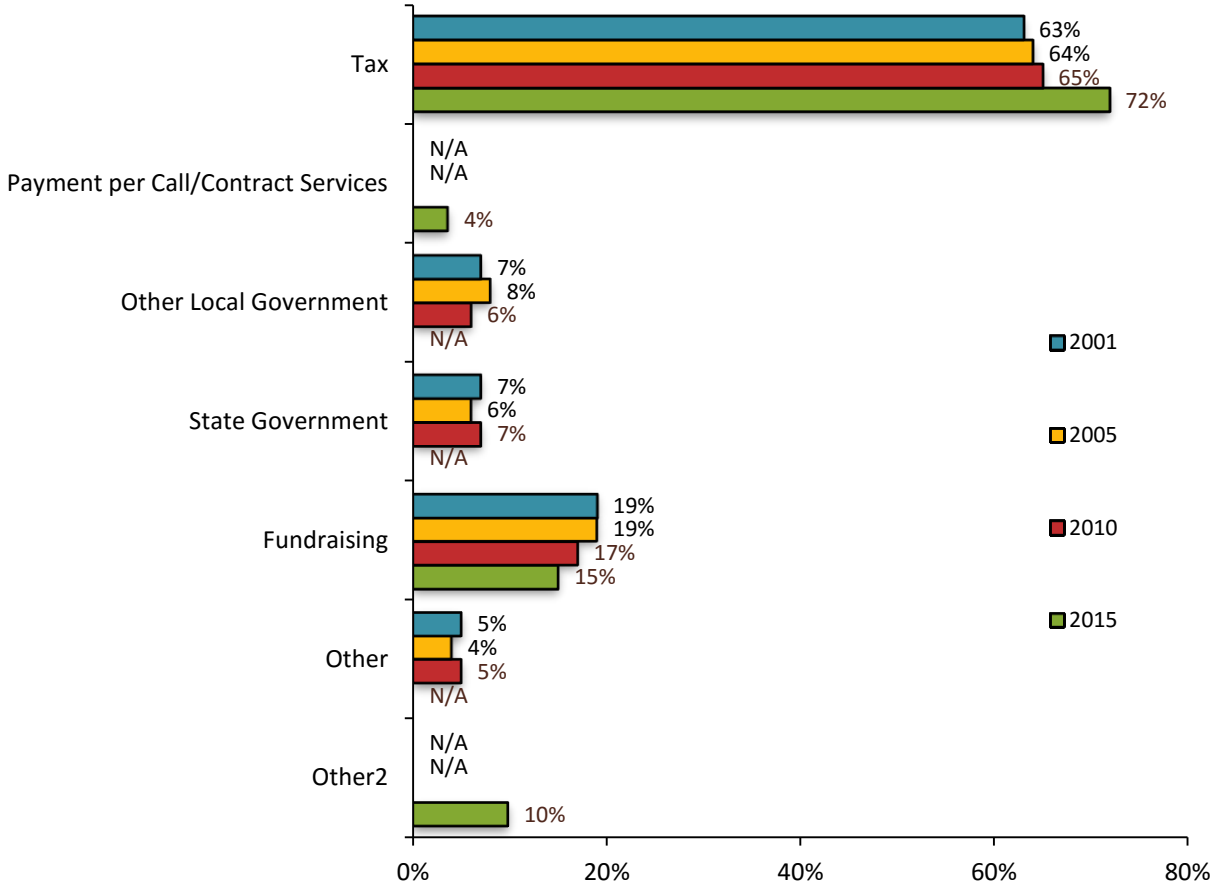
All- or mostly-volunteer departments are deriving a slightly larger share of their revenues from local taxes and a decreasing share from fund-raising.

Because apparatus constitute by far the principal cost for volunteer departments, these results on the revenue sources for all- or mostly-volunteer departments are shown here. These questions were analyzed only for communities of less than 50,000 in population, which is the maximum community size for which at least 30% of departments are all- or mostly-volunteer.

Table 2-8 shows that most revenues for all- or mostly-volunteer departments are covered by taxes, either a special fire district tax or some other tax. The share of revenues contributed in this way was 83-88% for communities of 5,000 to 49,999 population, 76% for communities of 2,500 to 4,999 population, and 72% for communities of less than 2,500 in population. Other payments – including reimbursements on a per-call basis, other local government payments, and state government payments – contributed 13% of revenues for communities under 2,500 population, and fund-raising contributed 15% of revenues for communities of less than 2,500 population.

Figure 2-6 shows how sources of revenue have shifted over the years for all- or mostly-volunteer fire departments protecting rural communities (communities of less than 2,500 population). There has been a slight shift out of fund-raising and into local taxes and payment per call. This is consistent with a similar slight shift from all-volunteer to mostly-volunteer departments for these communities.

Figure 2-6. Percent of Revenue by Source, for All- or Mostly-Volunteer Departments Protecting Populations of Less Than 2,500, for Four Studies



Caveat: The budget revenue question was asked differently in 2015. Other2 is the other category used in 2015 and Other is the other category in previous surveys. Fire District and Other Tax was asked in previous surveys and for the purpose of this comparison is considered the same as Tax, which is how it was asked in 2015.

Table 2-1
Number of Fire Stations and Selected Characteristics
by Community Size
(Q. 33)

Population of Community	Average Number of Stations	Percent Stations Over 40 Years Old	Percent Stations Having Backup Power	Percent Stations Equipped for Exhaust Control
500,000 or more	50.09	47.8%	76.2%	77.1%
250,000 to 499,999	19.16	40.9%	86.1%	76.2%
100,000 to 249,999	10.34	36.1%	87.3%	76.9%
50,000 to 99,999	5.43	34.1%	84.7%	71.5%
25,000 to 49,999	3.47	38.0%	81.6%	65.4%
10,000 to 24,999	2.32	46.6%	69.8%	58.6%
5,000 to 9,999	1.51	43.7%	70.9%	38.4%
2,500 to 4,999	1.48	40.5%	64.2%	27.0%
Under 2,500	1.29	45.7%	48.8%	15.5%
Total	2.9	43.2%	65.4%	40.8%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above projections are based on 5,060 departments answering Question 33(i); 4,871 departments answering Question 33(ii); 4931 departments answering Question 33(iii) and 4,840 departments answering Question 33(iv). Numbers may not add to totals due to rounding.

Q. 33: Number of fire stations, number over 40 years old, number having backup power, number equipped for exhaust emission control (e.g., diesel exhaust extraction).

Reference for definition of need: NFPA 1500

Table 2-2
Average Number of Engines/Pumpers and Ambulances* in Service and Age of Engine/Pumper Apparatus by Community Size (Q.34, Q.35)

Population of Community	Average Number of Engines	Average Number of Ladders	Average Number of Tankers	Average Number of Ambulances*	Ratio Engine: Ambulance
500,000 or more	59.39	17.00	3.41	42.15	1.41
250,000 to 499,999	18.56	5.81	2.70	10.83	1.71
100,000 to 249,999	9.98	2.66	1.26	4.56	2.19
50,000 to 99,999	4.98	1.65	0.56	2.77	1.80
25,000 to 49,999	3.62	1.16	0.80	2.12	1.71
10,000 to 24,999	3.07	0.86	0.93	1.2	2.56
5,000 to 9,999	2.41	0.51	0.98	0.76	3.18
2,500 to 4,999	2.22	0.23	1.17	0.51	4.35
Under 2,500	1.99	0.11	1.15	0.32	6.22
Total	3.55	0.81	1.05	1.52	2.34

* "Ambulances" include other patient transport vehicles.

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above table breakdown is based on 5,097 departments answering all parts of Question 34, except for the number of ambulances, which is based on 4,978 departments answering Question 35. Numbers may not add to totals due to rounding.

Q. 34: Number of each type of apparatus (engines/pumpers, ladder/aerials, tankers/tenders) in service and reserves.

Q. 35: Number of ambulances or other patient transport vehicles

Table 2-3: Average Number of Engines/Pumpers in Service and Age of Engine/Pumpers, by Community Size (Q.34)

Population of Community	Average Number of Engines	Engines 0-14 Years Old	Engines 15-19 Years Old	Engines 20-29 Years Old	Engines 30 or More Years Old
500,000 or more	59.39	50.33	2.22	0.74	0.07
250,000 to 499,999	18.56	16.53	1.7	0.33	0.00
100,000 to 249,999	9.98	8.59	1.06	0.31	0.02
50,000 to 99,999	4.98	4.05	0.68	0.22	0.01
25,000 to 49,999	3.62	2.67	0.59	0.33	0.04
10,000 to 24,999	3.07	1.88	0.61	0.48	0.11
5,000 to 9,999	2.41	1.26	0.57	0.47	0.11
2,500 to 4,999	2.22	1.06	0.49	0.49	0.18
Under 2,500	1.99	0.84	0.38	0.46	0.30
Total	3.55	2.34	0.56	0.44	0.16

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service.

The above table breakdown is based on 5097 departments answering all parts of Question 34.
Number may not add to totals due to rounding.

Q.34: Number of each type of apparatus (engines/pumpers, ladder/aerials, tankers/tenders) in service and reserves.

Table 2-4: Average Number of Engines/Pumpers, Ladders/Aerials and Tankers/Tenders in Reserve, by Community Size (Q.34)

Population of Community	Average Number of Engines	Average Number of Ladders	Average Number of Tankers
500,000 or more	15.93	5.22	0.24
250,000 to 499,999	6.12	2.05	0.49
100,000 to 249,000	3.78	0.98	0.09
50,000 to 99,999	2.04	0.55	0.05
25,000 to 49,999	1.20	0.19	0.03
10,000 to 24,999	0.63	0.05	0.02
5,000 to 9,999	0.30	0.02	0.02
2,500 to 4,999	0.23	0.01	0.04
Under 2,500	0.19	0.01	0.05
Total	0.81	0.16	0.04

Source: NFPA 2015 Survey of the Needs of the US Fire Service

The above table breakdown is based on 5097 departments answering all parts of Question 34. Number may not add to totals due to rounding.

Q.34: Number of each type of apparatus (engines/pumpers, ladder/aerials, tankers/tenders) in service and reserves.

Table 2-5
Number of Ladders/Aerials In-Service, by Community Size
(Q. 34)

For Departments Protecting Populations of 250,000 or More, Percent of Departments With

Population of Community	No Ladders/ Aerials	1-5 Ladders/ Aerials	6-9 Ladders/ Aerials	10-19 Ladders/ Aerials	20 or More Aerials/Ladders
500,000 or more	0.0%	10.9%	21.7%	41.3%	26.1%
250,000 to 499,999	4.7%	51.2%	32.6%	9.3%	2.3%

For Departments Protecting Populations of Less Than 250,000, Percent of Departments With

Population of Community	No Ladders/ Aerials	1 Ladder/ Aerial	2 Ladders/ Aerials	3-4 Ladders/ Aerials	5 or More Ladders/ Aerials
100,000 to 249,999	3.6%	23.6%	29.1%	30.3%	13.3%
50,000 to 99,999	5.9%	45.5%	32.7%	14.2%	1.7%
25,000 to 49,999	11.4%	64.5%	20.4%	3.6%	0.0%
10,000 to 24,999	26.9%	64.4%	8.1%	0.5%	0.1%
5,000 to 9,999	51.7%	46.3%	1.8%	0.2%	0.0%
2,500 to 4,999	77.3%	21.9%	0.6%	0.0%	0.1%
Under 2,500	90.5%	8.6%	0.5%	0.2%	0.1%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above table breakdown is based on 5,017 departments reporting on Question 34. Numbers may not add to totals due to rounding.

Q. 34: Number of each type of apparatus (engines/pumpers, ladder/aerials, tankers/tenders) in service and reserves.

Table 2-6
Number of Buildings in Community That Are 3 or More Stories in Height, by Community Size
(Q. 3)

	None		1 to 4		5 to 10		11 or More		Total	
Population of Community	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent
500,000 or more	-	0.0%	-	0.0%	-	0.0%	56	100.0%	56	100.0%
250,000 to 499,999	-	0.0%	1	2.3%	1	2.3%	58	95.3%	61	100.0%
100,000 to 249,999	2	0.6%	5	1.9%	8	3.1%	236	94.4%	25	100.0%
50,000 to 99,999	6	1.3%	34	7.0%	58	12.0%	385	79.7%	483	100.0%
25,000 to 49,999	31	2.8%	176	16.0%	247	22.4%	648	58.8%	1,103	100.0%
10,000 to 24,999	192	6.5%	830	28.0%	721	24.4%	1,217	41.1%	2,960	100.0%
5,000 to 9,999	584	15.8%	1,492	40.3%	867	23.4%	760	20.5%	3,703	100.0%
2,500 to 4,999	1,322	27.7%	2,117	44.4%	790	16.5%	544	11.4%	4,773	100.0%
Under 2,500	5,570	43.1%	5,524	42.7%	1,158	9.0%	680	5.3%	12,933	100.0%
Total	7,707	29.3%	10,180	38.7%	3,850	14.6%	4,585	17.4%	26,322	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above projections are based on 4,973 departments reporting on Question 3. Numbers may not add to totals due to rounding.

Q. 3: Number of buildings in community that are 3 or more stories in height

Table 2-7
Does Department Have a Plan
for Apparatus Replacement on a Regular Schedule?
by Community Size
(Q. 36)

Population of Community	Yes Number Depts	Yes Percent	No Number Depts	No Percent	Total Number Depts	Total Percent
500,000 or more	51	91.3%	5	8.7%	56	100.0%
250,000 to 499,999	51	83.7%	10	16.3%	61	100.0%
100,000 to 249,999	217	86.7%	33	13.3%	250	100.0%
50,000 to 99,999	397	82.2%	86	17.8%	483	100.0%
25,000 to 49,999	848	76.8%	255	23.2%	1,103	100.0%
10,000 to 24,999	1,971	66.6%	989	33.4%	2,960	100.0%
5,000 to 9,999	2,025	54.7%	1,678	45.3%	3,703	100.0%
2,500 to 4,999	2,073	43.4%	2,700	56.6%	4,773	100.0%
Under 2,500	3,754	29.0%	9,179	71.0%	12,933	100.0%
Total	11,386	43.3%	14,936	56.7%	26,322	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above projections are based on 4,997 departments reporting on Question 36. Numbers may not add to totals due to rounding.

Q. 36: Does your fire department have a plan for apparatus replacement on a regular schedule?

Table 2-8
For All- or Mostly-Volunteer Departments
Sources of Budget Revenue
by Share (%) of Revenue and Community Size
(Q. 4)

Population of Community	Taxes	Payment Per Call/ Contract Services	Fundraising	Other	Total
25,000 to 49,999	88.4%	4.7%	3.0%	3.9%	100.0%
10,000 to 24,999	86.2%	3.5%	4.7%	5.5%	100.0%
5,000 to 9,999	82.6%	4.5%	7.6%	5.3%	100.0%
2,500 to 4,999	76.2%	4.9%	11.8%	7.1%	100.0%
Under 2,500	71.9%	3.6%	14.7%	9.8%	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above projections are based on 3,275 departments reporting on Question 4.
Numbers may not add to totals due to rounding.

Q. 4: What share (%) of your budgeted revenue is from [each of the listed alternatives]?

SECTION 3. PERSONAL PROTECTIVE EQUIPMENT

Portable Radios

Overall, half of all fire departments (50%) do not have enough portable radios to equip all emergency responders on a shift. (See Table 3-1.) Table 3-1 indicates the percent of emergency responders on a single shift that are equipped with portable radios. Tables 3-2 and 3-3 show the percentage of radios that are water-resistant and intrinsically safe in an explosive atmosphere. Finally, Table 3-4 indicates whether departments have reserve radios at least equal to 10% of the in-service radios. Table 3-A translates the results of Tables 3-1 to 3-3 into estimated percentages of departments where not all emergency responders on a shift have radios and where not all radios have water-resistance or intrinsic safety in an explosive atmosphere.

Table 3-A. Departments Where Not All Emergency Responders on a Shift Have Radios and Radios Lacking Water-Resistance or Intrinsic Safety in an Explosive Atmosphere by Size of Community Protected (Q. 37a, 37b, 37c)

Population Protected	Departments Where Not All Emergency Responders on a Shift Have Radios	Departments Where Not All Radios	
		Have Water Resistance	Have Intrinsic Safety in Explosive Atmosphere
500,000 or more	0.0%	11.1%	30.2%
250,000 to 499,999	4.7%	21.9%	17.1%
100,000 to 249,999	9.7%	21.6%	23.1%
50,000 to 99,999	7.7%	16.1%	23.1%
25,000 to 49,999	11.5%	24.6%	29.3%
10,000 to 24,999	24.8%	37.3%	42.5%
5,000 to 9,999	41.5%	44.8%	48.5%
2,500 to 4,999	54.1%	57.2%	55.7%
Under 2,500	63.0%	62.8%	62.4%
Total	50.1%	53.3%	54.3%

The above projections are based on 5,054 departments reporting on Question 37a, 4,602 reporting on Question 37a, and 2,781 reporting on Question 37b, and 4,953 reporting on Question 37c. "Don't Know" responses were not included so the percentages differ slightly from the percentages in Tables 3-2 and 3-3.
Q. 37a: How many of your emergency responders on-duty on a single shift can be equipped with portable radios? None, few, some many, most, all
Q. 37b: What percentage of your portable radios are designed to be safe in an explosive atmosphere?
Q. 37c*: What percentage of your portable radios are water resistant? None, few, some, many, most, all, don't know

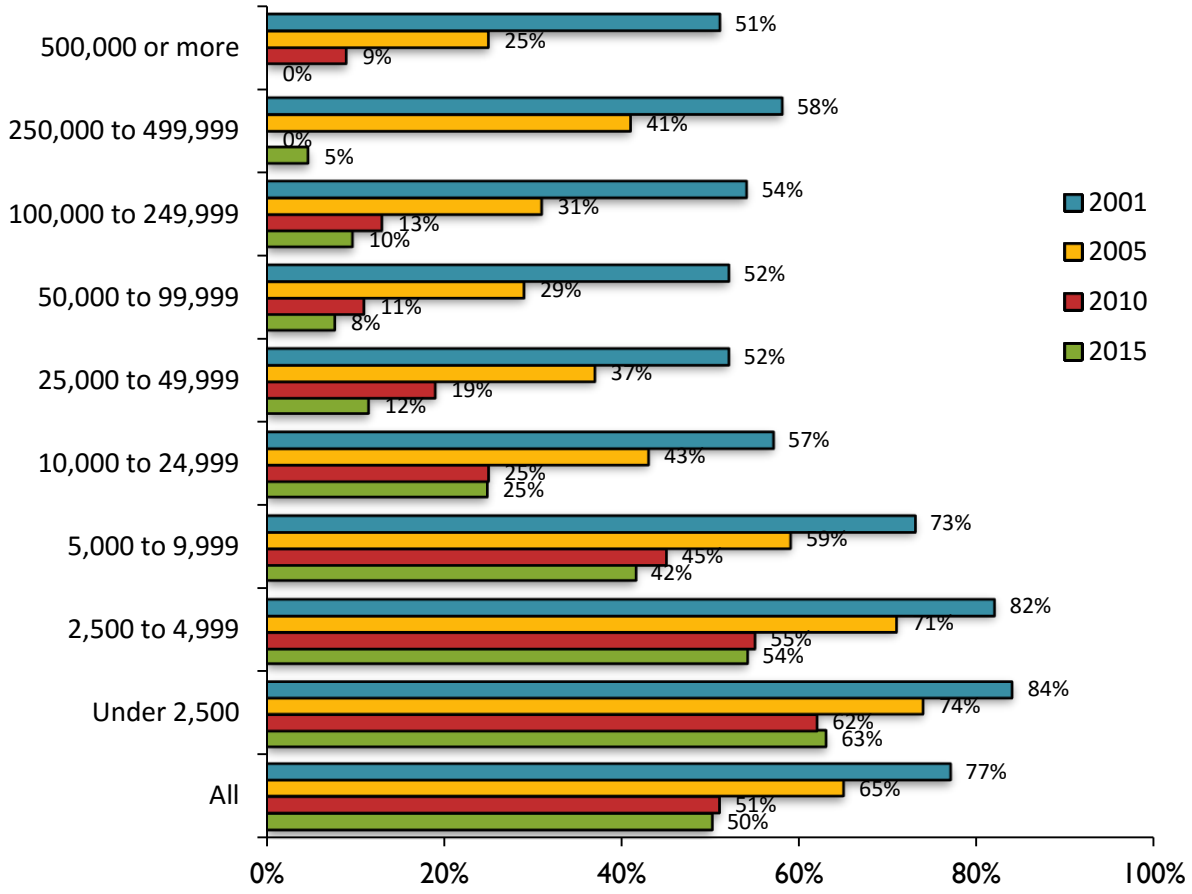
*Note: This question was only asked in the online survey.

Figure 3-1 shows changes since 2001 in the percentage of departments that do not equip all emergency responders on a shift with radios.

There has been progress over time across the board. For the larger communities, the improvement has been most dramatic, with at least 40% of departments in each population group of 25,000 or more switching from need to no-need from 2001 to 2015.

This shift may in part reflect the influence of the equipment portions of the Assistance to Firefighters Grants. During 2011-2014, grants to purchase personal protective equipment accounted for an estimated 37% of total dollars awarded and grants for equipment accounted for 33% of allocated dollars.

Figure 3-1. Percent of Departments Where Not All Emergency Responders on a Shift Have Portable Radios by Size of Community, for Four Studies



Overall, half of departments (53%) do not have all their radios equipped to be water resistant. (See Table 3-A.)

Figure 3-2 shows the shift since 2001 in the percentage of departments whose radios are not all water resistant.

There has been considerable progress, especially for larger communities. Overall, the percentage has decreased from 71% in 2001 to 53% in 2015.

Overall, half (54%) of departments do not have all radios that are intrinsically safe in an explosive atmosphere. (See Table 3-A.)

Figure 3-2. Percent of Departments Where Not All Portable Radios Are Water Resistant by Size of Community, for Four Studies

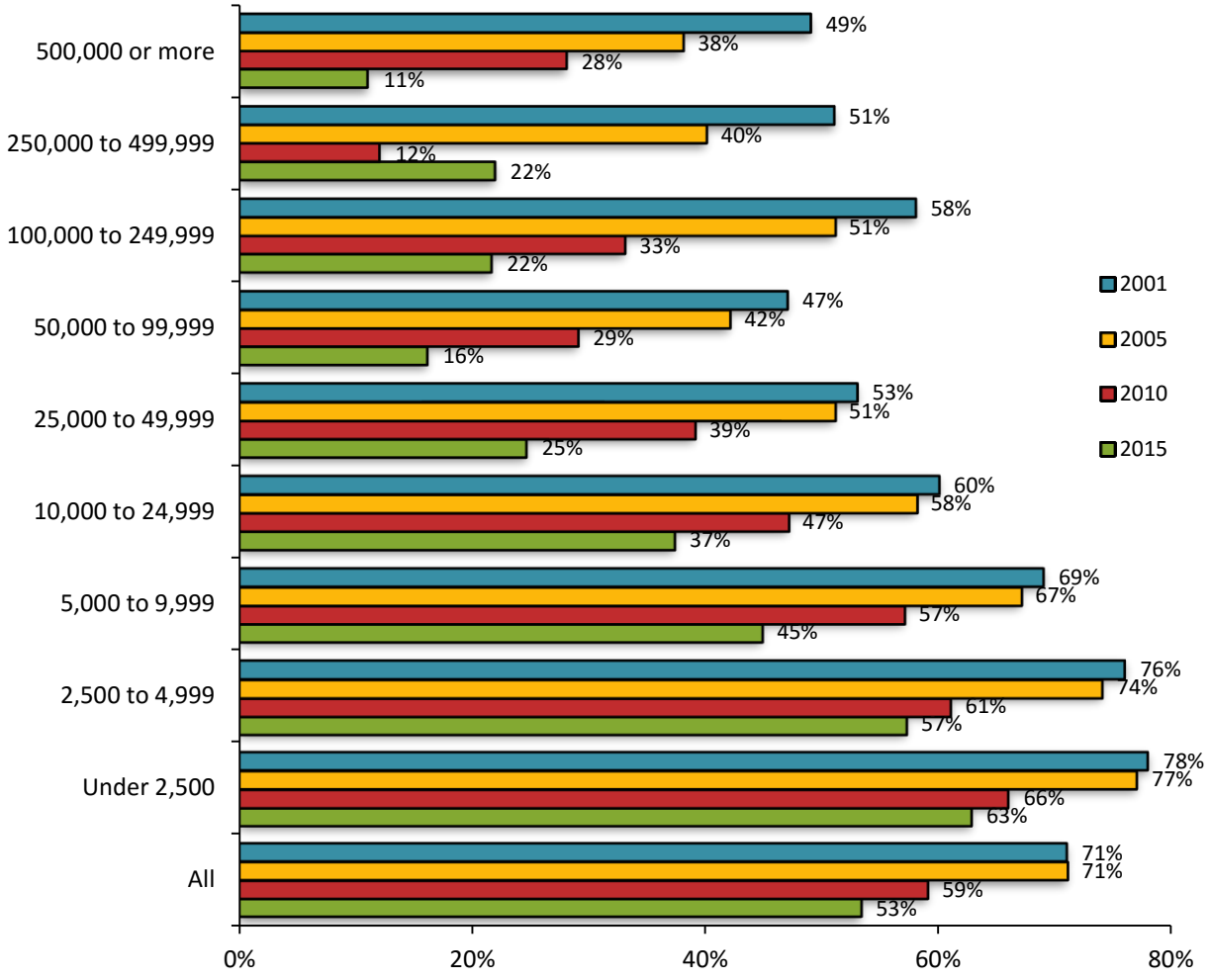
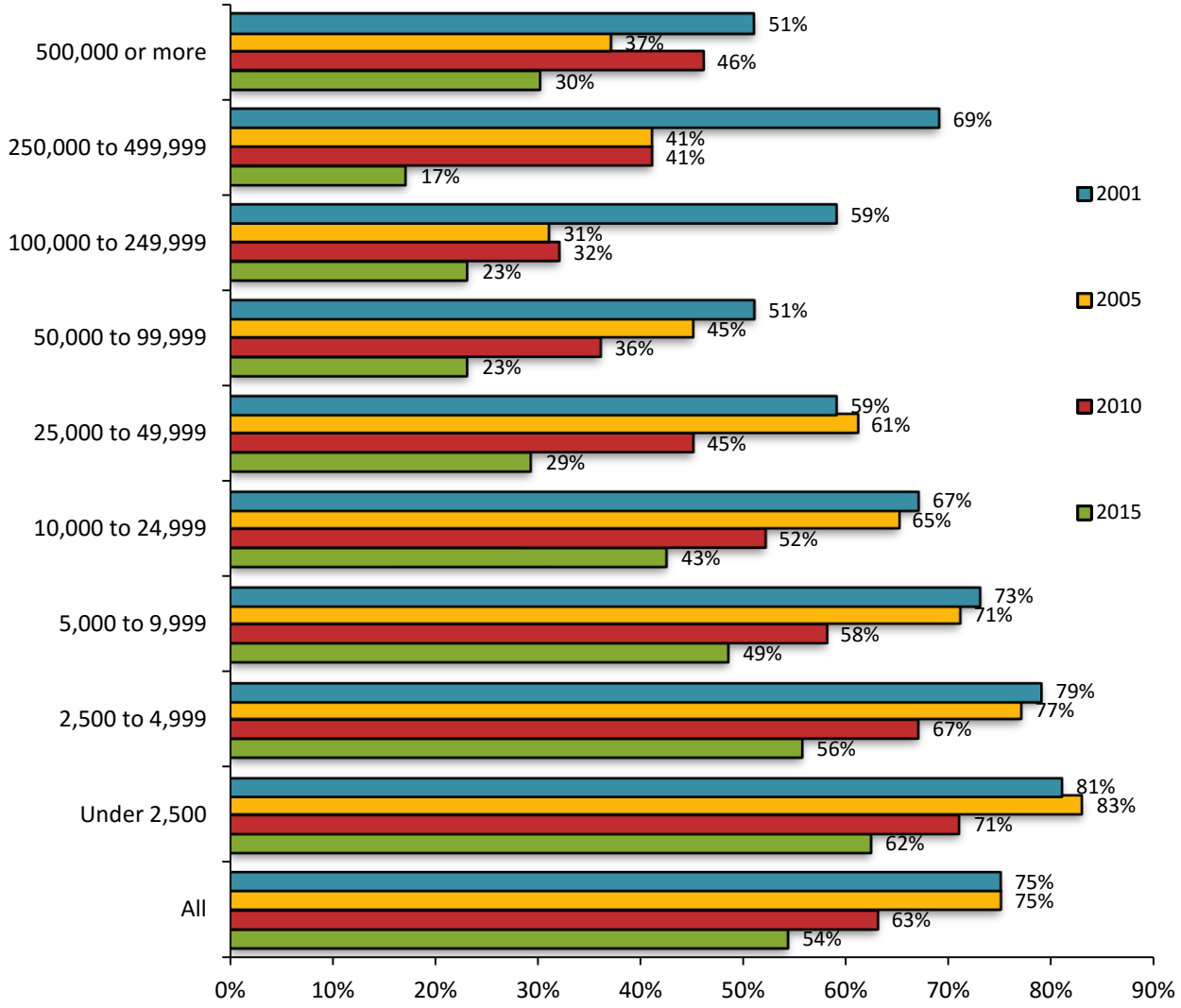


Figure 3-3 shows the shift since 2001 in the percentage of departments that do not have all radios that are intrinsically safe in an explosive atmosphere.

There has been considerable progress across the board. Overall, the percentage decreased from 75% in 2001 to 54% in 2015.

Figure 3-3. Percent of Departments Where Not All Portable Radios Are Intrinsically Safe in Explosive Atmosphere by Size of Community for Four Studies

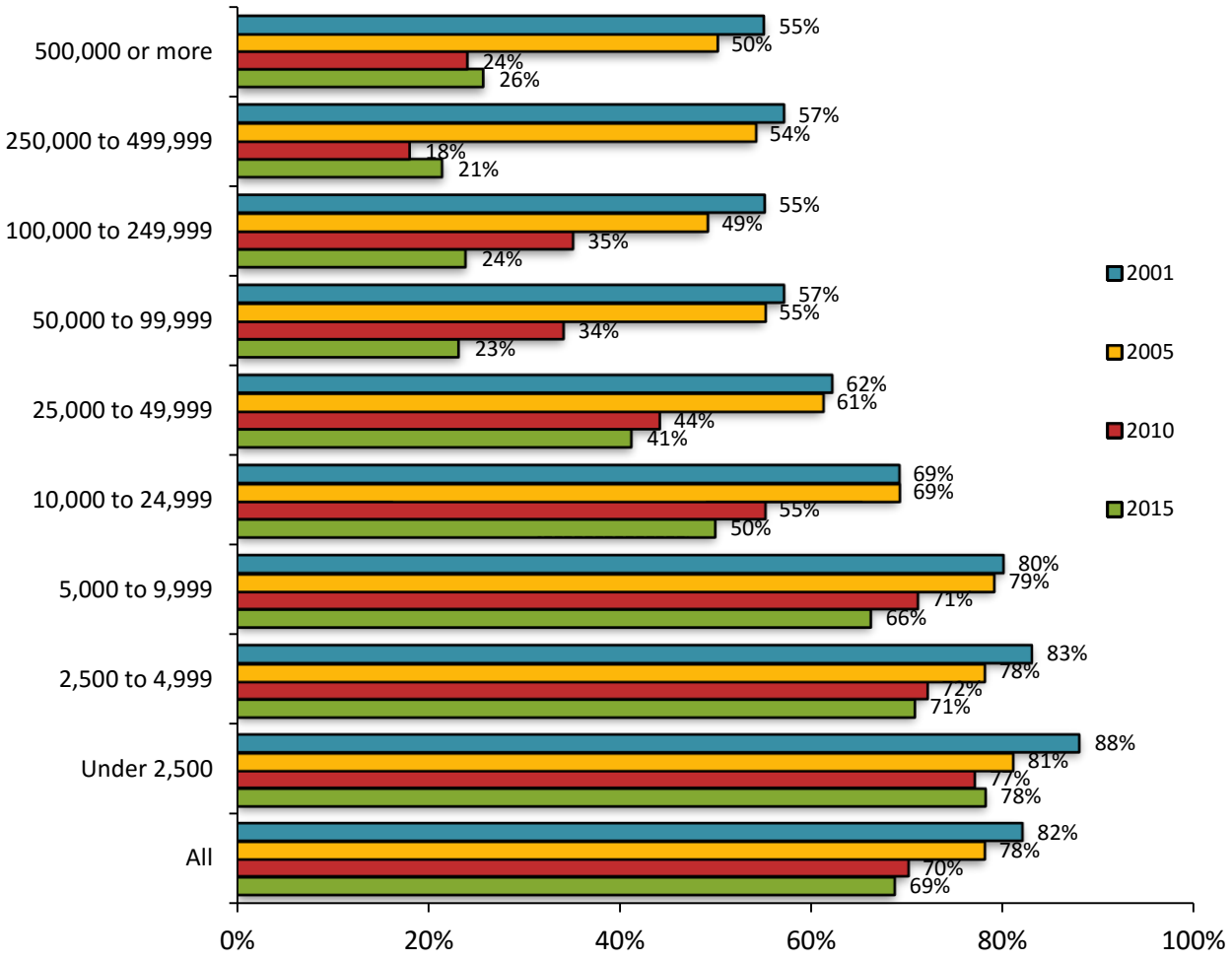


Overall, two-thirds (69%) of departments do not have enough reserve radios to account for at least 10% of in-service radios. (See Figure 3-4.)

Figure 3-4 shows the shift across the years in percentages of departments where not all radios are intrinsically safe in an explosive atmosphere. The "don't know" category is not included in the graph percentages, so these differ from the percentages in Table 3-4.

There has been considerable progress, especially for medium-sized communities.

Figure 3-4. Percent of Departments Without a Reserve of At Least 10% of In-Service Portable Radios by Size of Community, for Four Studies



Self-Contained Breathing Apparatus (SCBA)

Overall, half (53%) of departments cannot equip all firefighters on a shift with self-contained breathing apparatus (SCBA). (See Table 3-5.) Table 3-6 shows the percentage of SCBA units that are at least 10 years old. Table 3-7 describes the percentage of SCBA that is Chemical, Biological, Radiological and Nuclear (CBRN) compliant. Table 3-B shows these measures of need together.

Table 3-B. Departments Where Not All Firefighters on a Shift Have SCBA, Where At Least Some SCBA Units Are At Least 10 Years Old, and At Least Some SCBA are CBRN Compliant by Size of Community (Q. 38a, 38b, 38c)

Population Protected	Departments Where Not All Firefighters on a Shift Are Equipped With SCBA	Departments Where At Least Some SCBA Units Are At Least 10 Years Old	Departments Where At least Some SCBA Units Are CBRN Compliant
500,000 or more	6.5%	53.5%	100.0%
250,000 to 499,999	0.0%	30.8%	100.0%
100,000 to 249,999	1.2%	35.4%	95.4%
50,000 to 99,999	2.7%	45.4%	88.2%
25,000 to 49,999	6.7%	53.4%	87.9%
10,000 to 24,999	18.6%	58.7%	85.1%
5,000 to 9,999	37.5%	65.1%	73.5%
2,500 to 4,999	56.8%	69.1%	75.3%
Under 2,500	71.6%	74.5%	73.9%
Total	53.2%	68.5%	76.5%

The above projections are based on 5,009 departments reporting on Question 38a and 4,949 reporting on Question 38b and 2,565 reporting on Question 38c. "Don't Know" responses are not included here so percentages will differ slightly from Tables 3-6 and 3-7.

Q.38a: What percentage of your on-duty emergency responders on a single shift can be equipped with self-contained breathing apparatus (SCBA)?
None, few, some, many, most, all, many, most

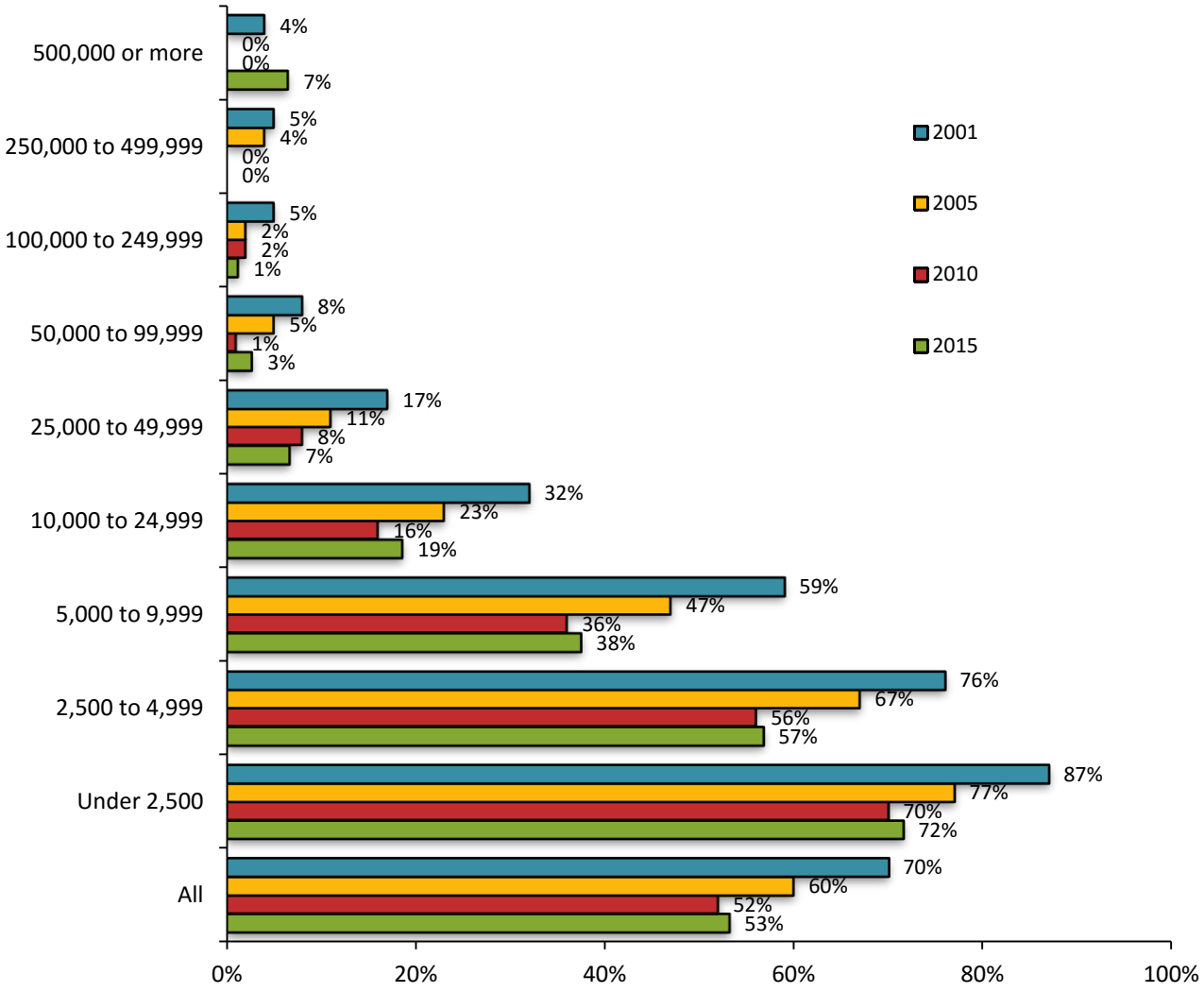
Q.38b: What percentage of your SCBA are 10 years or older?
None, few, some, all, don't know

Q.38c: What percentage of your SCBA are CBRN compliant? (NOTE: all SCBA manufactured since 2007 are compliant)
None, few, some, many, most, all, don't know

*note Q.38c was only asked in the online survey

Figure 3-5 shows how the percentages of departments where not all firefighters on a shift are equipped with SCBA have changed since 2001. There has been progress, but the direction of the trend changed in 2015 in many communities. Overall, 70% of departments were not able to equip all of their firefighters with SCBA in 2001, which decreased to 52% in 2010 and then slightly increased to 53% in 2015.

Figure 3-5. Percent of Departments Where Not All Firefighters on a Shift Are Equipped With SCBA by Size of Community, for Four Studies



It is more difficult to see the impact of Assistance to Firefighters Grants with respect to SCBA, because there was little progress from 2010 to 2015. However, without the grants the trends could have been much worse. During 2011-2014, grants to purchase personal protective equipment accounted for an estimated 37% of total dollars awarded and grants for equipment accounted for 33% of allocated dollars.

Overall, 69% of departments reported that some of their SCBA equipment was at least 10 years old. (See Table 3-6.)

Figure 3-6 shows how the percentages of departments have changed since 2001 with respect to having no SCBA that is at least 10 years old. There was progress overall from 2001 to 2010, but this trend has reversed in 2015 for both large and small communities.

In departments that protect populations of 500,000 or more, the need for new SCBA in 2015 is greater than in 2001, with 54% of departments having some SCBA that is at least 10 years old in 2015 compared to 31% in 2001.

Figure 3-6. Percent of Departments Where Some SCBA Is At Least 10 Years Old by Size of Community, for Four Studies

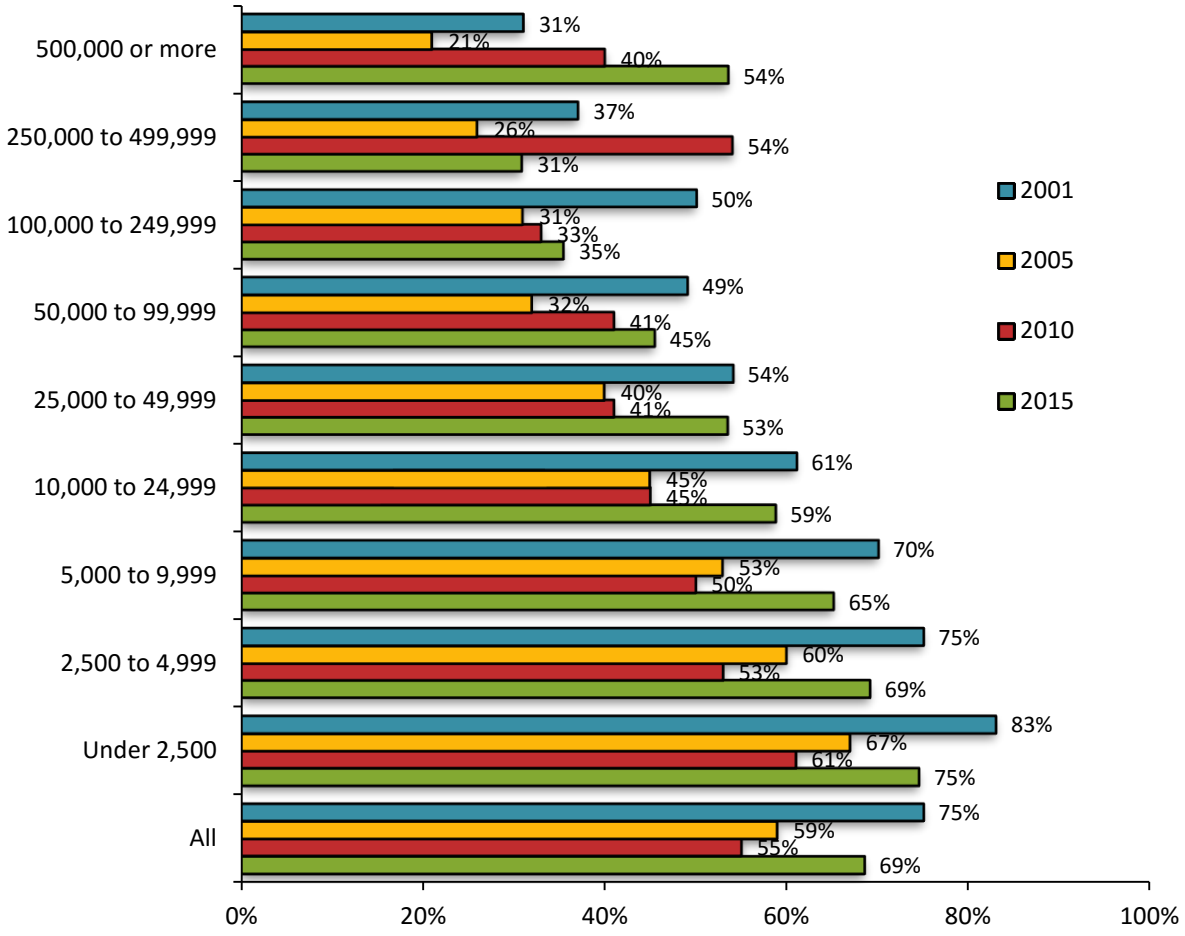


Table 3-7 contains results from the online-only question, "What percentage of your SCBA is CBRN compliant?" Response choices were grouped in the categories: None (0%), Few (1-25%), Some (26-50%), Many (51-75%), Most (76-99%), and All (100%). In the largest community size with populations of 500,000 or more, 77% of departments had all of their SCBA as CBRN compliant. This percentage dropped to 35% in the smallest departments protecting populations of under 2,500.

Personal Alert Safety System (PASS) Devices

Overall, three out of ten (28%) departments cannot equip all emergency responders on a shift with their own personal alert safety system devices (PASS). (See Table 3-8.) Table 3-C shows level of need by size of community. The need is greatest for departments in communities of 49,999 or less.

Table 3-C. Percent of Departments for Which Not All Emergency Responders per Shift Are Provided With PASS Devices by Size of Community (Q. 39)

Population Protected	Departments Where Not All Emergency Responders on a Shift Are Equipped With PASS Devices
500,000 or more	0.0%
250,000 to 499,999	0.0%
100,000 to 249,999	0.6%
50,000 to 99,999	1.0%
25,000 to 49,999	2.5%
10,000 to 24,999	6.4%
5,000 to 9,999	14.5%
2,500 to 4,999	25.1%
Under 2,500	41.4%
Total	27.8%

The above projections are based on 4,900 departments reporting on Question 29. See Table 3-7.

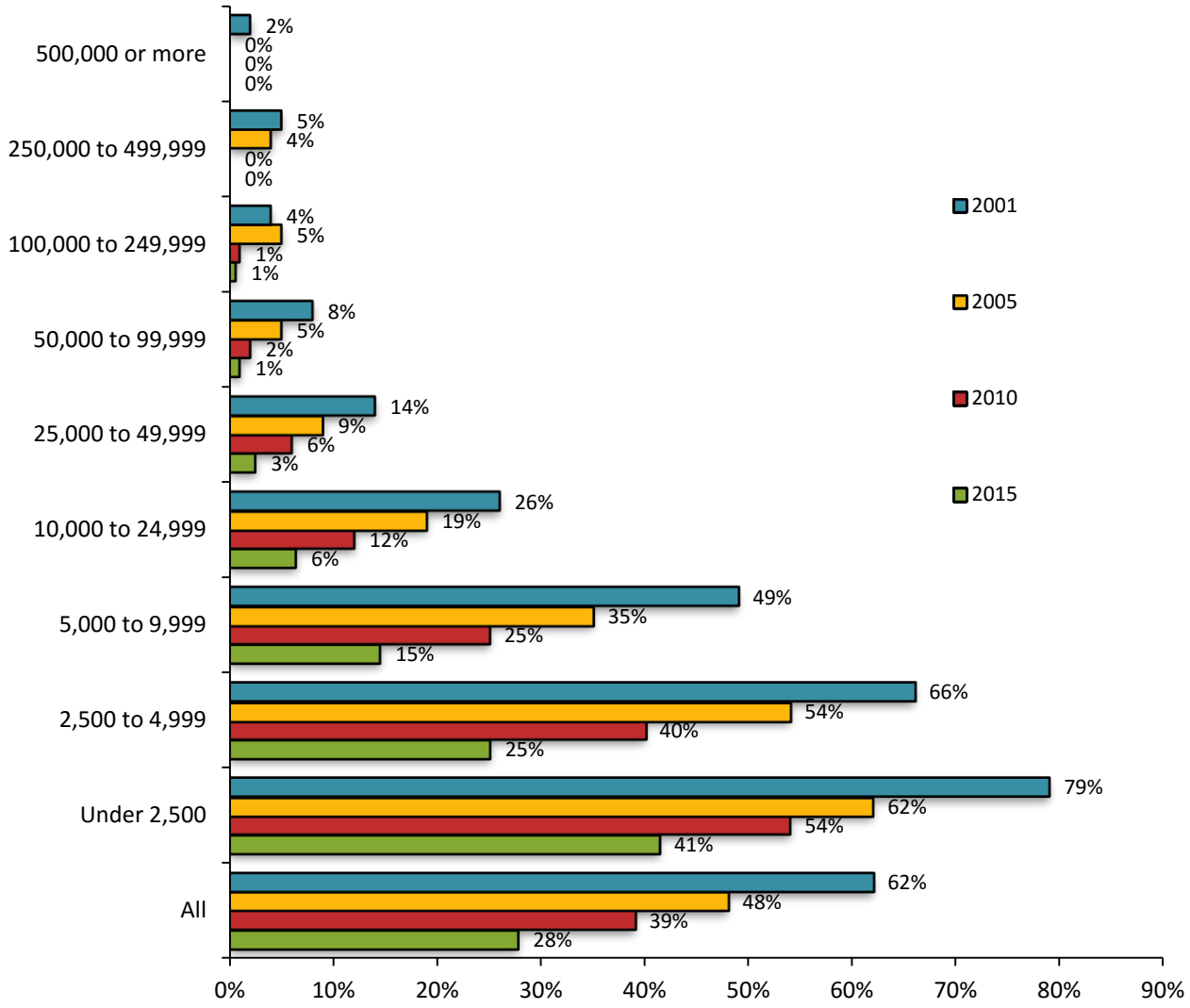
Q. 39: How many responding firefighters who work in immediately dangerous to health or life (IDHL) environment are equipped with a PASS device: None, few, some many, most, all

Figure 3-7 shows how the percentages of departments where not all emergency responders on a shift are equipped with PASS devices have changed over the years.

There has been considerable progress, with the overall percentage of departments in need declining from 62% in 2001 to 39% in 2010 and 28% in 2015. Progress has occurred across the board.

This shift may in part reflect the influence of the equipment portions of the Assistance to Firefighters Grants. During 2011-2014, grants to purchase personal protective equipment accounted for an estimated 37% of total dollars awarded and grants for equipment accounted for 33% of allocated dollars.

Figure 3-7. Percent of Departments Where Not All Emergency Responders on a Shift Are Equipped With PASS Devices by Size of Community, for Four Studies



Personal Protective Clothing

Overall, 13% of departments cannot provide all emergency responders with their own personal protective clothing. (See Table 3-9.) Table 3-10 shows what fraction of personal protective clothing is at least 10 years old. Table 3-11 indicates what fraction of departments have a reserve of personal protective clothing equal to at least 10% of emergency responders.

Table 3-D converts the results of Table 3-9 into estimates of the number of firefighters in departments that cannot provide all emergency responders with their own personal protective clothing. Table 3-D also includes results from Table 3-10 about what percent of departments have at least some personal protective clothing that is at least 10 years old.

Table 3-D. Firefighters in Departments Where Not All Firefighters Are Equipped With Personal Protective Clothing and Percent of Personal Protective Clothing That Is At Least 10 Years Old by Size of Community (Q. 40a, 40b)

Population Protected	Estimated Firefighters in Departments That Do Not Have Personal Protective Clothing for All Firefighters	Estimated Percent of Departments With At Least Some Personal Protective Clothing That Is At Least 10 Years Old
500,000 or more	3,000	37.0%
250,000 to 499,999	0	41.5%
100,000 to 249,999	0	34.2%
50,000 to 99,999	0	38.9%
25,000 to 49,999	2,000	42.1%
10,000 to 24,999	5,000	56.7%
5,000 to 9,999	7,000	69.9%
2,500 to 4,999	30,000	77.1%
Under 2,500	75,000	78.4%
Total	122,000	71.7%

The above projections are based on 5,063 departments reporting on Question 40a and 5,050 reporting on Question 40b. "Don't Know" responses are not included here. Numbers are shown to nearest thousand and may not sum to totals because of rounding. See Tables 3-8 and 3-9.

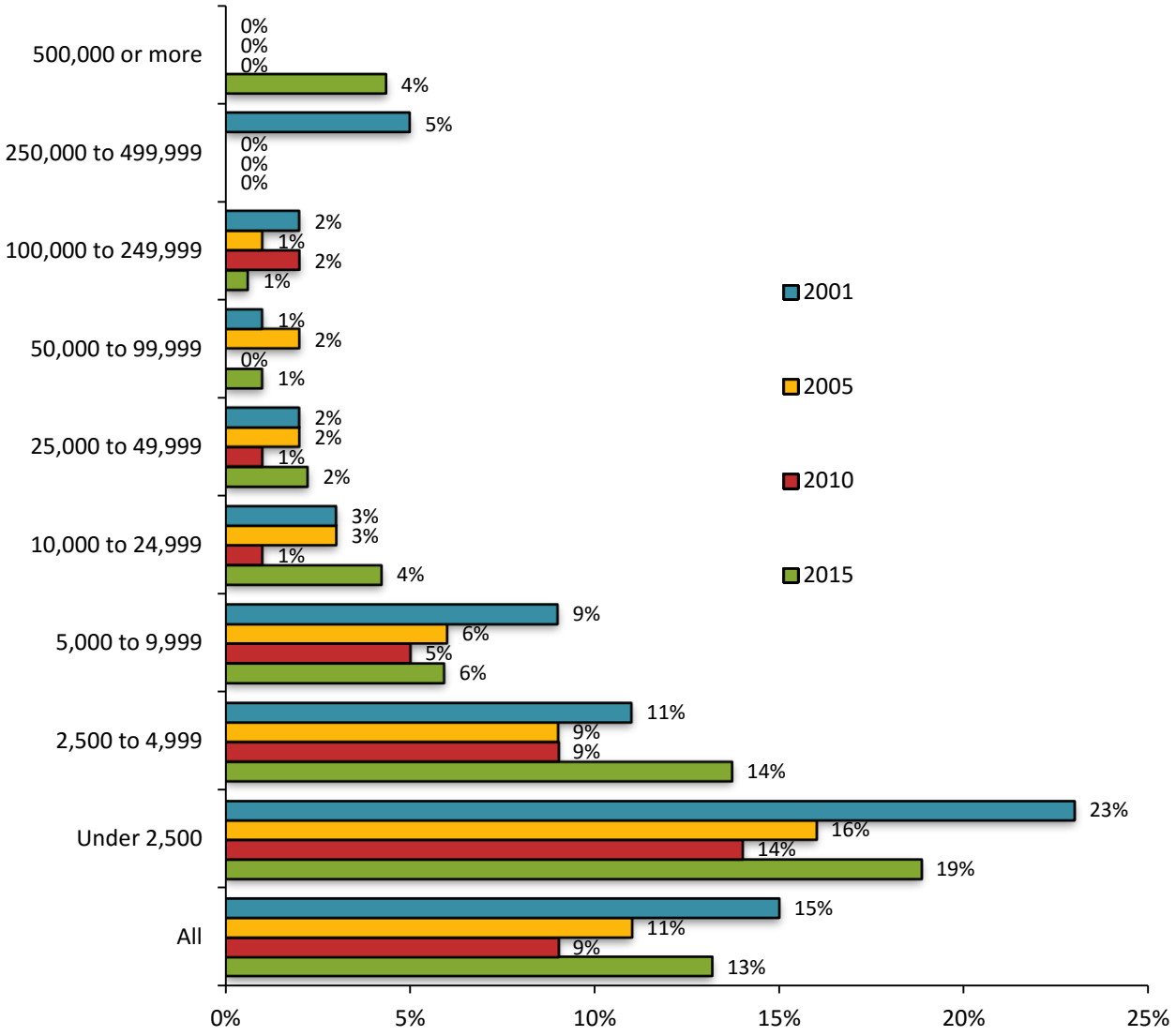
Q. 40a: How many of your emergency responders are equipped with personal protective clothing? None, few, some, many, most, all

Q. 40b: How much of your personal protective clothing is at least 10 years old? None, few, some, many, most, all, don't know

Figure 3-8 shows how the percentages of departments where not all emergency responders have their own personal protective clothing have changed since 2001.

Progress was noted in earlier surveys, but the trend reversed in 2015. Overall, the percentage of departments in need declined from 15% in 2001 to 9% in 2010, but jumped up to 13% in 2015.

Figure 3-8. Percent of Departments Where Not All Emergency Responders Have Their Own Personal Protective Clothing by Size of Community, for Four Studies

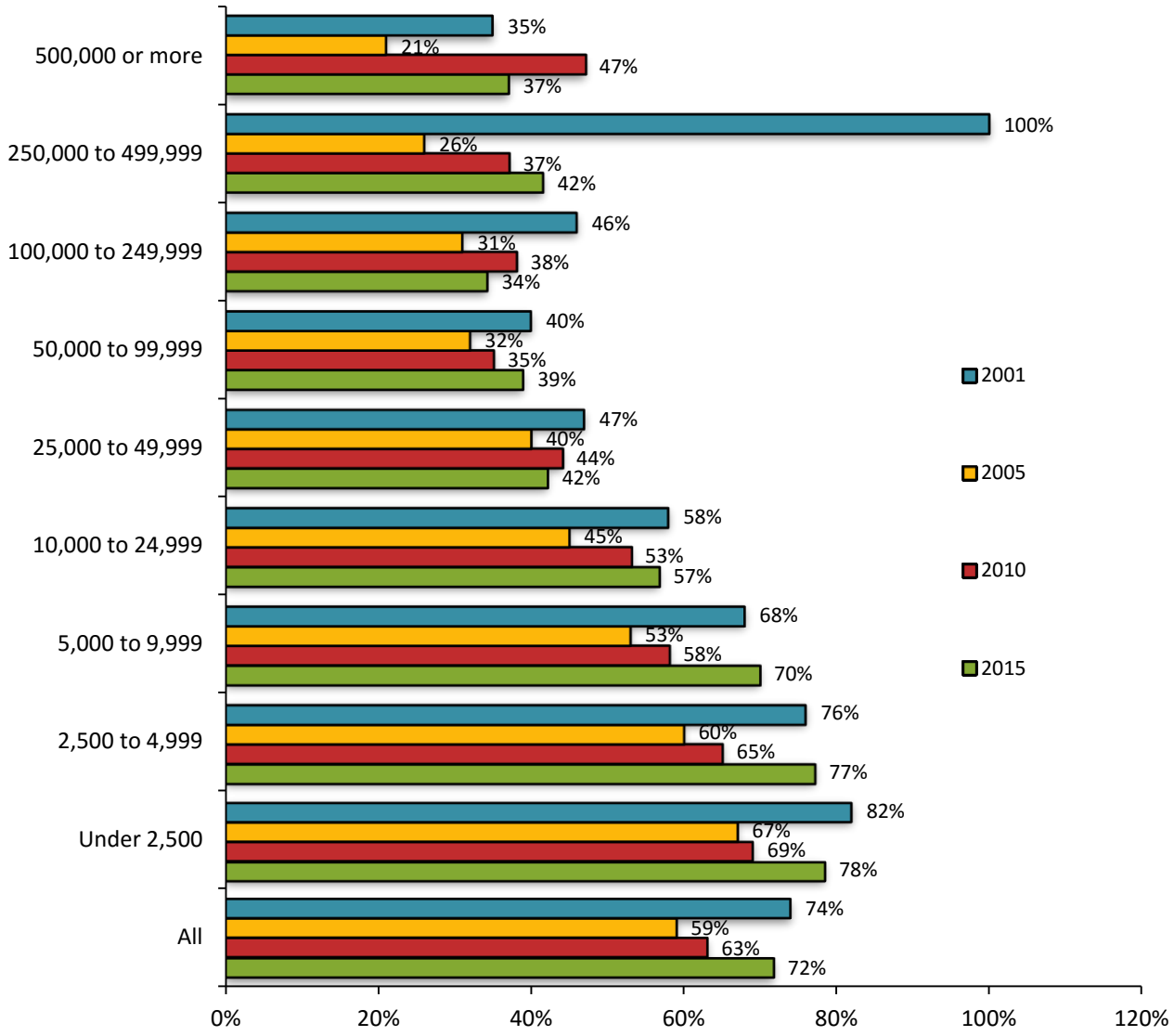


Overall, more than two-thirds (72%) of departments reported that some of their personal protective clothing was at least 10 years old. (See Table 3-10.)

Figure 3-9 shows changes over the years and surveys in the percentages of departments with some personal protective clothing that is at least 10 years old.

In general, there was progress from 2001 to 2005, but then the need has been increasing over time up to 2015.

Figure 3-9. Percent of Departments Where Some Personal Protective Clothing Is At Least 10 Years Old by Size of Community, for Four Studies

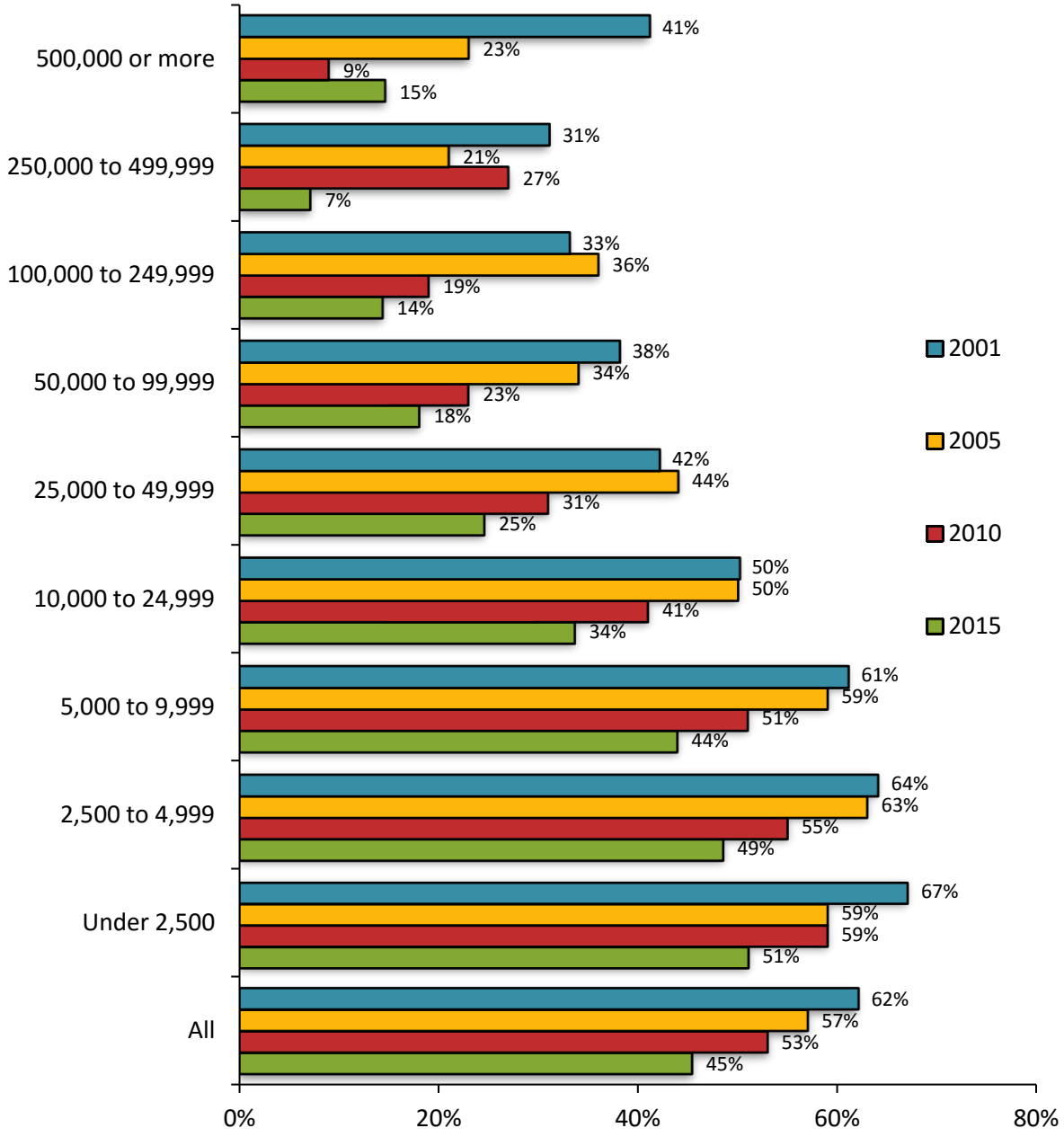


Overall, almost half (44%) of departments do not have reserve personal protective clothing sufficient to equip 10% of emergency responders. (See Table 3-11.)

Figure 3-10 shows how the percentages of departments have changed since 2001 with respect to not having reserve personal protective clothing sufficient to equip 10% of emergency responders. "Don't Know" entries in Table 3-11 were not included in Figure 3-10.

There has been some progress overall: 62% of departments in the 2001 survey reported on insufficient reserve of personal protective clothing, but this percentage fell to 53% in 2010 and 44% in 2015.

Figure 3-10. Percent of Departments Without Enough Reserve Personal Protective Clothing to Equip 10% of Emergency Responders by Size of Community, for Four Studies



Inspection and Laundering of Personal Protective Clothing

Tables 3-E contains results for two new questions in the 2015 survey: "Is your personal protection clothing inspected and tested each year? Yes/No" (see also Table 3-12) and "Does your department have laundering facilities or provide services (external) to clean contaminated personal protection clothing? Yes/No" (see also Table 3-13).

For communities that are 25,000 or larger, at least 75% of departments inspect and test their personal protective clothing each year. This percentage drops to 34% for the departments in the smallest communities of under 2,500. For communities that are 25,000 or larger, at least 94% of departments offer laundering services. This percentage decreases to 44% for the smallest departments in communities of 2,500 or under.

Of interest, more departments offer laundering services than inspect their personal protective clothing on a regular basis.

Table 3-E: Departments without Reserve Personal Protective Clothing (PPC) Sufficient to Equip 10% of their Emergency Responders, PPC Inspected and Tested each Year and Laundering Facilities or External Services to Clean Contaminated PPC (Q. 40c, 40d, 40e)

Population of Community	Departments without Reserve PPC Sufficient to Equip 10% of their Emergency Responders	Departments who Inspect and Test their PPC each Year	Departments with Laundering or External Services to Clean Contaminated PPC
500,000 or more	14.6%	84.8%	100.0%
250,000 to 499,999	7.1%	93.0%	97.7%
100,000 to 249,999	14.4%	82.4%	96.3%
50,000 to 99,999	18.1%	76.6%	94.9%
25,000 to 49,999	24.6%	75.1%	94.0%
10,000 to 24,999	33.7%	59.3%	84.8%
5,000 to 9,999	43.9%	48.4%	77.6%
2,500 to 4,999	48.5%	39.4%	66.3%
Under 2,500	51.1%	34.0%	44.0%
Total	45.4%	43.1%	54.3%

The above projections are based on 4,861 departments reporting on Question 40c, 5,028 reporting on Question 40d and 4,989 reporting on Question 40e. "Don't Know" responses are not included in Question 40c.

Q. 40c: Do you have reserve personal protective clothing sufficient to equip 10% of your emergency responders? yes no don't know
Q. 40d: Is your personal protection clothing inspected and tested each year? Yes, no
Q. 40e: Does your department have laundering facilities or provide services (external) to clean contaminated personal protection clothing? Yes, no

Table 3-1
How Many of Department's Emergency Responders on a Single Shift Are Equipped With Portable Radios? Percent of Departments by Community Size (Q. 37a)

	All (100%)		Most (76-99%)		Many (51-75%)		Some (26-50%)		Few (1-25%)		None (0%)		Total	
Population of Community	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent
500,000 or more	56	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	56	100.0%
250,000 to 499,999	58	95.4%	3	4.7%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	61	100.0%
100,000 to 249,999	226	90.3%	17	6.7%	5	1.8%	3	1.2%	0	0.0%	0	0.0%	250	100.0%
50,000 to 99,999	446	92.3%	19	4.0%	11	2.3%	3	0.7%	2	0.3%	2	0.3%	483	100.0%
25,000 to 49,999	976	88.5%	63	5.7%	29	2.6%	29	2.6%	4	0.4%	2	0.2%	1,103	100.0%
10,000 to 24,999	2,227	75.2%	341	11.5%	166	5.6%	144	4.9%	78	2.7%	3	0.1%	2,960	100.0%
5,000 to 9,999	2,168	58.5%	596	16.1%	339	9.2%	339	9.2%	234	6.3%	27	0.7%	3,703	100.0%
2,500 to 4,999	2,189	45.9%	855	17.9%	560	11.7%	620	13.0%	478	10.0%	71	1.5%	4,773	100.0%
Under 2,500	4,780	37.0%	2,166	16.8%	1,655	12.8%	2,005	15.5%	1,943	15.0%	385	3.0%	12,933	100.0%
Total	13,125	49.9%	4,060	15.4%	2,766	10.5%	3,143	11.9%	2,738	10.4%	491	1.9%	26,322	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above projections are based on 5,054 departments reporting on Question 37a. Numbers may not add to totals due to rounding.

Q. 37a How many of your emergency responders on-duty on a single shift can be equipped with portable radios?

Reference for definition of need: NFPA 1221

Table 3-2
What Percentage of Department's Portable Radios Are Water-Resistant?
Percent of Departments by Community Size
(Q. 37c)

	All (100%)		Most (76-99%)		Many (51-75%)		Some (26-50%)		Few (1-25%)		None (0%)		Don't Know		Total	
Population of Community	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent
500,000 or more	46	82.1%	1	2.6%	3	5.1%	0	0.0%	1	2.6%	0	0.0%	4	7.7%	56	100.0%
250,000 to 499,999	44	71.4%	2	2.9%	0	0.0%	2	2.9%	5	8.6%	3	5.7%	5	8.6%	61	100.0%
100,000 to 249,999	183	73.4%	20	8.1%	0	0.0%	6	2.4%	10	4.0%	14	5.7%	16	6.5%	250	100.0%
50,000 to 99,999	352	72.9%	20	4.2%	4	0.9%	2	0.5%	16	3.3%	25	5.1%	63	13.1%	483	100.0%
25,000 to 49,999	681	61.8%	63	5.7%	13	1.2%	20	1.8%	40	3.6%	86	7.8%	199	18.1%	1,103	100.0%
10,000 to 24,999	1,582	53.5%	246	8.3%	120	4.1%	99	3.4%	120	4.1%	356	12.0%	435	14.7%	2,960	100.0%
5,000 to 9,999	1,647	44.5%	318	8.6%	150	4.1%	126	3.4%	159	4.3%	585	15.8%	719	19.4%	3,703	100.0%
2,500 to 4,999	1,610	33.7%	420	8.8%	159	3.3%	261	5.5%	363	7.6%	952	20.0%	1,009	21.1%	4,773	100.0%
Under 2,500	3,595	27.8%	851	6.6%	554	4.3%	723	5.6%	1,106	8.6%	2,830	21.9%	3,276	25.3%	12,933	100.0%
Total	9,740	37.0%	1,941	7.4%	1,004	3.8%	1,239	4.7%	1,820	6.9%	4,852	18.4%	5,727	21.8%	26,322	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above projections are based on 2,781 departments reporting on Question 37c. Numbers may not add to totals due to rounding.

Q. 37c: What percentage of your portable radios are water-resistant? None, few, some many, most, all, don't know

Reference for definition of need: NFPA 1221

Note: This question was only available in the online web survey format.

Table 3-3
What Percentage of Department's Portable Radios Are Intrinsically Safe in an Explosive Atmosphere?
Percent of Departments by Community Size
(Q. 37b)

	All (100%)		Most (76-99%)		Many (51-75%)		Some (26-50%)		Few (1-25%)		None (0%)		Don't Know		Total	
Population of Community	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent
500,000 or more	37	65.2%	6	10.9%	1	2.2%	1	2.2%	4	6.5%	4	6.5%	4	6.5%	56	100.0%
250,000 to 499,999	48	79.1%	1	2.3%	1	2.3%	0	0.0%	3	4.7%	4	7.0%	3	4.7%	61	100.0%
100,000 to 249,999	175	70.2%	11	4.4%	3	1.2%	6	2.5%	11	4.4%	22	8.7%	22	8.7%	250	100.0%
50,000 to 99,999	334	69.1%	16	3.4%	13	2.7%	7	1.4%	16	3.4%	48	9.9%	49	10.2%	483	100.0%
25,000 to 49,999	704	63.8%	55	5.0%	16	1.5%	30	2.7%	50	4.6%	141	12.8%	107	9.7%	1,103	100.0%
10,000 to 24,999	1,496	50.5%	194	6.6%	92	3.1%	121	4.1%	147	5.0%	551	18.6%	360	12.2%	2,960	100.0%
5,000 to 9,999	1,597	43.1%	256	6.9%	168	4.5%	168	4.5%	219	5.9%	694	18.7%	601	16.2%	3,703	100.0%
2,500 to 4,999	1,660	34.8%	332	7.0%	175	3.7%	260	5.4%	338	7.1%	984	20.6%	1,026	21.5%	4,773	100.0%
Under 2,500	3,533	27.3%	753	5.8%	331	2.6%	679	5.3%	992	7.7%	3,112	24.1%	3,533	27.3%	12,933	100.0%
Total	9,584	36.4%	1,624	6.2%	801	3.0%	1,271	4.8%	1,779	6.8%	5,558	21.1%	5,704	21.7%	26,322	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above projections are based on 2,781 departments reporting on Question 37b. Numbers may not add to totals due to rounding.

Q. 37b: What percentage of your portable radios are designed to be safe in an explosive atmosphere? None, few, some, many, most, all, don't know

Reference for definition of need: NFPA 1221

Table 3-4
Does Department Have Reserve Portable Radios
Equal to or Greater Than 10% of In-Service Radios?
by Community Size
(Q. 37d)

	Yes		No*		Don't Know		Total	
Population of Community	**Number Depts**	**Percent**	**Number Depts**	**Percent**	**Number Depts**	**Percent**	**Number Depts**	**Percent**
500,000 or more	37	66.7%	13	23.1%	6	10.3%	56	100.0%
250,000 to 499,999	38	62.9%	10	17.1%	12	20.0%	61	100.0%
100,000 to 249,999	179	71.7%	56	22.5%	15	5.8%	250	100.0%
50,000 to 99,999	341	70.5%	103	21.3%	40	8.2%	483	100.0%
25,000 to 49,999	615	55.7%	430	39.0%	58	5.2%	1,103	100.0%
10,000 to 24,999	1,418	47.9%	1,412	47.7%	130	4.4%	2,960	100.0%
5,000 to 9,999	1,213	32.7%	2,369	64.0%	121	3.3%	3,703	100.0%
2,500 to 4,999	1,333	27.9%	3,228	67.6%	212	4.4%	4,773	100.0%
Under 2,500	2,682	20.7%	9,599	74.2%	652	5.0%	12,933	100.0%
Total	7,856	29.8%	17,221	65.4%	1,245	4.7%	26,322	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

* Includes departments that reported in Table 3-1 that they had no radios.

The above projections are based on 2,526 departments reporting on Question 37d. Numbers may not add to totals due to rounding.

Note: This question was only available in the online web survey format.

Table 3-5
How Many Emergency Responders
on a Single Shift Are Equipped With
Self-Contained Breathing Apparatus (SCBA)?
Percent of Departments by Community Size
(Q. 38a)

Population of Community	All (100%) Number Depts	All (100%) Percent	Most (76-99%) Number Depts	Most (76-99%) Percent	Many (51-75%) Number Depts	Many (51-75%) Percent	Some (26-50%) Number Depts	Some (26-50%) Percent	Few (1-25%) Number Depts	Few (1-25%) Percent	None (0%) Number Depts	None (0%) Percent	Total Number Depts	Total Percent
500,000 or more	52	93.5%	4	6.5%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	56	100.0%
250,000 to 499,999	61	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	61	100.0%
100,000 to 249,999	247	98.8%	3	1.2%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	250	100.0%
50,000 to 99,999	470	97.3%	8	1.7%	2	0.3%	2	0.3%	2	0.3%	0	0.0%	483	100.0%
25,000 to 49,999	1,030	93.4%	42	3.8%	13	1.2%	13	1.2%	4	0.4%	0	0.0%	1,103	100.0%
10,000 to 24,999	2,409	81.4%	267	9.0%	185	6.2%	67	2.3%	32	1.1%	0	0.0%	2,960	100.0%
5,000 to 9,999	2,313	62.5%	545	14.7%	430	11.6%	333	9.0%	60	1.6%	23	0.6%	3,703	100.0%
2,500 to 4,999	2,061	43.2%	753	15.8%	795	16.7%	831	17.4%	316	6.6%	18	0.4%	4,773	100.0%
Under 2,500	3,678	28.4%	1,970	15.2%	2,160	16.7%	2,919	22.6%	1,853	14.3%	353	2.7%	12,933	100.0%
Total	12,322	46.8%	3,591	13.6%	3,584	13.6%	4,164	15.8%	2,268	8.6%	394	1.5%	26,322	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above projections are based on 5,009 departments reporting on Question 38a. Numbers may not add to totals due to rounding.

Q. 38a: What percentage of your on-duty emergency responders on a single shift are equipped with self-contained breathing apparatus (SCBA)?
none few some many most all

Reference for definition of need: NFPA 1500

Table 3-6
How Much of Departments
SCBA Equipment Is At Least 10 Years Old?
Percent of Departments by Community Size
(Q. 38b)

	All (100%)		Most (76-99%)		Many (51-75%)		Some (26-50%)		Few (1-25%)		None (0%)		Don't Know		Total	
Population of Community	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Dept	Percent	Number Dept	Percents
500,000 or more	12	22.2%	6	11.1%	1	2.2%	4	6.7%	5	8.9%	25	44.4%	2	4.4%	56	100.0%
250,000 to 499,999	5	7.5%	2	2.5%	2	2.5%	2	2.5%	9	15.0%	41	67.5%	2	2.5%	61	100.0%
100,000 to 249,999	40	16.2%	8	3.1%	11	4.4%	17	6.8%	11	4.4%	158	63.4%	5	1.9%	250	100.0%
50,000 to 99,999	104	21.6%	23	4.7%	16	3.4%	24	5.1%	49	10.1%	261	54.1%	5	1.0%	483	100.0%
25,000 to 49,999	282	25.6%	62	5.6%	50	4.6%	69	6.2%	122	11.0%	511	46.4%	7	0.6%	1,103	100.0%
10,000 to 24,999	821	27.7%	243	8.2%	179	6.0%	204	6.9%	275	9.3%	1,213	41.0%	25	0.9%	2,960	100.0%
5,000 to 9,999	1,239	33.5%	299	8.1%	276	7.5%	285	7.7%	281	7.6%	1,276	34.5%	47	1.3%	3,703	100.0%
2,500 to 4,999	1,579	33.1%	390	8.2%	444	9.3%	378	7.9%	474	9.9%	1,459	30.6%	48	1.0%	4,773	100.0%
Under 2,500	4,571	35.3%	1,072	8.3%	989	7.7%	1,154	8.9%	1,658	12.8%	3,242	25.1%	247	1.9%	12,933	100.0%
Total	8,653	32.9%	2,105	8.0%	1,969	7.5%	2,137	8.1%	2,883	11.0%	8,188	31.1%	388	1.5%	26,322	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above projections are based on 4,949 departments reporting on Question 38b. Numbers may not add to totals due to rounding.

Q. 38b: How many of your self-contained breathing apparatus (SCBA) are 10 years old or older? None, few, some, many, most all, don't know

Table 3-7: Percentage of Department's SCBA Equipment that is CBRN Compliant? Percent of Departments by Community Size (Q. 38c)

	All (100%)		Most (76-99%)		Many (51-75%)		Some (26-50%)		Few (1-25%)		None (0%)		Don't Know		Total	
Population of Community	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent
500,000 or more	43	76.9%	1	2.6%	1	2.6%	0	0.0%	1	2.6%	0	0.0%	9	15.4%	56	100.0%
250,000 to 499,999	47	77.1%	2	2.9%	3	5.7%	2	2.9%	2	2.9%	0	0.0%	5	8.6%	61	100.0%
100,000 to 249,000	170	68.0%	18	7.4%	8	3.3%	8	3.3%	8	3.3%	10	4.1%	27	10.7%	250	100.0%
50,000 to 99,999	310	64.1%	32	6.7%	16	3.4%	12	2.4%	12	2.4%	51	10.5%	51	10.5%	483	100.0%
25,000 to 49,999	631	57.2%	83	7.6%	36	3.3%	58	5.3%	58	5.3%	120	10.9%	116	10.5%	1,103	100.0%
10,000 to 24,999	1,572	53.1%	200	6.8%	139	4.7%	139	4.7%	228	7.7%	400	13.5%	283	9.6%	2,960	100.0%
5,000 to 9,999	1,580	42.7%	303	8.2%	184	5.0%	211	5.7%	120	3.2%	864	23.3%	441	11.9%	3,703	100.0%
2,500 to 4,999	1,926	40.4%	380	8.0%	245	5.1%	258	5.4%	221	4.6%	994	20.8%	748	15.7%	4,773	100.0%
Under 2,500	4,457	34.5%	974	7.5%	657	5.1%	706	5.5%	803	6.2%	2,680	20.7%	2,655	20.5%	12,933	100.0%
Total	10,737	40.8%	1,995	7.6%	1,290	4.9%	1,394	5.3%	1,452	5.5%	5,118	19.4%	4,335	16.5%	26,322	100.0%

Source: NFPA 2015 Survey of the Needs of the US Fire Service

Note: Online question only.

Q. 38c: What percentage of your SCBA are CBRN compliant? (Note: all SCBA manufactured since 2007 are compliant)
none few some many most all don't know

Table 3-8
What Fraction of Emergency Responders on a Single Shift Are Equipped With Personal Alert Safety System (PASS) Devices? Percent of Departments by Community Size (Q. 39)

	All (100%)		Most (76-99%)		Many (51-75%)		Some (26-50%)		Few (1-25%)		None (0%)		Total	
Population of Community	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent
500,000 or more	56	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	56	100.0%
250,000 to 499,999	61	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	61	100.0%
100,000 to 249,999	248	99.4%	2	0.6%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	250	100.0%
50,000 to 99,999	478	99.0%	5	1.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	483	100.0%
25,000 to 49,999	1,076	97.5%	11	1.0%	2	0.2%	5	0.4%	5	0.4%	5	0.4%	1,103	100.0%
10,000 to 24,999	2,770	93.6%	84	2.8%	52	1.7%	22	0.8%	7	0.2%	26	0.9%	2,960	100.0%
5,000 to 9,999	3,165	85.5%	208	5.6%	108	2.9%	90	2.4%	52	1.4%	80	2.2%	3,703	100.0%
2,500 to 4,999	3,574	74.9%	306	6.4%	153	3.2%	324	6.8%	202	4.2%	214	4.5%	4,773	100.0%
Under 2,500	7,577	58.6%	1,101	8.5%	728	5.6%	980	7.6%	943	7.3%	1,605	12.4%	12,933	100.0%
Total	19,005	72.2%	1,716	6.5%	1,044	4.0%	1,421	5.4%	1,208	4.6%	1,930	7.3%	26,322	100.0%

Source: NFPA 2015 Survey of the Needs of the US Fire Service

The above projections are based on 4,613 departments reporting on Question 39. Numbers may not add to totals due to rounding.

Q. 39: How many responding firefighters who work in immediately dangerous to health or life (IDHL) environment are equipped with a PASS device?

Reference for definition of need: NFPA 1500

Table 3-9: What Percentage of Emergency Responders Are Equipped With Personal Protective Clothing? Percent of Departments by Community Size (Q. 40a)

	All (100%)		Most (76-99%)		Many (51-75%)		Some (26-50%)		Few (1-25%)		None (0%)		Total	
Population of Community	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent
500,000 or more	54	95.7%	1	2.2%	0	0.0%	0	0.0%	1	2.2%	0	0.0%	56	100.0%
250,000 to 499,999	61	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	61	100.0%
100,000 to 249,999	248	99.4%	2	0.6%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	250	100.0%
50,000 to 99,999	478	99.0%	3	0.7%	0	0.0%	0	0.0%	0	0.0%	2	0.3%	483	100.0%
25,000 to 49,999	1,078	97.8%	18	1.6%	2	0.2%	0	0.0%	2	0.2%	2	0.2%	1,103	100.0%
10,000 to 24,999	2,835	95.8%	106	3.6%	9	0.3%	3	0.1%	0	0.0%	6	0.2%	2,960	100.0%
5,000 to 9,999	3,484	94.1%	183	4.9%	23	0.6%	0	0.0%	14	0.4%	0	0.0%	3,703	100.0%
2,500 to 4,999	4,118	86.3%	478	10.0%	112	2.4%	18	0.4%	42	0.9%	6	0.1%	4,773	100.0%
Under 2,500	10,496	81.2%	1,357	10.5%	375	2.9%	259	2.0%	313	2.4%	135	1.0%	12,933	100.0%
Total	22,853	86.8%	2,147	8.2%	522	2.0%	280	1.1%	372	1.4%	150	0.6%	26,322	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above projections are based on 5,063 departments reporting on Question 40a. Numbers may not add to totals due to rounding.

Q. 40a: How many of your emergency responders are equipped with personal protective clothing? None, few, Some, Many, Most, All

Reference for definition of need: NFPA 1500

Table 3-10
How Much of Department's Personal Protective Clothing Is At Least 10 Years Old? Percent of Departments by Community Size (Q. 40b)

	All (100%)		Most (76-99%)		Many (51-75%)		Some (26-50%)		Few (1-25%)		None (0%)		Don't Know		Total	
Population of Community	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent
500,000 or more	0	0.0%	1	2.2%	1	2.2%	1	2.2%	17	30.4%	35	63.0%	0	0.0%	56	100.0%
250,000 to 499,999	0	0.0%	1	2.4%	0	0.0%	7	12.2%	16	26.8%	36	58.5%	0	0.0%	61	100.0%
100,000 to 249,999	0	0.0%	0	0.0%	2	0.6%	21	8.6%	61	24.5%	163	65.0%	3	1.2%	250	100.0%
50,000 to 99,999	3	0.7%	3	0.7%	18	3.7%	26	5.4%	135	28.0%	292	60.5%	5	1.0%	483	100.0%
25,000 to 49,999	16	1.4%	18	1.6%	49	4.4%	100	9.1%	279	25.3%	635	57.6%	7	0.6%	1,103	100.0%
10,000 to 24,999	81	2.8%	135	4.6%	232	7.8%	379	12.8%	844	28.5%	1,276	43.1%	12	0.4%	2,960	100.0%
5,000 to 9,999	201	5.4%	279	7.5%	412	11.1%	554	15.0%	1,131	30.5%	1,112	30.0%	14	0.4%	3,703	100.0%
2,500 to 4,999	448	9.4%	590	12.4%	649	13.6%	684	14.3%	1,298	27.2%	1,092	22.9%	12	0.3%	4,773	100.0%
Under 2,500	1,922	14.9%	1,609	12.4%	1,716	13.3%	2,127	16.5%	2,628	20.3%	2,761	21.4%	169	1.3%	12,933	100.0%
Total	2,672	10.2%	2,637	10.0%	3,079	11.7%	3,902	14.8%	6,409	24.3%	7,402	28.1%	222	0.8%	26,322	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above projections are based on 5,050 departments reporting on Question 40b. Numbers may not add to totals due to rounding.

Q. 40b: How much of your personal protective clothing is at least 10 years old? None, few, some, many, most, all, don't know

Table 3-11
Does Department Have Reserve Protective Clothing Sufficient to Equip 10% of Emergency Responders?
by Community Size
(Q. 40c)

Population of Community	Yes Number Depts	Yes Percent	No Number Depts	No Percent	Don't Know Number Depts	Don't Know Percent	Total Number Depts	Total Percent
500,000 or more	43	76.1%	7	13.0%	6	10.9%	56	100.0%
250,000 to 499,999	57	92.9%	4	7.1%	0	0.0%	61	100.0%
100,000 to 249,999	208	83.0%	35	13.9%	8	3.0%	250	100.0%
50,000 to 99,999	383	79.2%	84	17.4%	16	3.4%	483	100.0%
25,000 to 49,999	815	73.9%	266	24.1%	23	2.0%	1,103	100.0%
10,000 to 24,999	1,922	64.9%	975	32.9%	63	2.1%	2,960	100.0%
5,000 to 9,999	2,032	54.9%	1,592	43.0%	79	2.1%	3,703	100.0%
2,500 to 4,999	2,387	50.0%	2,250	47.1%	137	2.9%	4,773	100.0%
Under 2,500	6,048	46.8%	6,309	48.8%	576	4.5%	12,933	100.0%
Total	13,892	52.8%	11,522	43.8%	907	3.4%	26,322	100.0%

Source: NFPA 2015 Survey of the Needs of the US Fire Service

The above projections are based on 3,578 departments reporting on Question 40c. Numbers may not add to totals due to rounding.

Q. 40c: Do you have reserve personal protective clothing sufficient to equip 10% of your emergency responders? yes no don't know

Table 3-12: Is Personal Protection Clothing Inspected and Tested Each Year? Percent of Departments by Community Size (Q. 40d)

Population of Community	Yes		No		Total	
	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent
500,000 or more	47	84.8%	9	15.2%	56	100.0%
250,000 to 499,999	57	93.0%	4	7.0%	61	100.0%
100,000 to 249,999	206	82.4%	44	17.6%	250	100.0%
50,000 to 99,999	370	76.6%	113	23.4%	483	100.0%
25,000 to 49,999	828	75.1%	275	24.9%	1,103	100.0%
10,000 to 24,999	1,755	59.3%	1,205	40.7%	2,960	100.0%
5,000 to 9,999	1,791	48.4%	1,912	51.6%	3,703	100.0%
2,500 to 4,999	1,880	39.4%	2,893	60.6%	4,773	100.0%
Under 2,500	4,398	34.0%	8,535	66.0%	12,933	100.0%
Total	11,332	43.1%	14,990	56.9%	26,322	100.0%

Source: NFPA 2015 Survey of the Needs of the US Fire Service

The above projections are based on 5,028 departments reporting on Question 40d. Numbers may not add to totals due to rounding.

Q. 40d: Is your personal protection clothing inspected and tested each year? yes no

Table 3-13: Percentage of Departments That Have Laundering Facilities or Providing Services (External) to Clean Contaminated Personal Protection Clothing by Community Size (Q. 40e)

	Yes		No		Total	
Population of Community	**Number Depts**	**Percent**	**Number Depts**	**Percent**	**Number Depts**	**Percent**
500,000 or more	56	100.0%	1	0	56	100.0%
250,000 to 499,999	59	97.7%	2	2.3%	61	100.0%
100,000 to 249,999	237	96.3%	13	3.7%	250	100.0%
50,000 to 99,999	454	94.9%	29	5.1%	483	100.0%
25,000 to 49,999	936	94.0%	167	6.0%	1,103	100.0%
10,000 to 24,999	2,297	84.8%	663	15.2%	2,960	100.0%
5,000 to 9,999	2,455	77.6%	1,248	22.4%	3,703	100.0%
2,500 to 4,999	2,101	66.3%	2,672	33.7%	4,773	100.0%
Under 2,500	5,694	44.0%	7,239	56.0%	12,933	100.0%
Total	14,289	54.3%	12,034	45.7%	26,322	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above projections are based on 4,989 departments reporting on Question 40e.
Numbers may not add to totals due to rounding.

Q. 40e: Does your department have laundering facilities or provide services (external) to clean contaminated personal protection clothing? yes no

SECTION 4.
COMMUNITY RISK REDUCTION: FIRE PREVENTION AND CODE ENFORCEMENT

Some of the greatest value delivered by the U.S. fire services comes in activities that prevent fires and other emergencies or that moderate their severity when they do occur. Questions 27-32 provide information on a number of such programs.

Table 4-1 indicates the percentage of fire departments, by community size, that reported conducting each of four specific community risk reduction activities that could be considered engineering-based interventions: construction plans review, permit approval, routine testing of active automatic systems (e.g., fire sprinkler, detection/alarm, smoke control) and hazard mitigation planning risk assessment. Note that hazard mitigation includes natural disasters (hurricanes, wildfire, tornadoes, floods and earthquakes), industrial chemical disasters and transportation disasters. Table 4-A indicates the number of fire departments lacking these programs and estimates the number of people living in communities protected by these departments.

Table 4-A. Number of Fire Departments and Estimated Total Population Protected by Those Fire Departments Where Selected Fire Prevention or Code Enforcement Programs Are NOT Provided, by Size of Community Protected (Q. 27)

1. Construction Plans Review

Population Protected	Number of Departments Without Program	Population Protected by Departments Without Program
500,000 or more	12	14,000,000
250,000 to 499,999	10	3,400,000
100,000 to 249,999	23	3,500,000
50,000 to 99,999	65	4,600,000
25,000 to 49,999	195	6,900,000
10,000 to 24,999	986	16,000,000
5,000 to 9,999	2,044	15,200,000
2,500 to 4,999	3,556	21,000,000
Under 2,500	11,375	18,400,000
Total	18,266	103,000,000
Percent of US total	69.4%	32.0%

The above projections are based on 5,106 departments reporting on Question 27. Population estimates are shown to the nearest 100,000 and may not add to totals due to rounding. The total population is estimated to be 321 million. See Table 4-1.

2. Permit Approval

Population Protected	Number of Departments Without Program	Population Protected by Departments Without Program
500,000 or more	12	14,000,000
250,000 to 499,999	11	3,900,000
100,000 to 249,999	39	6,000,000
50,000 to 99,999	97	6,800,000
25,000 to 49,999	407	14,500,000
10,000 to 24,999	1,729	28,100,000
5,000 to 9,999	2,819	21,000,000
2,500 to 4,999	4,097	24,200,000
Under 2,500	11,912	19,300,000
Total	21,123	137,800,000
Percent of US total	80.2%	42.9%

The above projections are based on 5,106 departments reporting on Question 27. Population estimates are shown to the nearest 100,000 and may not add to totals due to rounding. The total population is estimated to be 321 million. See Table 4-1.

3. Routine Testing of Active Systems (e.g., Sprinkler, Detection/Alarm, Smoke Control)

Population Protected	Number of Departments Without Program	Population Protected by Departments Without Program
500,000 to 999,999	17	19,600,000
250,000 to 499,999	20	6,900,000
100,000 to 249,999	83	12,800,000
50,000 to 99,999	202	14,100,000
25,000 to 49,999	519	18,500,000
10,000 to 24,999	1,890	30,700,000
5,000 to 9,999	2,855	21,300,000
2,500 to 4,999	4,097	24,200,000
Under 2,500	12,009	19,400,000
Total	21,692	167,500,000
Percent of US total	82.4%	52.1%

The above projections are based on 5,106 departments reporting on Question 27. Population estimates are shown to the nearest 100,000 and may not add to totals due to rounding. The total population is estimated to be 321 million. See Table 4-1.

Q. 27: Which of the following engineering programs or activities does your department conduct?
Construction plans review
Permit approval
Routine testing of active automatic systems (e.g., fire sprinkler, detection/alarm, smoke control)
Hazardous Mitigation Planning Risk Assessment
No such engineering programs

4. Hazard Mitigation Planning Risk Assessment

Population of Community	Number of Departments Without Program	Population Protected by Departments Without Program
500,000 or more	23	26,500,000
250,000 to 499,999	17	5,900,000
100,000 to 249,999	94	14,400,000
50,000 to 99,999	252	17,600,000
25,000 to 49,999	603	21,500,000
10,000 to 24,999	1,754	28,500,000
5,000 to 9,999	2,642	19,700,000
2,500 to 4,999	3,709	21,900,000
Under 2,500	10,670	17,300,000
Total	19,764	173,300,000
Percentage of U.S. total	75.1%	53.9%

The above projections are based on 5,106 departments reporting on Question 27. Population estimates are shown to the nearest 100,000 and may not add to totals due to rounding. The total population is estimated to be 321 million. See Table 4-1.

Q. 27: Which of the following engineering programs or activities does your department conduct?

Permit approval
Routine testing of active automatic systems (e.g., fire sprinkler, detection/alarm, smoke control)
Hazardous Mitigation Planning Risk Assessment
No such engineering programs

5. Hazardous Mitigation Risk Assessment Plan Includes

	Natural Disasters (hurricane, tornadoes, floods, earthquakes)		Industrial Chemical Disasters		Transportation Disasters		Hazardous Mitigation Planning Risk Assessment Program*
Population of Community	**Number Depts**	**Percent**	**Number Depts**	**Percent**	**Number Depts**	**Percent**	**Number Depts**
500,000 or more	32	96.3%	30	92.6%	28	85.2%	33
250,000 to 499,999	43	96.8%	40	90.3%	40	90.3%	44
100,000 to 249,999	148	95.1%	127	81.6%	120	76.7%	156
50,000 to 99,999	206	89.0%	163	70.3%	161	69.7%	231
25,000 to 49,999	453	90.7%	316	63.3%	325	65.0%	500
10,000 to 24,999	1,088	90.2%	712	59.0%	815	67.5%	1,206
5,000 to 9,999	947	89.3%	630	59.4%	689	65.0%	1,061
2,500 to 4,999	993	93.4%	441	41.4%	670	63.0%	1,064
Under 2,500	2,007	88.7%	845	37.4%	1,277	56.4%	2,263
Total	5,918	90.2%	3,304	50.4%	4,124	62.9%	6,558
*Percentage of known fire departments		22.5%		12.6%		15.7%	24.9%

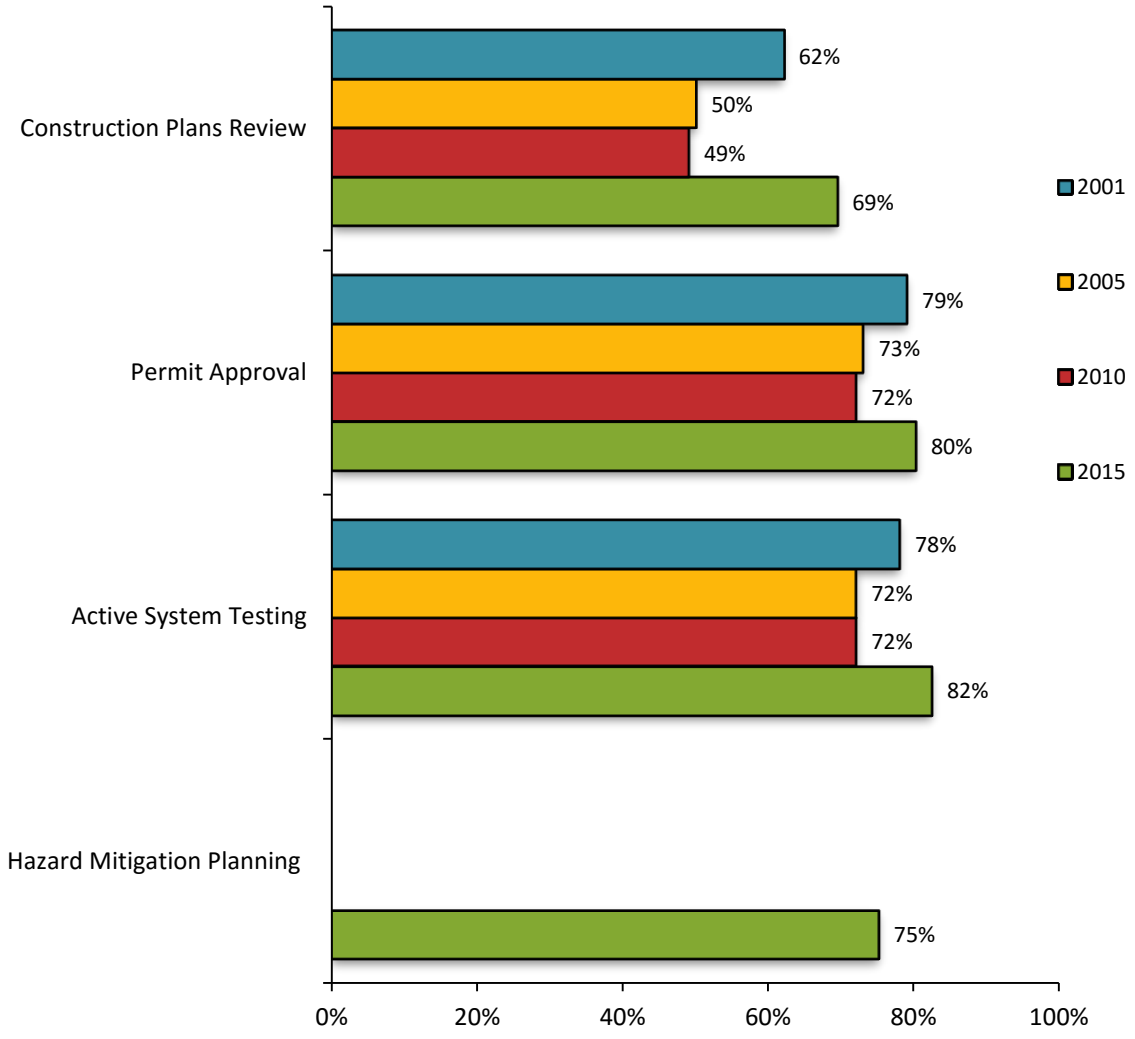
The above projections are based on 5,106 departments reporting on Question 27 part II. The projections for number of fire departments with Natural, Industrial Chemical and Transportation disasters plans are based of the projected number of fire departments with a Hazard Mitigation Planning Risk Assessment Program.

*Percentages are based on the total number of fire departments in the United States with both administrative and fire response duties.

Q. 27 Part II: If you have a Hazardous Mitigation Planning Risk Assessment Program, does your plan include:
Natural disasters (hurricanes, wildfire, tornadoes, floods, earthquakes)
Industrial chemical disasters
Transportation disasters

Figure 4-1 shows how the percent of fire departments lacking each of these four programs has changed over the four Needs Assessment Surveys. The reported need is the greatest in 2015. Overall, four out of five departments do not perform routine testing of active automatic systems (such as fire sprinklers, detection and alarm systems, and smoke control) or conduct permit approval. Three out of four departments do not undergo hazard mitigation planning, and two out of three do not perform construction plans review.

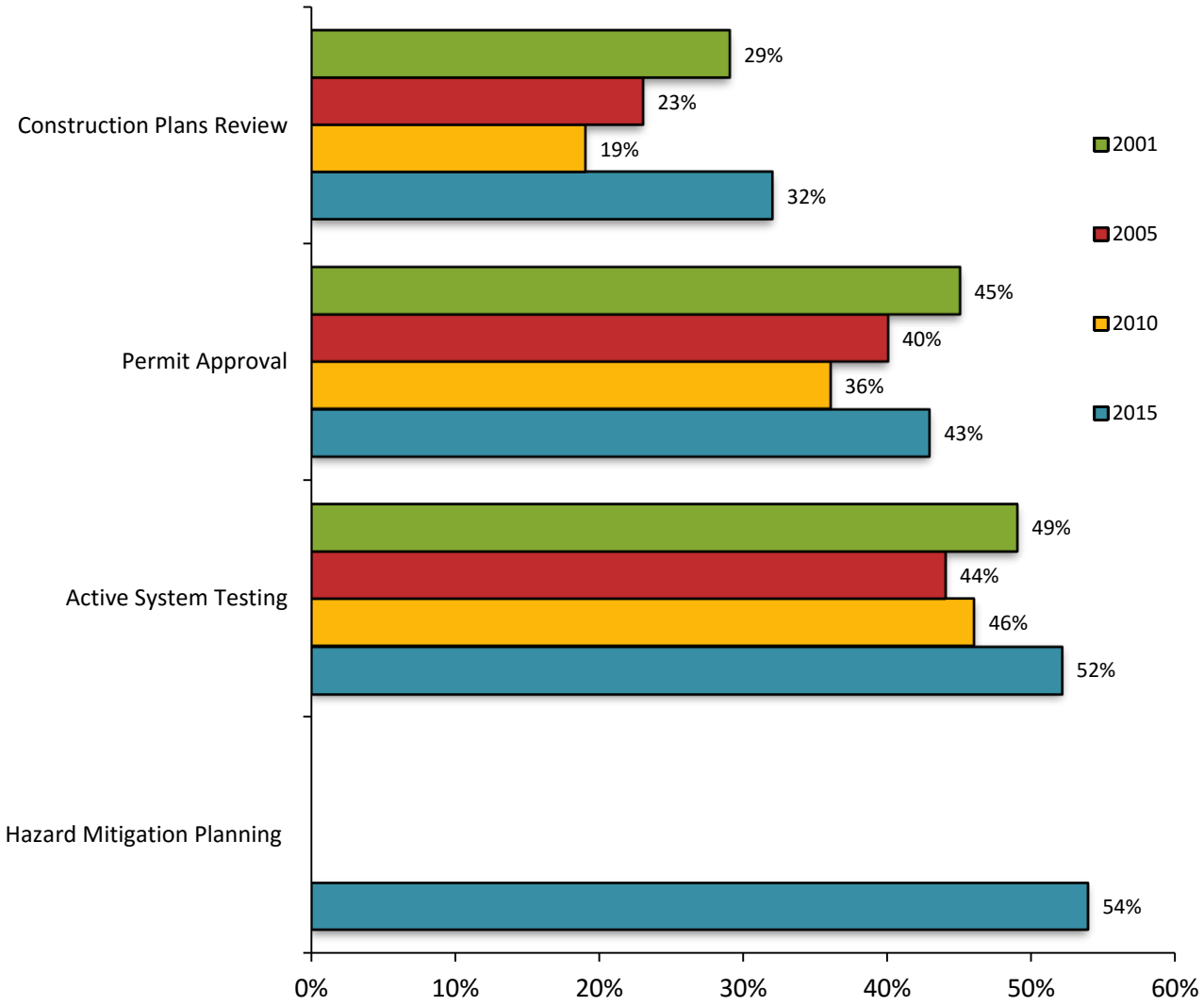
Figure 4-1. Percent of Departments Lacking Particular Engineering (incl. Code Enforcement) Programs, for Four Studies



Note: 2015 was the first time Hazard Mitigation Planning Risk Assessment information was collected.

Figure 4-2 shows similar results for the percent of U.S. resident population living in communities where the fire departments lack each of the four programs. Under these calculations, hazard mitigation planning (for natural, industrial chemical and transportation disasters) is the greatest need, with half (54%) of the U.S. population living in communities protected by fire departments without a hazard mitigation plan.

Figure 4-2. Percent of U.S. Population Living in Communities Protected by Departments Lacking Particular Engineering (incl. Code Enforcement) Programs by Size of Community, for Four Studies



Educational Programs and Prevention Activities

Table 4-B contains results for community risk reduction activities that would be considered education programs or prevention activities. The calculations are done to show the number of departments without a program as well as the population protected without a program. Results with percentages are reported in Tables 4-2 and 4-3. In ranked order of need according to the population protected without a program, the greatest educational need is for the following:

- A wildfire safety program based on a national model (84% of the U.S. population without a program)
- Home fire sprinkler education (74%)
- Car seat installation (70%)
- An older adult fire safety program based on a national model (67%)
- Home safety visits (54%)
- A youth firesetter program (48%)
- Cardiopulmonary resuscitation instruction (42%)
- Free installation of home smoke alarms (37%)
- Free distribution of home smoke alarms (33%)
- A school fire safety education program based on a national model curriculum (32%)
- Fire prevention week activities (14%)

Of note, almost all departments had at least one educational program and the population protected without any program is less than 1%.

Table 4-B, 1-13. Number of Fire Departments and Estimated Total Population Protected by Those Fire Departments Where Educational Programs Are NOT Provided, by Size of Community Protected (Q. 31)

1. Youth Firesetter Program

Population of Community	Number of Departments Without Program	Population Protected by Departments Without Program
500,000 or more	7	8,400,000
250,000 to 499,999	14	4,900,000
100,000 to 249,999	64	9,800,000
50,000 to 99,999	161	11,200,000
25,000 to 49,999	568	20,200,000
10,000 to 24,999	1,937	31,500,000
5,000 to 9,999	3,078	23,000,000
2,500 to 4,999	4,297	25,400,000
Under 2,500	12,264	19,800,000
Total	22,390	154,200,000
Percentage of U.S. total	85.1%	48.0%

The above projections are based on 5,106 departments reporting on Question 31. Population estimates are shown to the nearest 100,000 and may not add to totals due to rounding. The total population is estimated to be 321 million. See Table 4-1.

Q. 31: Which of the following education programs or activities does your department conduct?

Youth firesetter program
School fire safety education program based on a national model curriculum
Car seat installation
Home fire sprinkler education
Home safety visits
Cardiopulmonary resuscitation (CPR) instruction
Wildfire safety program based on a national model program
Older adult fire safety program based on a national model program
Fire Prevention Week activities
Free distribution of home smoke alarms
Free installation of home smoke alarms
Other prevention program
No education program

2. School Fire Safety Education Program Based On a National Model Curriculum

Population of Community	Number of Departments Without Program	Population Protected by Departments Without Program
500,000 or more	11	12,600,000
250,000 to 499,999	18	6,400,000
100,000 to 249,999	67	10,200,000
50,000 to 99,999	96	6,700,000
25,000 to 49,999	351	12,500,000
10,000 to 24,999	933	15,200,000
5,000 to 9,999	1,396	10,400,000
2,500 to 4,999	2,410	14,200,000
Under 2,500	8,751	14,200,000
Total	14,033	102,400,000
Percentage of U.S. total	53.3%	31.9%

The above projections are based on 5,106 departments reporting on Question 31. Population estimates are shown to the nearest 100,000 and may not add to totals due to rounding. The total population is estimated to be 321 million. See Table 4-1.

Q. 31: Which of the following education programs or activities does your department conduct?

Youth firesetter program
School fire safety education program based on a national model curriculum
Car seat installation
Home fire sprinkler education
Home safety visits
Cardiopulmonary resuscitation (CPR) instruction
Wildfire safety program based on a national model program
Older adult fire safety program based on a national model program
Fire Prevention Week activities
Free distribution of home smoke alarms
Free installation of home smoke alarms
Other prevention program
No education program

3. Car Seat Installation

Population of Community	Number of Departments Without Program	Population Protected by Departments Without Program
500,000 or more	38	43,300,000
250,000 to 499,999	38	13,200,000
100,000 to 249,999	144	22,100,000
50,000 to 99,999	285	19,900,000
25,000 to 49,999	696	24,800,000
10,000 to 24,999	2,049	33,300,000
5,000 to 9,999	3,064	22,900,000
2,500 to 4,999	4,409	26,000,000
Under 2,500	12,370	20,000,000
Total	21,327	225,500,000
Percentage of U.S. total	81.0%	70.2%

The above projections are based on 5,106 departments reporting on Question 31. Population estimates are shown to the nearest 100,000 and may not add to totals due to rounding. The total population is estimated to be 321 million. See Table 4-1.

Q. 31: Which of the following education programs or activities does your department conduct?

Youth firesetter program
School fire safety education program based on a national model curriculum
Car seat installation
Home fire sprinkler education
Home safety visits
Cardiopulmonary resuscitation (CPR) instruction
Wildfire safety program based on a national model program
Older adult fire safety program based on a national model program
Fire Prevention Week activities
Free installation of home smoke alarms
Other prevention program
No education program

4. Home Fire Sprinkler Education

Population of Community	Number of Departments Without Program	Population Protected by Departments Without Program
500,000 or more	41	47,500,000
250,000 to 499,999	45	15,600,000
100,000 to 249,999	185	28,300,000
50,000 to 99,999	357	24,900,000
25,000 to 49,999	815	29,000,000
10,000 to 24,999	2,188	35,600,000
5,000 to 9,999	2,737	20,400,000
2,500 to 4,999	3,528	20,800,000
Under 2,500	9,559	15,500,000
Total	19,455	237,600,000
Percentage of U.S. total	73.9%	73.9%

The above projections are based on 5,106 departments reporting on Question 31. Population estimates are shown to the nearest 100,000 and may not add to totals due to rounding. The total population is estimated to be 321 million. See Table 4-1.

Q. 31: Which of the following education programs or activities does your department conduct?

Youth firesetter program
School fire safety education program based on a national model curriculum
Car seat installation
Home fire sprinkler education
Home safety visits
Cardiopulmonary resuscitation (CPR) instruction
Wildfire safety program based on a national model program
Older adult fire safety program based on a national model program
Fire Prevention Week activities
Free distribution of home smoke alarms
Free installation of home smoke alarms
Other prevention program
No education program

5. Home Safety Visits

Population of Community	Number of Departments Without Program	Population Protected by Departments Without Program
500,000 or more	28	26,500,000
250,000 to 499,999	28	5,900,000
100,000 to 249,999	141	14,400,000
50,000 to 99,999	303	17,600,000
25,000 to 49,999	637	21,500,000
10,000 to 24,999	1,850	28,500,000
5,000 to 9,999	2,543	19,700,000
2,500 to 4,999	3,791	21,900,000
Under 2,500	11,111	17,300,000
Total	20,432	173,300,000
Percentage of U.S. total	77.6%	53.9%

The above projections are based on 5,106 departments reporting on Question 31. Population estimates are shown to the nearest 100,000 and may not add to totals due to rounding. The total population is estimated to be 321 million. See Table 4-1.

Q. 31: Which of the following education programs or activities does your department conduct?

Youth firesetter program
School fire safety education program based on a national model curriculum
Car seat installation
Home fire sprinkler education
Home safety visits
Cardiopulmonary resuscitation (CPR) instruction
Wildfire safety program based on a national model program
Older adult fire safety program based on a national model program
Fire Prevention Week activities
Free distribution of home smoke alarms
Free installation of home smoke alarms
Other prevention program
No education program

6. Cardiopulmonary Resuscitation (CPR) Instruction

Population of Community	Number of Departments Without Program	Population Protected by Departments Without Program
500,000 or more	22	25,200,000
250,000 to 499,999	20	6,900,000
100,000 to 249,999	71	10,900,000
50,000 to 99,999	158	11,000,000
25,000 to 49,999	424	15,100,000
10,000 to 24,999	1,272	20,700,000
5,000 to 9,999	1,953	14,600,000
2,500 to 4,999	2,774	16,400,000
Under 2,500	8,760	14,200,000
Total	15,454	135,000,000
Percentage of U.S. total	58.7%	42.0%

The above projections are based on 5,106 departments reporting on Question 31. Population estimates are shown to the nearest 100,000 and may not add to totals due to rounding. The total population is estimated to be 321 million. See Table 4-1.

Q. 31: Which of the following education programs or activities does your department conduct?

Youth firesetter program
School fire safety education program based on a national model curriculum
Car seat installation
Home fire sprinkler education
Home safety visits
Cardiopulmonary resuscitation (CPR) instruction
Wildfire safety program based on a national model program
Older adult fire safety program based on a national model program
Fire Prevention Week activities
Free distribution of home smoke alarms
Free installation of home smoke alarms
Other prevention program
No education program

7. Wildfire Safety Program Based on a National Model Program

Population of Community	Number of Departments Without Program	Population Protected by Departments Without Program
500,000 or more	39	44,800,000
250,000 to 499,999	50	17,300,000
100,000 to 249,999	198	30,300,000
50,000 to 99,999	419	29,300,000
25,000 to 49,999	979	34,800,000
10,000 to 24,999	2,693	43,800,000
5,000 to 9,999	3,345	24,900,000
2,500 to 4,999	4,250	25,100,000
Under 2,500	11,463	18,500,000
Total	23,436	268,800,000
Percentage of U.S. total	89.0%	83.6%

The above projections are based on 5,106 departments reporting on Question 31. Population estimates are shown to the nearest 100,000 and may not add to totals due to rounding. The total population is estimated to be 321 million. See Table 4-1.

Q. 31: Which of the following education programs or activities does your department conduct?

Youth firesetter program
School fire safety education program based on a national model curriculum
Car seat installation
Home fire sprinkler education
Home safety visits
Cardiopulmonary resuscitation (CPR) instruction
Wildfire safety program based on a national model program
Older adult fire safety program based on a national model program
Fire Prevention Week activities
Free distribution of home smoke alarms
Free installation of home smoke alarms
Other prevention program
No education program

8. Older Adult Fire Safety Program Based On a National Model Program

Population of Community	Number of Departments Without Program	Population Protected by Departments Without Program
500,000 or more	26	29,800,000
250,000 to 499,999	33	11,400,000
100,000 to 249,999	144	22,100,000
50,000 to 99,999	308	21,500,000
25,000 to 49,999	758	27,000,000
10,000 to 24,999	2,130	34,600,000
5,000 to 9,999	3,100	23,100,000
2,500 to 4,999	4,326	25,500,000
Under 2,500	12,378	20,000,000
Total	23,203	215,000,000
Percentage of U.S. total	88.2%	66.9%

The above projections are based on 5,106 departments reporting on Question 31. Population estimates are shown to the nearest 100,000 and may not add to totals due to rounding. The total population is estimated to be 321 million. See Table 4-1.

Q. 31: Which of the following education programs or activities does your department conduct?

Youth firesetter program
School fire safety education program based on a national model curriculum
Car seat installation
Home fire sprinkler education
Home safety visits
Cardiopulmonary resuscitation (CPR) instruction
Wildfire safety program based on a national model program
Older adult fire safety program based on a national model program
Fire Prevention Week activities
Free distribution of home smoke alarms
Free installation of home smoke alarms
Other prevention program
No education program

9. Fire Prevention Week Activities

Population of Community	Number of Departments Without Program	Population Protected by Departments Without Program
500,000 or more	1	1,100,000
250,000 to 499,999	6	2,100,000
100,000 to 249,999	20	3,100,000
50,000 to 99,999	42	2,900,000
25,000 to 49,999	107	3,800,000
10,000 to 24,999	379	6,200,000
5,000 to 9,999	582	4,300,000
2,500 to 4,999	1,311	7,700,000
Under 2,500	9,158	14,800,000
Total	11,606	46,000,000
Percentage of U.S. total	44.1%	14.3%

The above projections are based on 5,106 departments reporting on Question 31. Population estimates are shown to the nearest 100,000 and may not add to totals due to rounding. The total population is estimated to be 321 million. See Table 4-1.

Q. 31: Which of the following education programs or activities does your department conduct?

Youth firesetter program
School fire safety education program based on a national model curriculum
Car seat installation
Home fire sprinkler education
Home safety visits
Cardiopulmonary resuscitation (CPR) instruction
Wildfire safety program based on a national model program
Older adult fire safety program based on a national model program
Fire Prevention Week activities
Free distribution of home smoke alarms
Other prevention program
No education program

10. Free Distribution of Home Smoke Alarms

Population of Community	Number of Departments Without Program	Population Protected by Departments Without Program
500,000 or more	7	8,000,000
250,000 to 499,999	17	5,900,000
100,000 to 249,999	67	10,300,000
50,000 to 99,999	112	7,800,000
25,000 to 49,999	329	11,700,000
10,000 to 24,999	1,104	17,900,000
5,000 to 9,999	1,790	13,300,000
2,500 to 4,999	2,704	16,000,000
Under 2,500	9,403	15,200,000
Total	15,533	106,100,000
Percentage of U.S. total	59.0%	33.0%

The above projections are based on 5,106 departments reporting on Question 31. Population estimates are shown to the nearest 100,000 and may not add to totals due to rounding. The total population is estimated to be 321 million. See Table 4-1.

Q. 31: Which of the following education programs or activities does your department conduct?

Youth firesetter program
School fire safety education program based on a national model curriculum
Car seat installation
Home fire sprinkler education
Home safety visits
Cardiopulmonary resuscitation (CPR) instruction
Wildfire safety program based on a national model program
Older adult fire safety program based on a national model program
Fire Prevention Week activities
Free distribution of home smoke alarms
Free installation of home smoke alarms
Other prevention program
No education program

11. Free Installation of Home Smoke Alarms

Population of Community	Number of Departments Without Program	Population Protected by Departments Without Program
500,000 or more	10	11,500,000
250,000 to 499,999	14	4,800,000
100,000 to 249,999	73	11,200,000
50,000 to 99,999	142	9,900,000
25,000 to 49,999	382	13,600,000
10,000 to 24,999	1,244	20,200,000
5,000 to 9,999	1,967	14,700,000
2,500 to 4,999	3,074	18,100,000
Under 2,500	9,843	15,900,000
Total	16,749	119,900,000
Percentage of U.S. total	63.6%	37.3%

The above projections are based on 5,106 departments reporting on Question 31. Population estimates are shown to the nearest 100,000 and may not add to totals due to rounding. The total population is estimated to be 321 million. See Table 4-1.

Q. 31: Which of the following education programs or activities does your department conduct?

Youth firesetter program
School fire safety education program based on a national model curriculum
Car seat installation
Home fire sprinkler education
Home safety visits
Cardiopulmonary resuscitation (CPR) instruction
Wildfire safety program based on a national model program
Older adult fire safety program based on a national model program
Fire Prevention Week activities
Free distribution of home smoke alarms
Other prevention program
No education program

12. No Education Program

Population of Community	Number of Departments No Education Program	Population Protected by Departments With No Program
500,000 or more	0	0
250,000 to 499,999	0	0
100,000 to 249,999	1	200,000
50,000 to 99,999	1	100,000
25,000 to 49,999	2	100,000
10,000 to 24,999	16	300,000
5,000 to 9,999	19	100,000
2,500 to 4,999	61	400,000
Under 2,500	349	600,000
Total	449	1,800,000
Percentage of U.S. total	1.7%	0.6%

The above projections are based on 5,106 departments reporting on Question 31. Population estimates are shown to the nearest 100,000 and may not add to totals due to rounding. The total population is estimated to be 321 million. See Table 4-1.

Q. 31: Which of the following education programs or activities does your department conduct?

Youth firesetter program
School fire safety education program based on a national model curriculum
Car seat installation
Home fire sprinkler education
Home safety visits
Cardiopulmonary resuscitation (CPR) instruction
Wildfire safety program based on a national model program
Older adult fire safety program based on a national model program
Fire Prevention Week activities
Free distribution of home smoke alarms
Other prevention program
No education program

13. Other Prevention Program

Population of Community	Number of Departments With Other Prevention Program	Population Protected by Departments With Other Prevention Program
500,000 or more	23	26,400,000
250,000 to 499,999	15	5,200,000
100,000 to 249,999	40	6,100,000
50,000 to 99,999	62	4,300,000
25,000 to 49,999	84	3,000,000
10,000 to 24,999	138	2,200,000
5,000 to 9,999	97	700,000
2,500 to 4,999	67	400,000
Under 2,500	116	200,000
Total	642	48,500,000
Percentage of U.S. total	2.4%	15.1%

The above projections are based on 5,106 departments reporting on Question 31. Population estimates are shown to the nearest 100,000 and may not add to totals due to rounding. The total population is estimated to be 321 million. See Table 4-2.

Q. 31: Which of the following education programs or activities does your department conduct?

Youth firesetter program
School fire safety education program based on a national model curriculum
Car seat installation
Home fire sprinkler education
Home safety visits
Cardiopulmonary resuscitation (CPR) instruction
Wildfire safety program based on a national model program
Older adult fire safety program based on a national model program
Fire Prevention Week activities
Free distribution of home smoke alarms
Other prevention program
No education program

Figure 4-3 illustrates the trend over time for the need for specific fire safety education programs. The need in 2015 is greater than in previous years.

Figure 4-3. Percent of Departments Lacking Particular Fire Safety Education Programs, for Four Studies

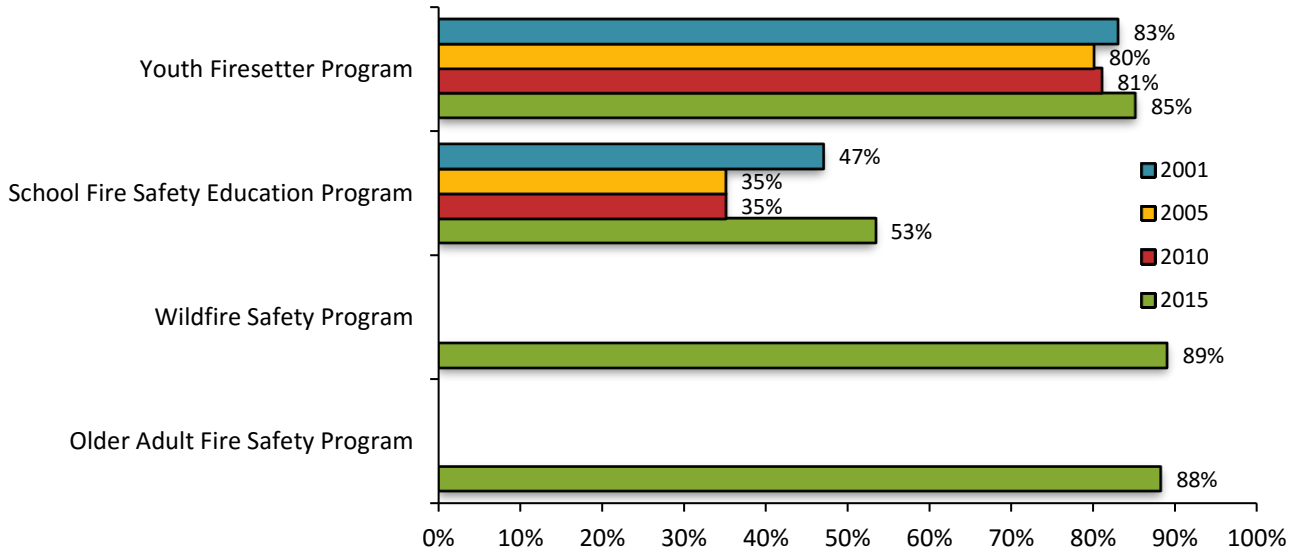
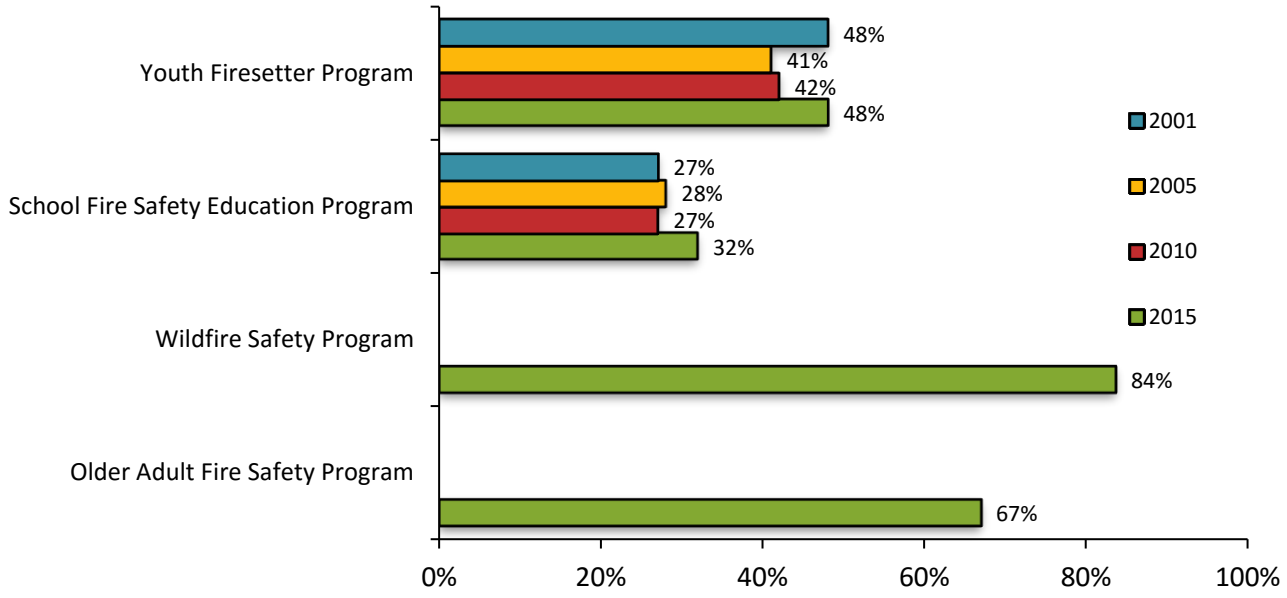


Figure 4-4 describes the percent of US population that lacks fire safety education programs, as determined by a projection of the department results and the population protected by the departments. There is a great need for a wildfire safety program and also an older adult fire safety program.

Figure 4-4. Percent of U.S. Population Living in Communities Protected by Departments Lacking Particular Fire Safety Education Programs, for Four Studies



Home Fire Sprinkler Education

Table 4-4 describes the percentage of fire departments that include home fire sprinkler information in their public education programs. This was an additional question in the 2015 survey. This percentage ranged from 50% in the largest departments down to 8% in the smallest departments.

Fire Code Inspections

Overall, 20% of fire departments do not have anyone conducting fire code inspections in the community, down from 27% in 2001 and 24% in 2010.

Table 4-5 indicates which of several groups conduct fire-code inspections in the community. In any one department, inspections may be performed by more than one agency, and so the percentages may add to more than 100%.

Figure 4-5 illustrates what percent of departments reported each of the groups as responsible, in each of the four surveys. A new survey response option in 2015 was, "State inspection/fire prevention bureau." The percentages have declined for "no one" and "other" and substantially increased for a "full-time fire department inspector".

It was more likely that "Other" was reported as the inspector in the smaller communities (see Table 4-5).

There was not sufficient space in the survey to ask which types of inspections are conducted by which parties. However, NFPA has some anecdotal information on trends, gained from discussions with select fire departments in two fire-code inspection effectiveness measurement studies conducted three decades apart.[4] In the earlier study, many departments were making extensive use of in-service firefighters to conduct fire-code inspections, and the departments not using in-service firefighters were also unable to come close to inspecting all or nearly all commercial properties once a year. A review of the last four studies shows an increase in the use of both full time fire code inspectors and in-service fire fighters to conduct fire code inspection.

Figure 4-6 provides statistics as in Figure 4-5 but is limited to communities with less than 2,500 in population protected. These smaller communities are much more likely to have no one conducting fire code inspections, and if someone is conducting such inspections, these communities are much less likely to have full-time fire department inspectors performing the inspections. However, the percentage of no one conducting inspections has been decreasing over time, which indicates a trend in the right direction.

Table 4-6 shows the percentage of commercial or inspectable properties that are inspected once a year. This was a new survey question in 2015. In the largest

[4] *Fire Code Inspections and Fire Prevention: What Methods Lead to Success?*, NFPA and Urban Institute, Quincy, MA, 1979; and *Measuring Code Compliance Effectiveness*, Fire Protection Research Foundation, 2008.

departments protecting populations of 500,000 or more, 66% of departments inspect the majority (> 50%) of their commercial or inspectable properties. In the smallest departments in communities of under 2,500, 19% of departments are not able to inspect any of such properties, 19% of departments are able to inspect the majority (> 50%) of their commercial or inspectable properties and 35% are not responsible for conducting inspections.

Figure 4-5. Who Conducts Fire-Code Inspections, for Four Studies

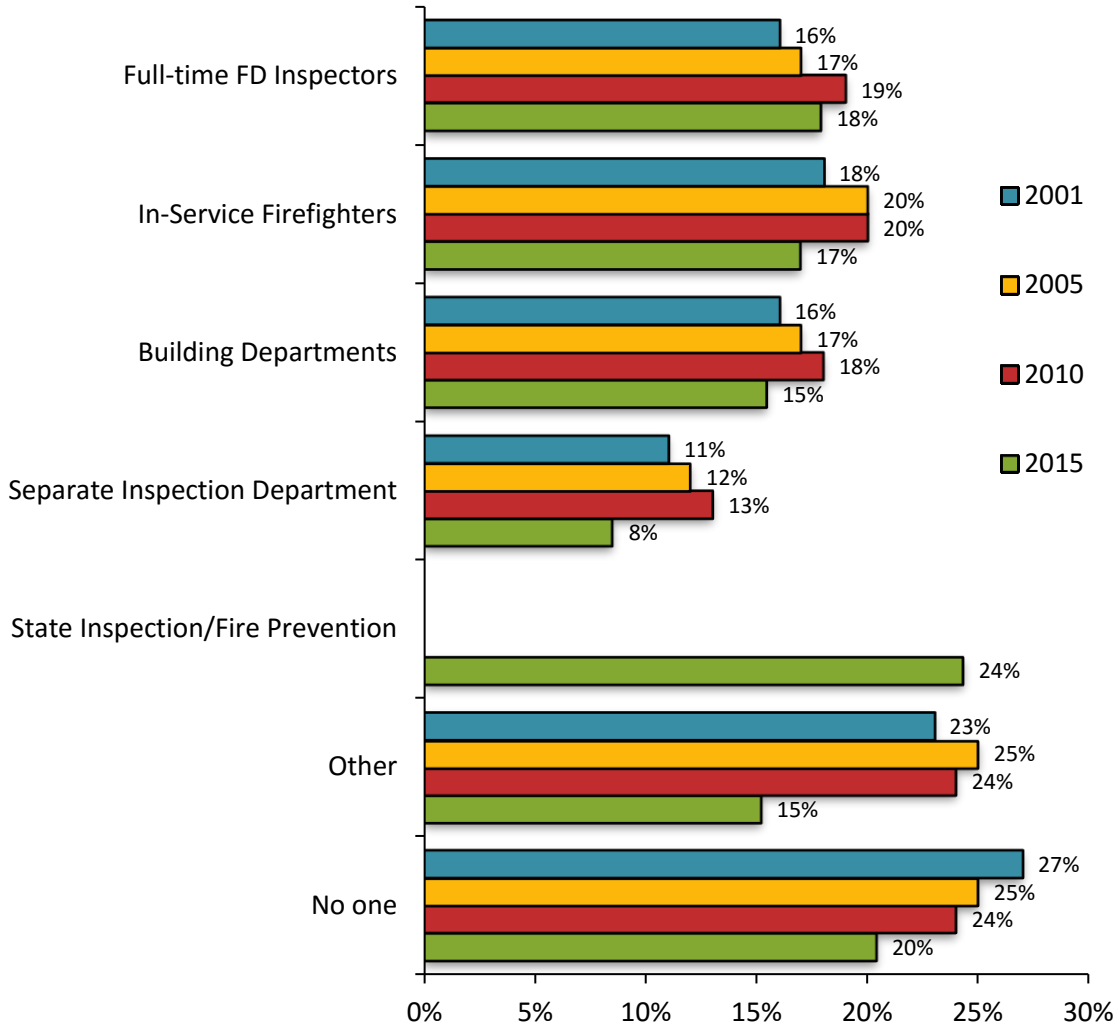
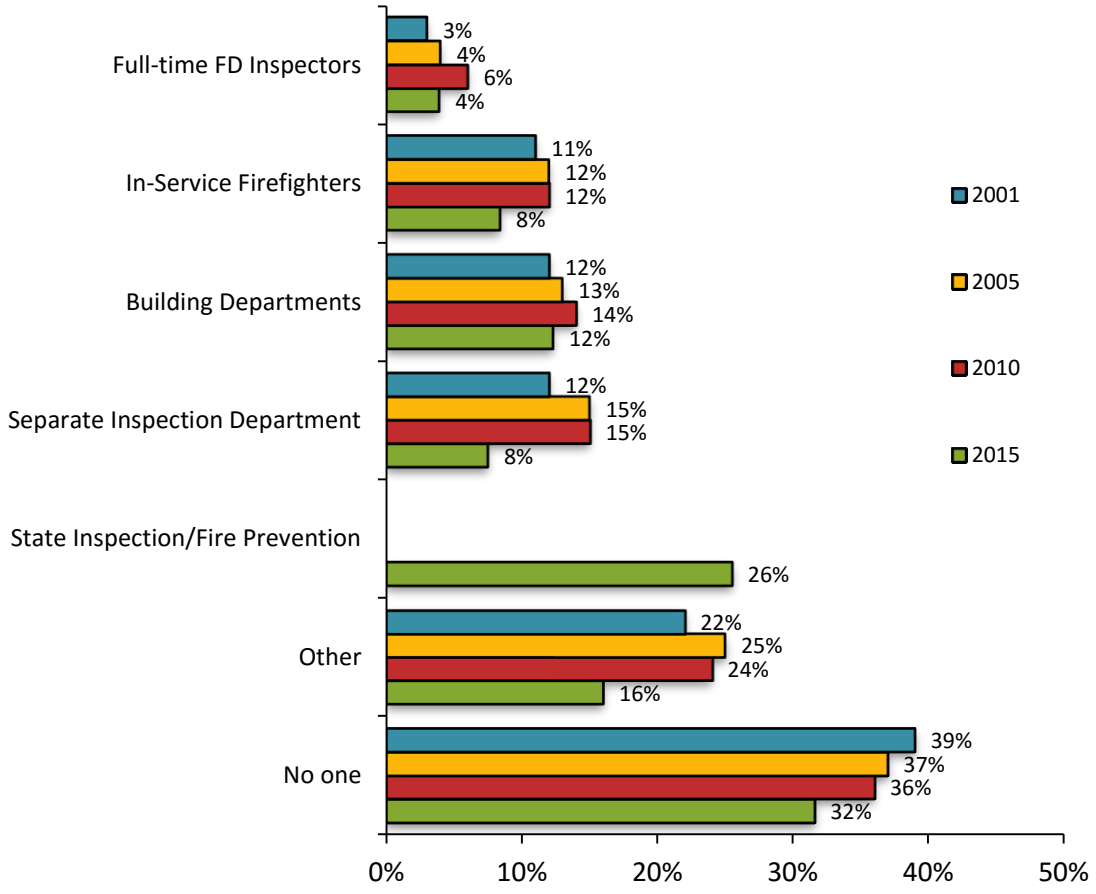


Figure 4-6. Who Conducts Fire-Code Inspections in Communities with Less Than 2,500 Population Protected, for Four Studies



Fires that are deliberately set

In the 2015 survey, the wording of the question for arson investigation was changed to drop the word "arson" and replace with "fire investigator." This was because investigations typically start out with a fire investigator before moving to an arson investigator.

Overall, two out of five (40%) departments have fire department fire investigators available to determine whether a fire was deliberately set, more than 31% of fire departments with arson investigators in 2001 and 33% in 2010.

The change in response when compared to previous surveys could be due to the change in survey wording or could be due to changes in the underlying situations.

Table 4-7 indicates which of several parties determines that a fire was deliberately set. Multiple answers were permitted. Most departments had access to a local, regional or state fire investigator, but many departments also made use of determinations by incident commanders, police officers, or insurance investigators. Nearly all of the largest communities had local fire department fire investigators (at least 90% for departments with population protected of at least 50,000).

Overall, when asked who determines that a fire was deliberately set, 40% of departments cited fire department fire investigators, 64% cited regional or state fire task force investigators, 29% cited incident commanders or other front line or company fire officer, 18% cited police departments, 16% cited insurance investigators, 2% cited contract investigators, and 10% cited other parties.

Table 4-1
Which Engineering Programs or Activities Does Department Conduct?
by Community Size
(Q. 27)

Population of Community	Construction Plans Review	Permit Approval	Routine Testing of Active Systems	Hazard Mitigation Planning Risk Assessment	No Such Engineering Programs
500,000 or more	78.3%	78.3%	69.6%	58.7%	4.3%
250,000 to 499,999	83.7%	81.4%	67.4%	72.1%	2.3%
100,000 to 249,999	90.9%	84.2%	66.7%	62.4%	3.0%
50,000 to 99,999	86.5%	79.9%	58.1%	47.9%	5.6%
25,000 to 49,999	82.4%	63.1%	52.9%	45.3%	8.0%
10,000 to 24,999	66.7%	41.6%	36.1%	40.8%	21.4%
5,000 to 9,999	44.8%	23.9%	22.9%	28.6%	38.2%
2,500 to 4,999	25.5%	14.2%	14.2%	22.3%	53.0%
Under 2,500	12.0%	7.9%	7.1%	17.5%	64.5%
Total	30.6%	19.8%	17.6%	24.9%	49.6%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above projections are based on 5,106 departments reporting on Question 27. Population estimates are shown to the nearest 100,000 and may not add to totals due to rounding. See Table 4-A-1; 4-A-2; 4-A-3 and 4-A-4.

Q. 27: Which of the following engineering programs or activities does your department conduct?

Construction plans review
Permit approval
Routine testing of active automatic systems (e.g., fire sprinkler, detection/alarm, smoke control)
Hazardous Mitigation Planning Risk Assessment
No such engineering programs

Table 4-2: Which Education Programs Does Department Conduct? By Community Size (Q. 31)				
Population of Community	**Youth Firesetter Program**	**School Fire Safety Education Program**	**Wildfire Safety Program**	**Older Adult Fire Safety Program**
500,000 or more	87.5%	80.4%	30.4%	53.6%
250,000 to 499,999	77.0%	70.5%	18.0%	45.9%
100,000 to 249,000	74.4%	73.2%	20.8%	42.4%
50,000 to 99,999	66.7%	80.1%	13.3%	36.2%
25,000 to 49,999	48.5%	68.2%	11.2%	31.3%
10,000 to 24,999	34.6%	68.5%	9.0%	28.0%
5,000 to 9,999	16.9%	62.3%	9.7%	16.3%
2,500 to 4,999	10.0%	49.5%	11.0%	9.4%
Under 2,500	5.2%	32.3%	11.4%	4.3%
Total	14.9%	46.7%	11.0%	11.8%

Source: NFPA 2015 Survey of the Needs of the US Fire Service
Q. 31: Which of the following education programs or activities does your department conduct?

Youth firesetter program
School fire safety education program based on a national model curriculum
Car seat installation
Home fire sprinkler education
Home safety visits
Cardiopulmonary Resuscitation (CPR) instruction
Wildfire safety program based on a national model program
Older adult fire safety program based on a national model program
Fire Prevention Week activities
Free distribution of home smoke alarms
Free installation of home smoke alarms
Other prevention program
No education program

Table 4-3: Which Education Programs or Activities Does Department Conduct? By Community Size (Q.31)

Population of Community	Car Seat Installation	Home Fire Sprinkler Education	Home Safety Visits	Cardiopulmonary Resuscitation (CPR) Instruction	Fire Prevention Week Activities	Free distribution of home smoke alarms	Free installation of home smoke alarms	Other Prevention Program	No Education Program
500,000 or more	32.1%	26.8%	50.0%	60.7%	98.2%	87.5%	82.1%	41.1%	0.0%
250,000 to 499,999	37.7%	26.2%	54.1%	67.2%	90.2%	72.1%	77.0%	24.6%	0.0%
100,000 to 249,000	42.4%	26.0%	43.6%	71.6%	92.0%	73.2%	70.8%	16.0%	0.4%
50,000 to 99,999	41.0%	26.1%	37.3%	67.3%	91.3%	76.8%	70.6%	12.8%	0.2%
25,000 to 49,999	36.9%	26.1%	42.2%	61.6%	90.3%	70.2%	65.4%	7.6%	0.2%
10,000 to 24,999	30.8%	26.1%	37.5%	57.0%	87.2%	62.7%	58.0%	4.7%	0.5%
5,000 to 9,999	17.3%	26.1%	31.3%	47.3%	84.3%	51.7%	46.9%	2.6%	0.5%
2,500 to 4,999	7.6%	26.1%	20.6%	41.9%	72.5%	43.3%	35.6%	1.4%	1.3%
Under 2,500	4.4%	26.1%	14.1%	32.3%	29.2%	27.3%	23.9%	0.9%	2.7%
Total	19.0%	26.1%	22.4%	41.3%	55.9%	41.0%	36.4%	2.4%	1.7%

Source: NFPA 2015 Survey of the Needs of the US Fire Service

Q. 31: Which of the following education programs or activities does your department conduct?
Youth firesetter program
School fire safety education program based on a national model curriculum
Car seat installation
Home fire sprinkler education
Home safety visits
Cardiopulmonary Resuscitation (CPR) instruction
Wildfire safety program based on a national model program
Older adult fire safety program based on a national model program
Fire Prevention Week activities
Free distribution of home smoke alarms
Free installation of home smoke alarms
Other prevention program
No education program

Table 4-4: How Many Departments Include Home Fire Sprinkler Information In their Public Education Programs? (Q. 32)

Population of Community	Yes Number Depts	Yes Percent	No Number Depts	No Percent	Not Applicable Number Depts	Not Applicable Percent	Total Number Depts	Total Percent
500,000 or more	28	50.0%	25	45.5%	3	4.5%	56	100.0%
250,000 to 499,999	30	48.8%	23	37.2%	9	14.0%	61	100.0%
100,000 to 249,999	108	43.2%	120	48.1%	22	8.6%	250	100.0%
50,000 to 99,999	235	48.6%	225	46.5%	23	4.9%	483	100.0%
25,000 to 49,999	420	38.1%	620	56.2%	63	5.7%	1,103	100.0%
10,000 to 24,999	932	31.5%	1,778	60.1%	250	8.4%	2,960	100.0%
5,000 to 9,999	802	21.7%	2,301	62.1%	599	16.2%	3,703	100.0%
2,500 to 4,999	678	14.2%	2,985	62.5%	1,110	23.3%	4,773	100.0%
Under 2,500	1,024	7.9%	7,394	57.2%	4,515	34.9%	12,933	100.0%
Total	4,257	16.2%	15,471	58.8%	6,594	25.1%	26,322	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above projections are based on 4,788 departments reporting on Question 32. Numbers may not add to totals due to rounding.

Q. 32: Does your department include Home Fire Sprinkler information in their public educations programs? Yes, no, not, applicable, (N/A)

Table 4-5: Who Conducts Fire-Code Inspections in the Community? By Community Size (Q. 28)

Population of Community	Full-time Fire Department Inspectors	In-Service Firefighters	Separate Inspection Bureau	Building Department	State Inspection/Fire Prevention Bureau	No One	Other
500,000 or more	93.5%	50.0%	10.9%	15.2%	15.2%	0.0%	2.2%
250,000 to 499,999	97.7%	30.2%	9.3%	11.6%	11.6%	0.0%	0.0%
100,000 to 249,999	93.3%	36.4%	6.7%	10.9%	12.1%	0.0%	4.8%
50,000 to 99,999	84.8%	40.6%	10.6%	12.5%	10.6%	0.7%	5.0%
25,000 to 49,999	73.7%	39.5%	4.6%	17.0%	17.2%	0.6%	6.8%
10,000 to 24,999	47.4%	34.0%	7.5%	20.0%	20.1%	2.8%	12.0%
5,000 to 9,999	21.5%	23.4%	11.8%	20.6%	23.0%	9.8%	14.9%
2,500 to 4,999	9.2%	15.5%	10.1%	17.4%	28.8%	17.4%	19.1%
Under 2,500	3.9%	8.4%	7.5%	12.3%	25.5%	31.6%	16.0%
Total	17.9%	17.0%	8.5%	15.4%	24.3%	20.4%	15.2%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above projections are based on 5,106 departments reporting on Question 28. Population estimates may not add to totals due to rounding.

Q. 28. Who conducts the fire code inspections in your community?
Full-time Fire Department Inspectors
In-Service Firefighters
Separate Inspection Bureau
Building Department
State Inspection/Fire Prevention Bureau
No one
Other

Table 4-6: Percentage of Commercial or Inspectable Properties Inspected Once a Year
Percent of Departments by Community Size
(Q. 29)

Population of Community	All (100%) Number Depts	All (100%) Percent	Most (76-99%) Number Depts	Most (76-99%) Percent	Many (51-75%) Number Depts	Many (51-75%) Percent	Some (26-50%) Number Depts	Some (26-50%) Percent	Few (1-25%) Number Depts	Few (1-25%) Percent	None (0%) Number Depts	None (0%) Percent	Not Responsible for Conducting Inspections Number Depts	Not Responsible for Conducting Inspections Percent	Total Number Depts	Total Percent
500,000 or more	11	20.5%	10	18.2%	15	27.3%	10	18.2%	8	13.6%	0	0.0%	1	2.3%	56	100.0%
250,000 to 499,999	9	14.3%	15	23.8%	9	14.3%	20	33.3%	9	14.3%	0	0.0%	0	0.0%	61	100.0%
100,000 to 249,999	31	12.3%	60	23.9%	52	20.9%	58	23.3%	43	17.2%	0	0.0%	6	2.5%	250	100.0%
50,000 to 99,999	114	23.5%	80	16.6%	92	19.0%	120	24.9%	67	13.8%	2	0.4%	8	1.7%	483	100.0%
25,000 to 49,999	246	22.3%	249	22.5%	165	15.0%	211	19.2%	186	16.8%	7	0.6%	39	3.6%	1,103	100.0%
10,000 to 24,999	583	19.7%	607	20.5%	408	13.8%	487	16.5%	490	16.6%	75	2.6%	309	10.4%	2,960	100.0%
5,000 to 9,999	574	15.5%	537	14.5%	351	9.5%	441	11.9%	861	23.2%	149	4.0%	792	21.4%	3,703	100.0%
2,500 to 4,999	748	15.7%	452	9.5%	259	5.4%	519	10.9%	1,134	23.8%	422	8.9%	1,238	25.9%	4,773	100.0%
Under 2,500	1,381	10.7%	667	5.2%	391	3.0%	817	6.3%	2,704	20.9%	2,486	19.2%	4,488	34.7%	12,933	100.0%
Total	3,697	14.0%	2,676	10.2%	1,742	6.6%	2,685	10.2%	5,501	20.9%	3,141	11.9%	6,881	26.1%	26,322	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above projections are based on 4,135 departments reporting on Question 29. Numbers may not add to totals due to rounding.

Q. 29: What percentage of commercial or inspectable properties are inspected once a year?
none few some many most all not responsible for conducting inspections

Table 4-7: Who Determines That a Fire was Deliberately Set? By Community Size (Q. 30)

Population of Community	Fire Department Fire Investigator	Regional/State Fire Task Force Investigator	Incident Commander or Other Frontline or Company Fire Officer	Police Department	Contract Investigator	Insurance Investigator	Other
500,000 or more	93.5%	4.3%	23.9%	10.9%	0.0%	0.0%	0.0%
250,000 to 499,999	97.7%	23.3%	25.6%	7.0%	0.0%	0.0%	2.3%
100,000 to 249,999	93.9%	24.2%	25.5%	21.8%	0.6%	5.5%	1.2%
50,000 to 99,999	90.1%	34.7%	20.1%	23.8%	1.7%	9.9%	4.3%
25,000 to 49,999	86.4%	48.5%	28.1%	25.3%	1.6%	12.6%	3.4%
10,000 to 24,999	70.1%	56.6%	31.8%	23.3%	3.0%	14.0%	8.0%
5,000 to 9,999	46.8%	65.2%	32.7%	21.8%	2.3%	16.9%	10.0%
2,500 to 4,999	36.6%	66.1%	33.5%	20.9%	4.1%	18.3%	10.5%
Under 2,500	24.0%	68.1%	26.4%	14.6%	1.5%	16.9%	10.9%
Total	39.5%	63.9%	29.1%	18.4%	2.2%	16.3%	9.8%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above projections are based on 5,106 departments reporting on Question 30. Departments were asked to check all that apply, so department could select multiple responses. Numbers may not add to totals due to rounding.

Q. 30: Who determines that a fire was deliberately set?

SECTION 5. ABILITY TO HANDLE UNUSUALLY CHALLENGING INCIDENTS

The survey questions for this section were modified from the previous survey, in order to focus on a couple of unusually challenging incidents that most fire departments could encounter. The questions focused on two scenarios: technical rescue and EMS for a building with occupants after structural collapse following a fire or a no-notice catastrophic event such as an earthquake or tornado, and a wildland-urban interface (WUI) fire affecting structures. Because of the change in questions from the previous survey, there are no comparisons between responses in this year compared to previous years.

Technical rescue and EMS for a building with occupants after structural collapse following a fire or a no-notice catastrophic event such as an earthquake or tornado

The questions were written to determine how much support a local department would need in order to handle this incident. Specifically, how far a department would have to go to obtain enough people with specialized *training* for this incident is shown in Table 5-1. Among the departments protecting the largest communities of 500,000 or more, 83% could obtain enough people with specialized training locally. This percentage decreases to 40% among departments that protect communities of 100,000-249,999 and further decreases to 20% among departments that protect communities of under 2,500. Beyond local resources, most departments protecting the smallest populations of under 2,500 would seek regional assistance (within state) for personnel (56%) and some would request State assistance (23%).

Similarly, how far a department would have to go to obtain enough specialized *equipment* to handle this incident is presented in Table 5-2. Among the departments protecting the largest communities of 500,000 or more, 83% could obtain enough specialized equipment locally. This percentage drops to 35% among departments that protect communities of 100,000-249,999 and further drops to 18% among departments that protect communities of under 2,500. For these smallest departments, 54% would seek specialized equipment regionally and 27% would go to the State.

These results are illustrated for all departments and for each community size in Figures 5-1 through 5-7.

Some departments have a plan for obtaining assistance from others on this type of incident. Overall, 41% of these departments have an informal plan, and 45% have a written agreement, as described in Table 5-3. Specifically, at least 80% of departments protecting populations of 100,000 or greater have a written agreement to obtain assistance from others on this type of incident. Less than half of departments in communities with populations under 5,000 also have written agreements, with 37% of departments protecting populations of under 2,500 having a written agreement to obtain assistance from others in this scenario. Overall results are illustrated in Figure 5-8.

Figure 5-1. Technical Rescue and EMS for a Building with Occupants After Structural Collapse Following a Fire or No-Notice Catastrophic Event, or All Sizes of Communities, for 2015

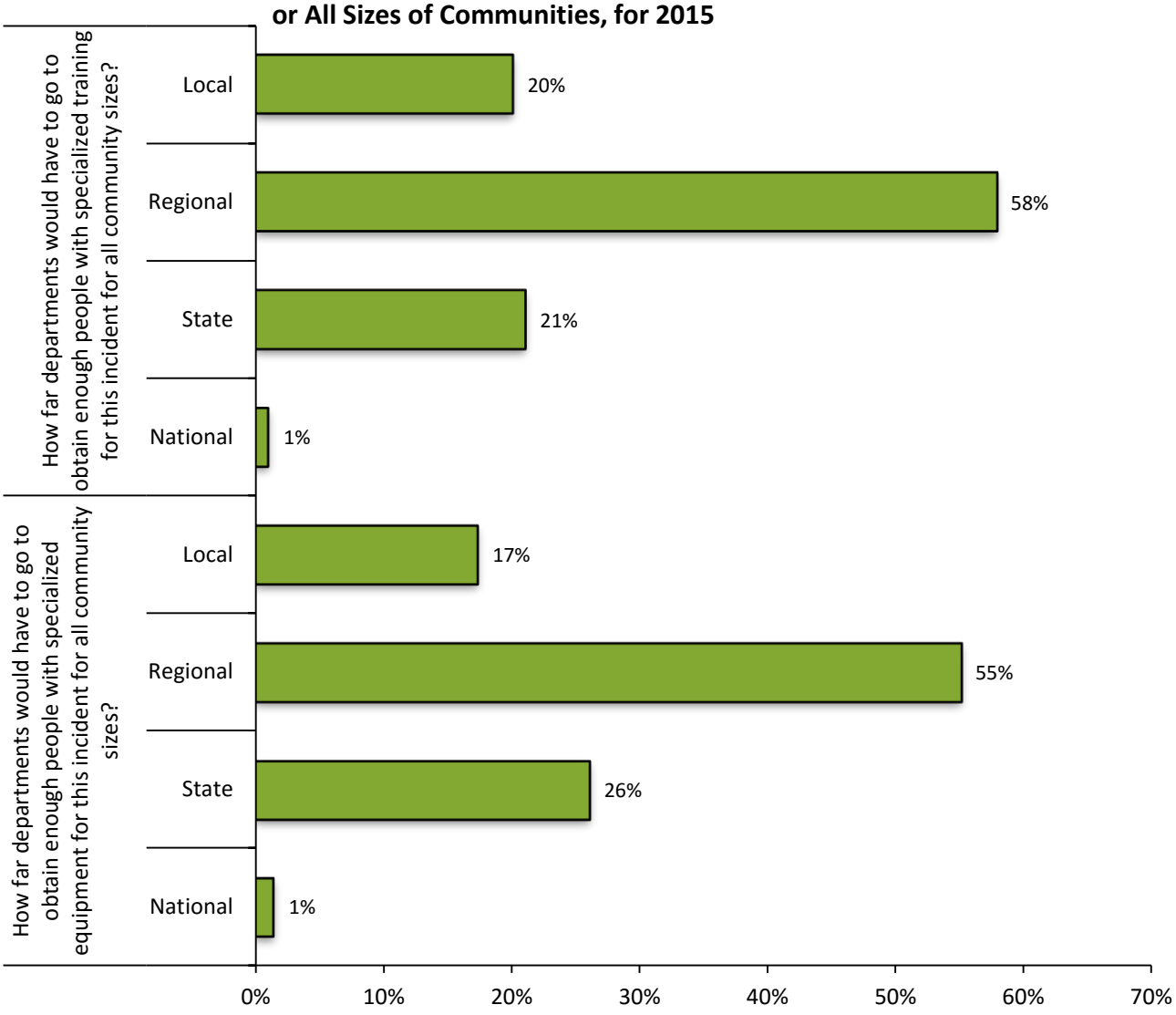


Figure 5-2. Technical Rescue and EMS for a Building with Occupants After Structural Collapse Following a Fire or No-Notice Catastrophic Event for Communities 250,000 or more, for 2015

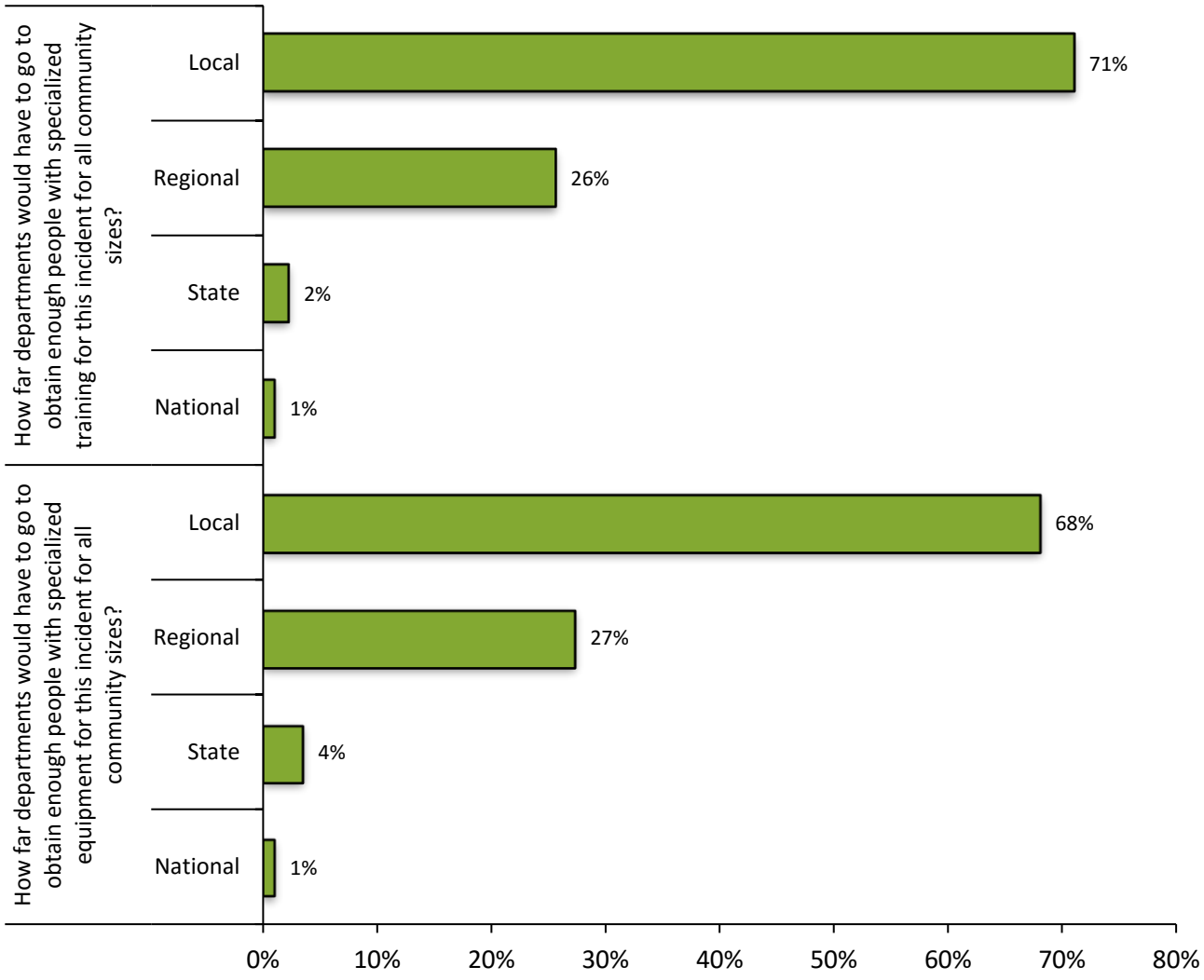


Figure 5-3. Technical Rescue and EMS for a building with occupants after structural collapse following a fire or no-notice catastrophic event, for Communities 25,000 to 249,999, for 2015

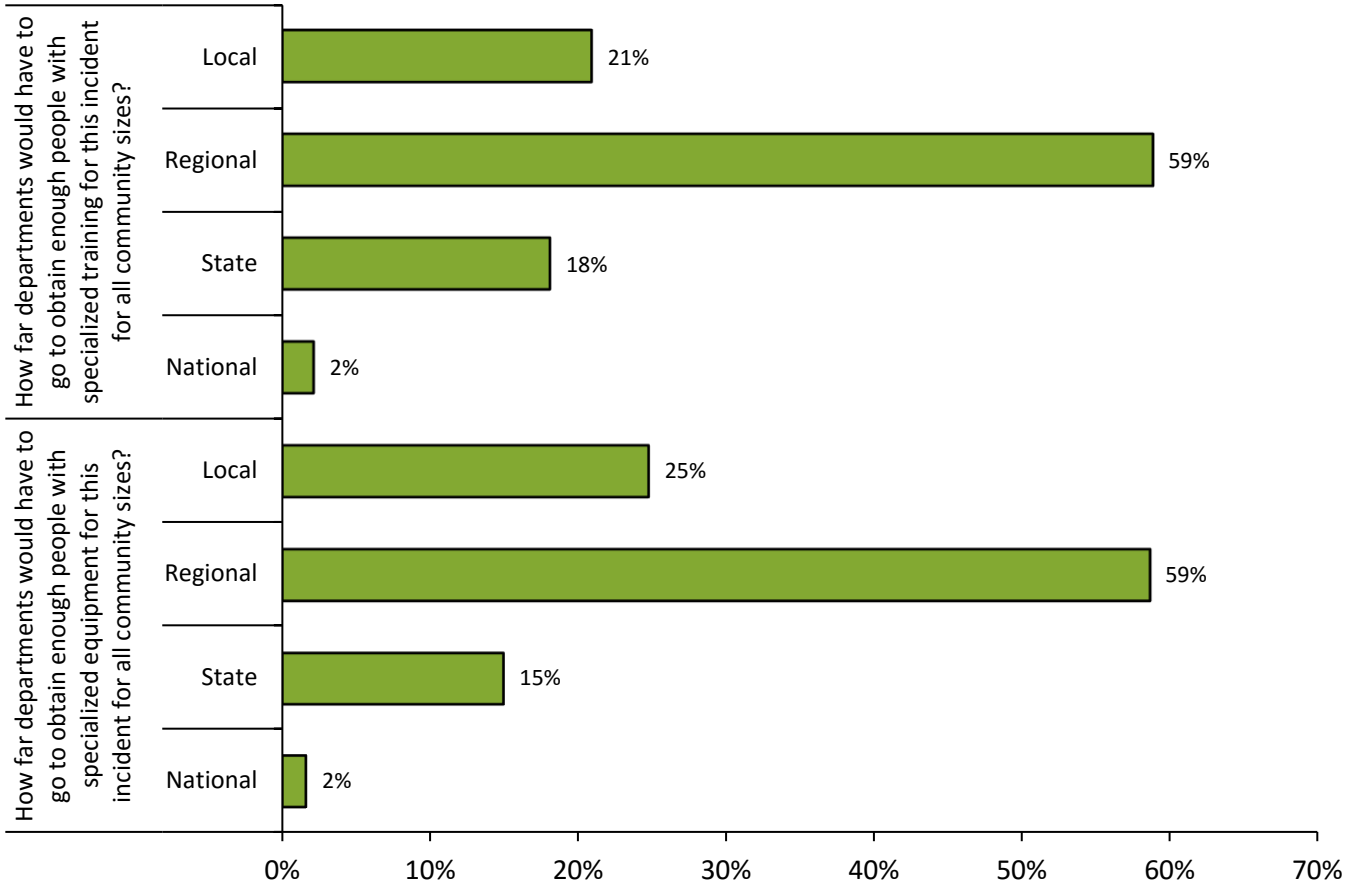


Figure 5-4. Technical Rescue and EMS for a building with occupants after structural collapse following a fire or no-notice catastrophic event, for Communities 10,000 to 24,999, for 2015

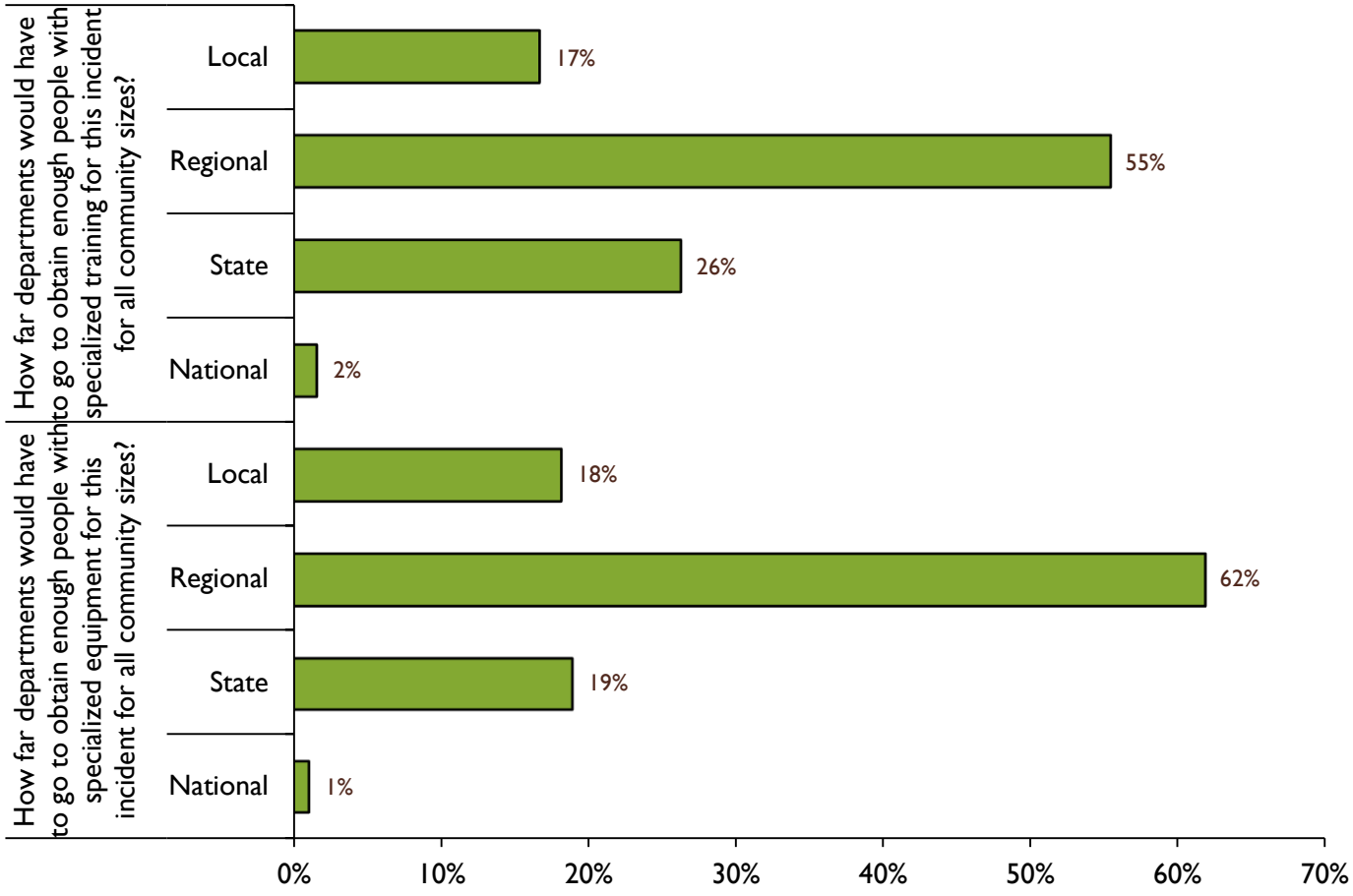


Figure 5-5. Technical Rescue and EMS for a building with occupants after structural collapse following a fire or no-notice catastrophic event, for Communities 5,000 to 9,999, for 2015

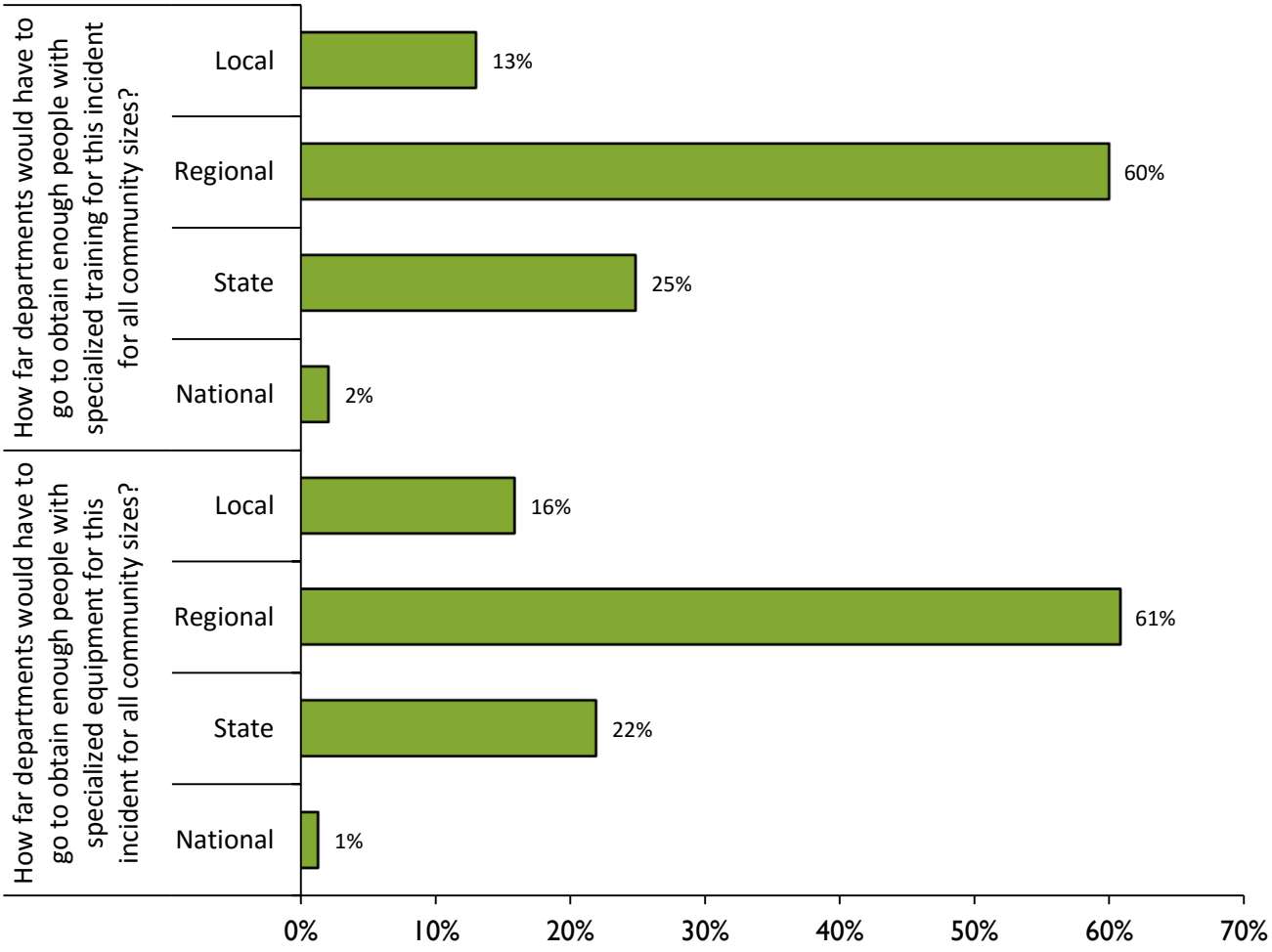


Figure 5-6. Technical Rescue and EMS for a building with occupants after structural collapse following a fire or no-notice catastrophic event, for Communities 2,500 to 4,999, for 2015

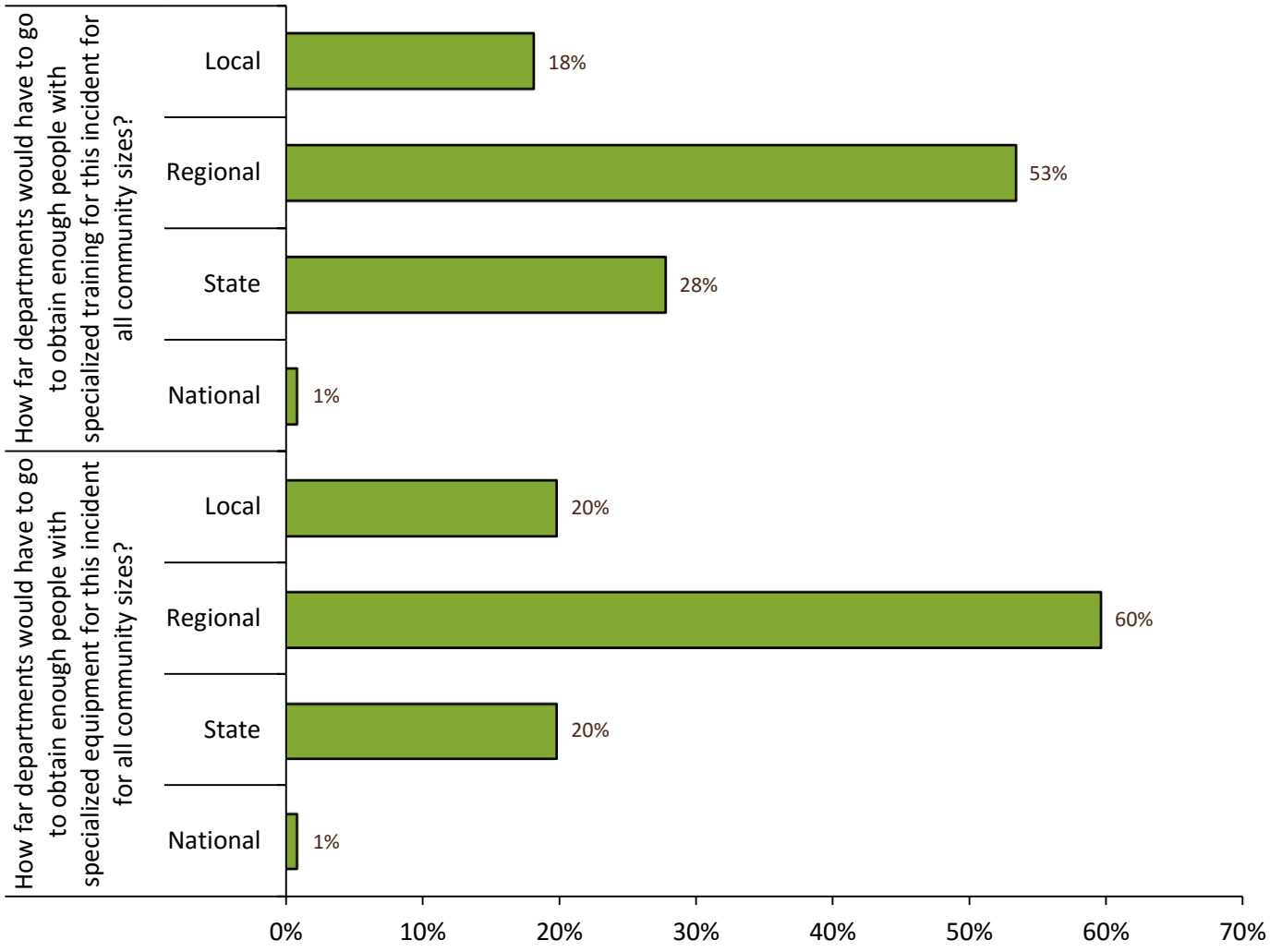


Figure 5-7. Technical Rescue and EMS for a building with occupants after structural collapse following a fire or no-notice catastrophic event for Communities 2,500 and under, for 2015

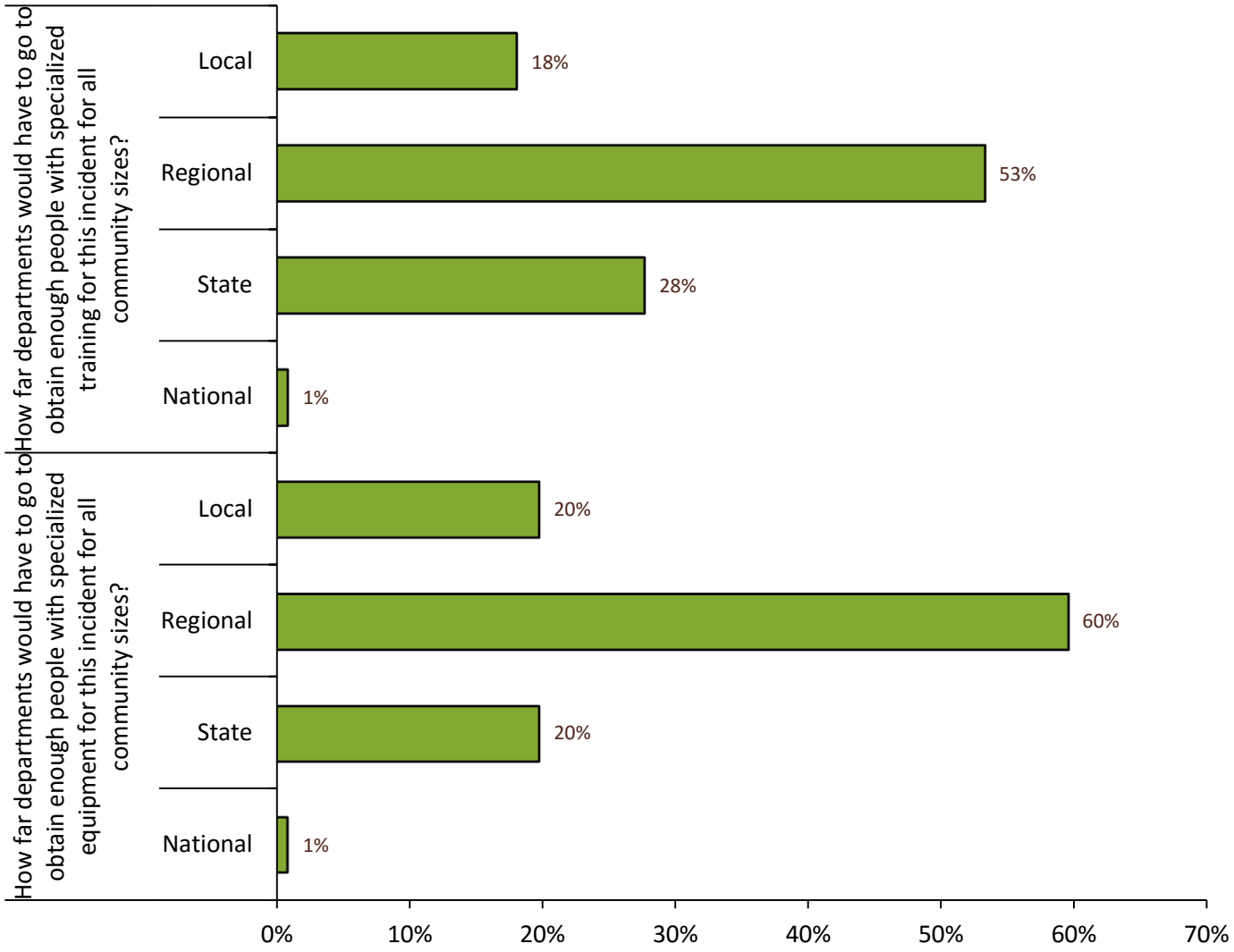
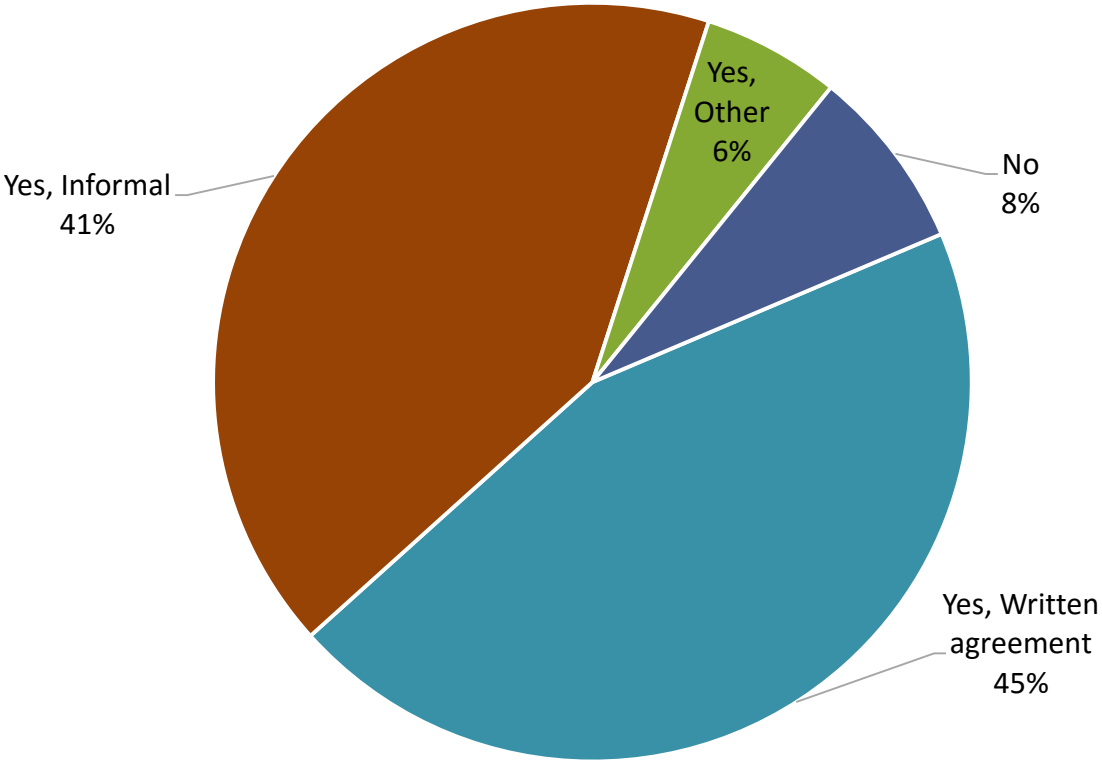


Figure 5-8. Departments having a plan to obtain assistance form others for a technical rescue and EMS no-notice catastrophic event, for all community sizes, in 2015



Wildland-Urban Interface (WUI) Fire Affecting Structures

Several questions were asked regarding this scenario in order to determine how much support would be necessary beyond local resources. Table 5-4 describes those departments that have a role in protecting structures in the wildland-urban interface. Overall, 78% of departments reported that this is a role (protecting structures in the Wildland-Urban Interface) that their fire department performs. If a department did not perform the role of protecting structures in the wildland-urban interface, then they were not asked to respond to the remaining questions.

Table 5-5 shows the maximum number of structures that a department can handle alone in this scenario. Among departments that protect populations of 500,000 or more, the majority (71%) could handle more than 20 structures themselves. For departments in community sizes of 100,000 to 249,999, approximately half of departments (53%) could handle a number of structures between 2 and 5, and a third of departments (32%) could handle a number between 6 and 20. In the smallest community sizes of less than 2,500, 60% of departments could handle between 2 and 5 structures, and 36% could handle one structure.

Regarding area that can be protected, Table 5-6 indicates the maximum acreage that a department can handle alone. Among departments that protect populations of 500,000 or more, the majority (68%) could handle a fire of more than 100 acres. For departments in community sizes of 100,000 to 249,999, 41% could handle a number of acres between 1 and 10, and 20% could handle a number between 11 and 50. In the smallest community sizes of less than 2,500, 49% of departments could handle a number of acres between 1 and 10, and 26% could handle a number between 11 and 50.

Overall results for the above two questions are displayed in Figure 5-9.

The next set of questions addressed how far a local department would have to go in order to obtain support in some specific wildland-urban interface scenarios. The questions differ slightly from preceding questions in that the number ranges have a different context in the question and responses. For example, when answering the question, "What is the maximum number of structures your department could handle alone?", if the response is 10 structures then it would be grouped in the responses of 6-20 structures. However, when answering the question, "If you had an incident affecting 6-20 structures how far would you have to go to obtain enough people with specialized training and equipment for this incident?", even if the department could handle 10 structures alone, the question considers an incident with 20 structures and the department would respond as needing support beyond local resources. Thus apparent inconsistencies between responses to these two questions can be explained by different question and response meanings.

Tables 5-7 through 5-9 describe how far a department would have to go in order to obtain enough people with specialized training and equipment for incidents affecting 2-5, 6-20 and more than 20 structures.

Approximately half of departments in community sizes of under 250,000 could handle an incident involving 2-5 structures with local resources only, meaning that half of these departments would need to obtain support from regional partners or the State. Overall, 28% of departments would seek resources from the State for an incident affecting 6-20 structures, and three out of five departments (59%) would seek State resources for an incident involving more than 20 structures. Overall results are displayed in Figure 5-10.

Table 5-10 and Figure 5-11 indicate if a department has a plan for obtaining assistance from others on this type of wildland-urban interface incident. Among fire departments that have the responsibility for protecting structures in the wildland-urban interface, more than 75% of departments protecting populations of 50,000 or more have a written agreement to obtain assistance from others for this type of incident. This percentage decreases as the community size decreases, with approximately half of departments protecting populations under 5,000 having written agreements. **The remaining departments do not have a formal written agreement to obtain assistance from others although it is demonstrated in preceding responses that many departments cannot rely on local resources alone in many wildland-urban interface situations.**

Figure 5-9, Structure Count and Area Burned for All Department Thresholds, for All Community Sizes, for 2015

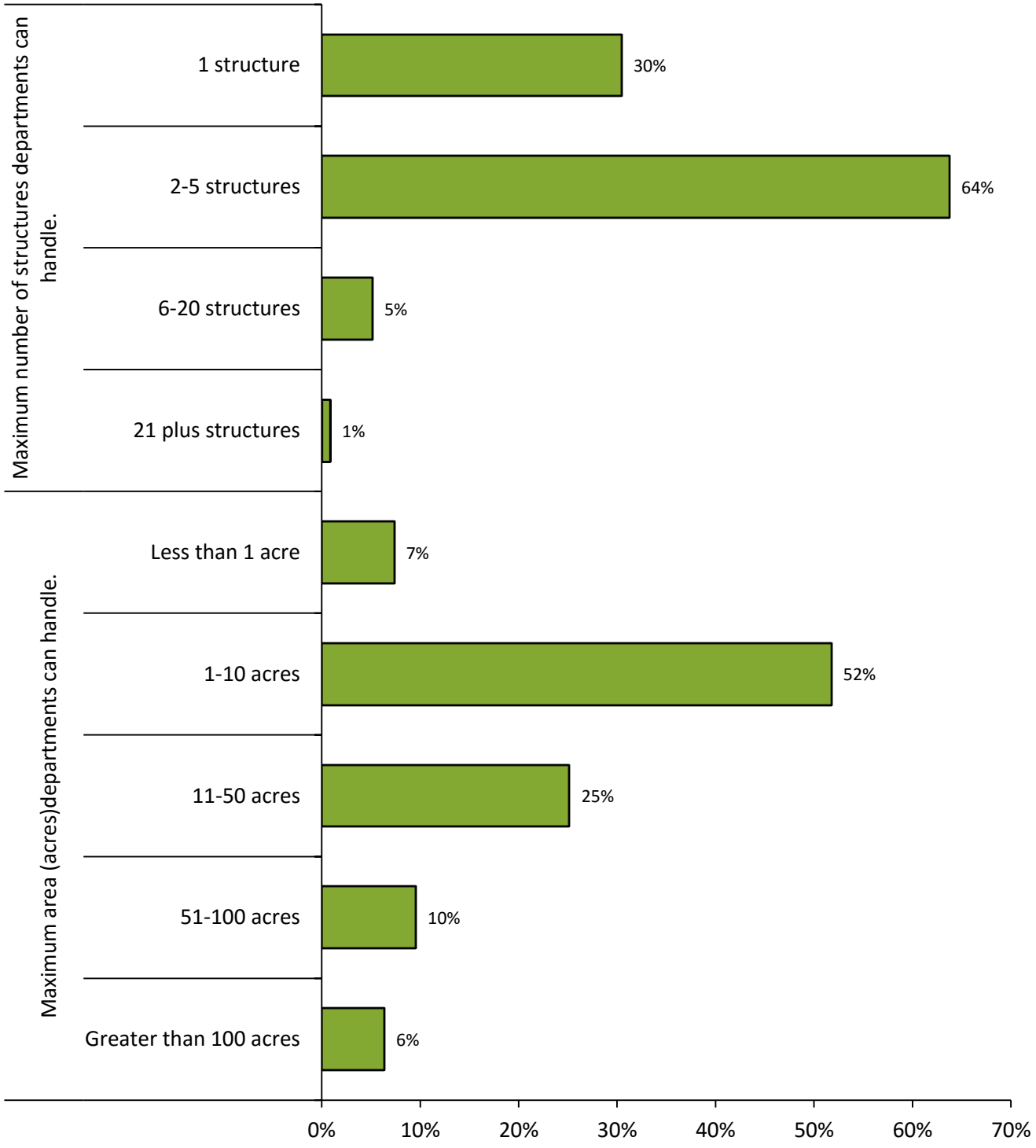


Figure 5-10. Wildland-Urban Interface (WUI) Fire Affecting Strucures for All Communities Sizes, for 2015

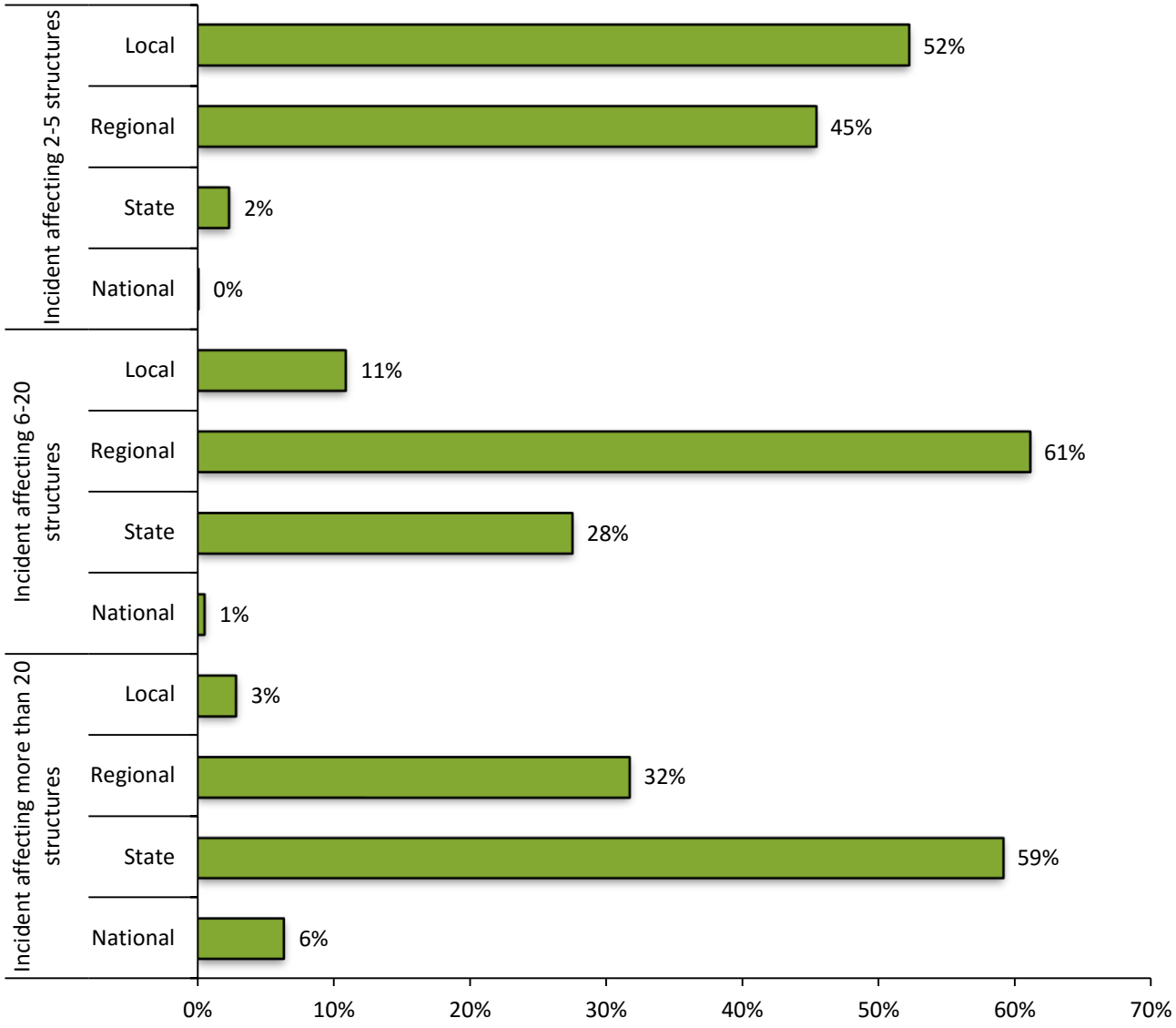
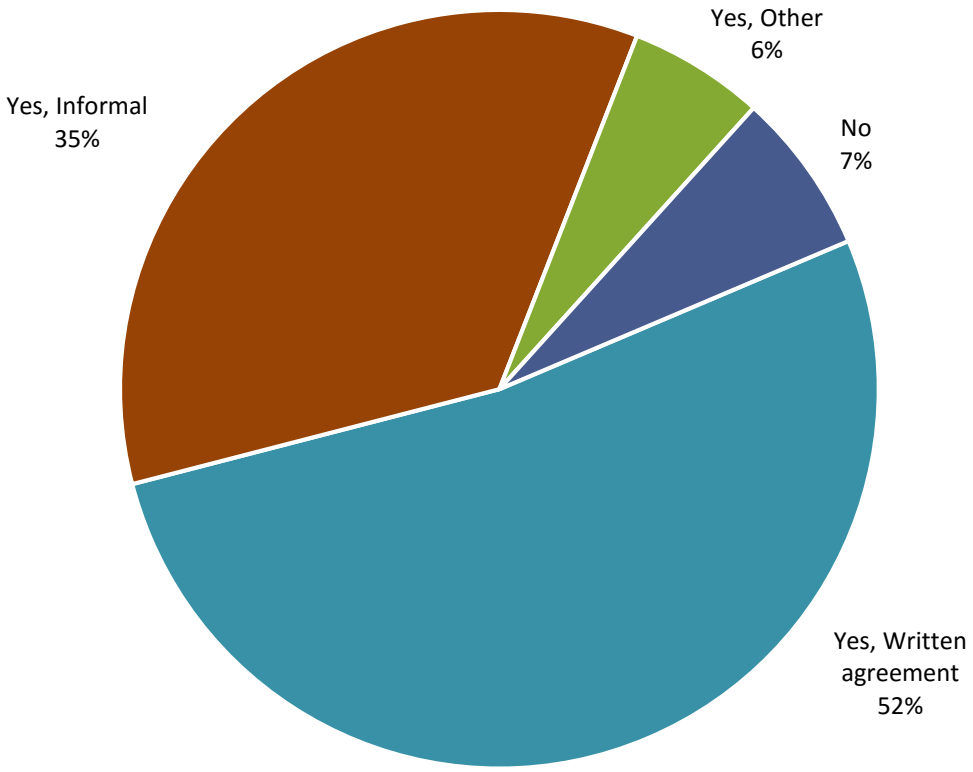


Figure 5-11: Departments having a Plan to Obtain Assistance from Others for a Wildland-Urban Interface (WUI) Fire Affecting Structures for All Community Sizes, in 2015



Technical rescue and EMS for a building with occupants after structural collapse following a fire or a no-notice catastrophic event?

Table 5-1
How Far Departments Would Have to Go to Obtain Enough People with Specialized Training for an Incident Involving Technical Rescue and EMS for a Building with Occupants after Structural Collapse by Community Size (Q. 44a)

Population of Community	Local Number Depts	Local Percent	Regional Number Depts	Regional Percent	State Number Depts	State Percent	National Number Depts	National Percent	Total Number Depts	Total Percent
500,000 or more	46	82.6%	7	13.0%	1	2.2%	1	2.2%	56	100%
250,000 to 499,999	37	60.5%	23	37.2%	1	2.3%	0	0.0%	61	100%
100,000 to 249,999	100	39.9%	118	47.2%	26	10.4%	6	2.5%	250	100%
50,000 to 99,999	139	28.8%	265	55.0%	70	14.6%	8	1.7%	483	100%
25,000 to 49,999	216	19.6%	693	62.8%	178	16.2%	16	1.4%	1,103	100%
10,000 to 24,999	538	18.2%	1,830	61.8%	560	18.9%	31	1.1%	2,960	100%
5,000 to 9,999	589	15.9%	2,251	60.8%	813	21.9%	50	1.4%	3,703	100%
2,500 to 4,999	944	19.8%	2,844	59.6%	944	19.8%	42	0.9%	4,773	100%
Under 2,500	2,658	20.6%	7,203	55.7%	2,955	22.8%	117	0.9%	12,933	100%
Total	5,268	20.0%	15,235	57.9%	5,549	21.1%	271	1.0%	26,322	100%

Source: NFPA 2015 Survey of the Needs of the US Fire Service

The above projections are based on 5,050 departments reporting on Question 44a. Number may not add to totals due to rounding.

Q. 44a. How far would you [Department] have to go to obtain enough people with specialized training for this incident? Local would be enough, Regional , State, National.

Technical rescue and EMS for a building with occupants after structural collapse following a fire or a no-notice catastrophic event.

Table 5-2
How Far Departments Would Have to Go to Obtain Enough Specialized Equipment for an Incident Involving Technical Rescue and EMS for a Building with Occupants after Structural Collapse by Community Size (Q. 44b)

Population of Community	Local Number Depts	Local Percent	Regional Number Depts	Regional Percent	State Number Depts	State Percent	National Number Depts	National Percent	Total Number Depts	Total Percent
500,000 or more	46	82.6%	7	13.0%	1	2.2%	1	2.2%	56	100%
250,000 to 499,999	33	54.8%	25	40.5%	3	4.8%	0	0.0%	61	100%
100,000 to 249,999	89	35.4%	124	49.7%	30	11.8%	8	3.1%	250	100%
50,000 to 99,999	126	26.0%	262	54.3%	84	17.3%	11	2.3%	483	100%
25,000 to 49,999	170	15.4%	694	62.9%	219	19.9%	20	1.8%	1,103	100%
10,000 to 24,999	494	16.7%	1,641	55.4%	778	26.3%	47	1.6%	2,960	100%
5,000 to 9,999	484	13.1%	2,220	60.0%	921	24.9%	78	2.1%	3,703	100%
2,500 to 4,999	864	18.1%	2,544	53.3%	1,323	27.7%	42	0.9%	4,773	100%
Under 2,500	2,264	17.5%	6,990	54.0%	3,508	27.1%	171	1.3%	12,933	100%
Total	4,570	17.4%	14,507	55.1%	6,867	26.1%	379	1.4%	26,322	100%

Source: NFPA 2015 Survey of the Needs of the US Fire Service

The above projections are based on 5,021 departments reporting on Question 44b. Number may not add to totals due to rounding.

Q. 44b. How far would you [Department] have to go to obtain enough specialized equipment for this incident? Local would be enough, Regional, State, National.

Technical rescue and EMS for a building with occupants after structural collapse following a fire or a no-notice catastrophic event.

Table 5-3
Departments with a Plan to Obtain Assistance from Others for an Incident Involving Technical Rescue and EMS for a Building with Occupants after Structural Collapse by Community Size (Q. 44c)

Population of Community	Yes, Written agreement Number Depts	Percent	Yes, Informal Number Depts	Percent	Yes, Other Number Depts	Percent	No Number Depts	Percent	Total Number Depts	Percent
500,000 or more	46	82.6%	6	10.9%	4	6.5%	0	0.0%	56	100%
250,000 to 499,999	55	90.7%	3	4.7%	3	4.7%	0	0.0%	61	100%
100,000 to 249,999	204	81.6%	28	11.0%	15	6.1%	3	1.2%	250	100%
50,000 to 99,999	350	72.4%	101	20.9%	26	5.3%	6	1.3%	483	100%
25,000 to 49,999	743	67.3%	284	25.7%	59	5.3%	18	1.6%	1,103	100%
10,000 to 24,999	1,714	57.9%	939	31.7%	217	7.3%	91	3.1%	2,960	100%
5,000 to 9,999	1,856	50.1%	1,492	40.3%	184	5.0%	170	4.6%	3,703	100%
2,500 to 4,999	2,034	42.6%	2,100	44.0%	268	5.6%	370	7.8%	4,773	100%
Under 2,500	4,771	36.9%	6,005	46.4%	768	5.9%	1,389	10.7%	12,933	100%
Total	11,774	44.7%	10,957	41.6%	1,543	5.9%	2,048	7.8%	26,322	100%

Source: NFPA 2015 Survey of the Needs of the US Fire Service

The above projections are based on 5,005 departments reporting on Question 44c. Number may not add to totals due to rounding.

Q. 44c. Do you have a plan for obtaining assistance from others on this type of incident? Yes, written agreement, Yes, informal, Yes, other, No

.Wildland-Urban Interface (WUI) Fire Affecting Structures.

Table 5-4
Departments That See Protecting Structures in the Wildland-Urban Interface as Their Role (Q. 45a)

Population of Community	Yes Number Depts	Yes Percent	No Number Depts	No Percent	Total Number Depts	Total Percent
500,000 or more	38	67.4%	18	32.6%	56	100%
250,000 to 499,999	44	72.1%	17	27.9%	61	100%
100,000 to 249,999	168	67.3%	82	32.7%	250	100%
50,000 to 99,999	280	58.0%	203	42.0%	483	100%
25,000 to 49,999	586	53.1%	517	46.9%	1,103	100%
10,000 to 24,999	1,948	65.8%	1,012	34.2%	2,960	100%
5,000 to 9,999	2,816	76.0%	887	24.0%	3,703	100%
2,500 to 4,999	4,015	84.1%	758	15.9%	4,773	100%
Under 2,500	10,742	83.1%	2,191	16.9%	12,933	100%
Total	20,637	78.4%	5,685	21.6%	26,322	100%

Source: NFPA 2015 Survey of the Needs of the US Fire Service.

The above projections are based on 5,057 departments reporting on Question 45a. Number may not add to totals due to rounding.

Q. 45a: Is protecting structures in the Wildland-Urban Interface (WUI) a role your fire department performs? Yes, No

Wildland-Urban Interface (WUI) Fire Affecting Structures.

Table 5-5
Maximum Number of Structures Departments Can Handle Alone?
by Community Size (Q.45b)

	Number of Structures									
	1		2-5		6-20		21 plus		Total	
Population of Community	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent
500,000 or more	0	0.0%	1	3.2%	10	25.8%	27	71.0%	38	100%
250,000 to 499,999	1	3.3%	9	20.0%	16	36.7%	18	40.0%	44	100%
100,000 to 249,999	2	0.9%	89	53.2%	54	32.1%	23	13.8%	168	100%
50,000 to 99,999	29	10.5%	175	62.6%	66	23.4%	10	3.5%	280	100%
25,000 to 49,999	120	20.5%	392	66.8%	61	10.4%	14	2.3%	586	100%
10,000 to 24,999	396	20.3%	1,437	73.8%	102	5.2%	13	0.7%	1,948	100%
5,000 to 9,999	727	25.8%	1,891	67.2%	170	6.0%	28	1.0%	2,816	100%
2,500 to 4,999	1,091	27.2%	2,691	67.0%	210	5.2%	24	0.6%	4,015	100%
Under 2,500	3,908	36.4%	6,461	60.2%	373	3.5%	0	0.0%	10,742	100%
Total	6,274	30.4%	13,147	63.7%	1,061	5.1%	155	0.8%	20,637	100%

Source: NFPA 2015 Survey of the Needs of the US Fire Service

The above projections are based on 3,674 departments reporting on Question 45b. Number may not add to totals due to rounding.

Q. 45b. What is the maximum number of structures your department could handle alone? 1, 2-5, 6-20, 21 plus

Wildland-Urban Interface (WUI) Fire Affecting Structures.

Table 5-6
Maximum Number of Acres Departments Can Handle Alone?
by Community Size (Q. 45c)

	Area (Acres)											
	Less than 1 Acre		1-10 Acres		11-50 Acres		51-100 Acres		Greater than 100 Acres		Total	
Population of Community	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent
500,000 or more	0	0.0%	5	12.9%	5	12.9%	2	6.5%	26	67.7%	38	100.0%
250,000 to 499,999	0	0.0%	10	22.6%	10	22.6%	7	16.1%	17	38.7%	44	61.3%
100,000 to 249,999	9	5.5%	69	40.9%	34	20.0%	29	17.3%	28	16.4%	168	83.6%
50,000 to 99,999	20	7.0%	147	52.3%	73	26.2%	28	9.9%	13	4.7%	280	95.3%
25,000 to 49,999	61	10.3%	290	49.4%	155	26.4%	52	8.8%	29	5.0%	586	95.0%
10,000 to 24,999	133	6.8%	1083	55.6%	483	24.8%	180	9.2%	69	3.6%	1,948	96.4%
5,000 to 9,999	211	7.5%	1,592	56.5%	674	23.9%	220	7.8%	119	4.2%	2,816	95.8%
2,500 to 4,999	292	7.3%	2,213	55.1%	990	24.7%	346	8.6%	173	4.3%	4,015	95.7%
Under 2,500	783	7.3%	5,263	49.0%	2,762	25.7%	1,107	10.3%	828	7.7%	10,742	92.3%
Total	1,508	7.3%	10,671	51.7%	5,186	25.1%	1,971	9.5%	1,302	6.3%	20,637	100.0%

Source: NFPA 2015 Survey of the Needs of the US Fire Service

The above projections are based on 3,703 departments reporting on Question 45c. Number may not add to totals due to rounding.

Q. 45c. What is the maximum area (acres) your department could handle alone? Less than 1 acre, 1-10 acres, 11-50 acres, 51-100 acres, Greater than 100 acres

Wildland-Urban Interface (WUI) Fire Affecting Structures.

Table 5-7
Departments with a Wildland-Urban Interface incident affecting 2-5 structures would have to go this far to obtain enough people with specialized training and equipment by Community Size (Q. 45d)

Population of Community	Local Number Depts	Local Percent	Regional Number Depts	Regional Percent	State Number Depts	State Percent	National Number Depts	National Percent	Total Number Depts	Total Percent
500,000 or more	38	100.0%	0	0.0%	0	0.0%	0	0%	38	100%
250,000 to 499,999	34	77.4%	9	19.4%	1	3.2%	0	0%	44	100%
100,000 to 249,999	95	56.4%	72	42.7%	2	0.9%	0	0%	168	100%
50,000 to 99,999	151	53.8%	125	44.5%	5	1.7%	0	0%	280	100%
25,000 to 49,999	262	44.6%	307	52.3%	18	3.1%	0	0%	586	100%
10,000 to 24,999	905	46.4%	993	51.0%	51	2.6%	0	0%	1,948	100%
5,000 to 9,999	1,468	52.1%	1,279	45.4%	69	2.5%	0	0%	2,816	100%
2,500 to 4,999	2,201	54.8%	1,766	44.0%	48	1.2%	0	0%	4,015	100%
Under 2,500	5,621	52.3%	4,817	44.8%	286	2.7%	18	0.2%	10,742	100%
Total	10,774	52.2%	9,367	45.4%	479	2.3%	18	0.1%	20,637	100%

Source: NFPA 2015 Survey of the Needs of the US Fire Service

The above projections are based on 3,708 departments reporting on Question 45d. Number may not add to totals due to rounding.

Q. 45d. If you had an incident affecting 2-5 structures how far would you have to go to obtain enough people with specialized training and equipment for this incident? Local would be enough, Regional, State, National

Wildland-Urban Interface (WUI) Fire Affecting Structures.

Table 5-8
Departments with a Wildland-Urban Interface incident affecting 6-20 structures would have to go this far to obtain enough people with specialized training and equipment by Community Size (Q. 45e).

Population of Community	Local Number Depts	Local Percent	Regional Number Depts	Regional Percent	State Number Depts	State Percent	National Number Depts	National Percent	Total Number Depts	Total Percent
500,000 or more	24	64.5%	13	35.5%	0	0.0%	0	0.0%	38	100%
250,000 to 499,999	14	32.3%	23	51.6%	7	16.1%	0	0.0%	44	100%
100,000 to 249,999	21	12.7%	110	65.5%	37	21.8%	0	0.0%	168	100%
50,000 to 99,999	28	9.8%	189	67.6%	60	21.4%	3	1.2%	280	100%
25,000 to 49,999	49	8.4%	347	59.2%	188	32.1%	2	0.4%	586	100%
10,000 to 24,999	189	9.7%	1,118	57.4%	628	32.3%	13	0.6%	1,948	100%
5,000 to 9,999	305	10.8%	1,706	60.6%	795	28.2%	9	0.3%	2,816	100%
2,500 to 4,999	446	11.1%	2,526	62.9%	1,025	25.5%	18	0.5%	4,015	100%
Under 2,500	1,172	10.9%	6,569	61.2%	2,938	27.3%	63	0.6%	10,742	100%
Total	2,249	10.9%	12,602	61.1%	5,678	27.5%	109	0.5%	20,637	100%

Source: NFPA 2015 Survey of the Needs of the US Fire Service

The above projections are based on 3,691 departments reporting on Question 45e. Number may not add to totals due to rounding.

Q. 45e. If you had an incident affecting 6-20 structures how far would you have to go to obtain enough people with specialized training and equipment for this incident? Local would be enough, Regional, State, National

Wildland-Urban Interface (WUI) Fire Affecting Structures.

Table 5-9
Departments with a Wildland-Urban Interface incident affecting more than 20 structures would have to go this far to obtain enough people with specialized training and equipment by Community Size (Q. 45f)

Population of Community	Local Number Depts	Local Percent	Regional Number Depts	Regional Percent	State Number Depts	State Percent	National Number Depts	National Percent	Total Number Depts	Total Percent
500,000 or more	12	32.3%	17	45.2%	9	22.6%	0	0.0%	38	100%
250,000 to 499,999	3	6.7%	22	50.0%	19	43.3%	0	0.0%	44	100%
100,000 to 249,999	8	4.5%	61	36.4%	93	55.5%	6	3.6%	168	100%
50,000 to 99,999	8	2.9%	113	40.2%	142	50.6%	18	6.3%	280	100%
25,000 to 49,999	5	0.8%	182	31.0%	359	61.2%	41	7.0%	586	100%
10,000 to 24,999	57	2.9%	556	28.5%	1,185	60.8%	149	7.7%	1,948	100%
5,000 to 9,999	74	2.6%	902	32.0%	1,666	59.2%	175	6.2%	2,816	100%
2,500 to 4,999	120	3.0%	1,214	30.2%	2,410	60.0%	270	6.7%	4,015	100%
Under 2,500	299	2.8%	3,475	32.4%	6,317	58.8%	652	6.1%	10,742	100%
Total	585	2.8%	6,542	31.7%	12,200	59.1%	1,311	6.4%	20,637	100%

Source: NFPA 2015 Survey of the Needs of the US Fire Service

The above projections are based on 3,683 departments reporting on Question 45f. Number may not add to totals due to rounding.

Q. 45f. If you had an incident affecting more than 20 structures how far would you have to go to obtain enough people with specialized training and equipment for this incident? Local would be enough, Regional, State, National

Wildland-Urban Interface (WUI) Fire Affecting Structures.

Table 5-10
Departments with a plan to obtain assistance from others in an incident involving a Wildland-Urban Interface (WUI) fire affecting structures by Community Size (Q. 45g)

Population of Community	Yes, Written Agreement Number Depts	Percent	Yes, Informal Number Depts	Percent	Yes, Other Number Depts	Percent	No Number Depts	Percent	Total Number Depts	Percent
500,000 or more	51	90%	2	3%	4	6%	0	0%	56	100%
250,000 to 499,999	53	87%	8	13%	0	0%	0	0%	61	100%
100,000 to 249,999	205	82%	23	9%	20	8%	2	1%	250	100%
50,000 to 99,999	380	79%	69	14%	28	6%	6	1%	483	100%
25,000 to 49,999	789	72%	250	23%	42	4%	21	2%	1,103	100%
10,000 to 24,999	1,837	62%	777	26%	221	7%	125	4%	2,960	100%
5,000 to 9,999	2,187	59%	1,154	31%	175	5%	187	5%	3,703	100%
2,500 to 4,999	2,497	52%	1,672	35%	263	6%	341	7%	4,773	100%
Under 2,500	5,784	45%	5,243	41%	769	6%	1,137	9%	12,933	100%
Total	13,783	52%	9,197	35%	1,522	6%	1,820	7%	26,322	100%

Source: NFPA 2015 Survey of the Needs of the US Fire Service

The above projections are based on 3,701 departments reporting on Question 45g. Number may not add to totals due to rounding.

Q. 45g. Do you have a plan for obtaining assistance from others on this type of incident? Yes, written agreement, Yes, informal, Yes, other, No.

SECTION 6. COMMUNICATIONS AND ADVANCED TECHNOLOGY

The survey questions in these sections were revised and substantially changed from the previous survey. Thus there were fewer comparisons between responses in this year compared to previous years. However, the updated survey questions allowed us to better reflect current issues faced by the fire service.

Communications

Overall, 9% of departments reported that they could not communicate with their response partners at an incident scene (after deleting "don't know" responses), lower than 13% in 2010 and 18% in 2001.

Table 6-1 indicates what percent of departments could and could not communicate by radio at incident scenes with their Federal, state or local partners, by size of community. The percentage of departments that could not communicate with their response partners ranged from 0% for the departments protecting the largest populations to 12% for the departments serving populations of under 2,500.

Table 6-2 describes the fraction of response partners that a department can communicate with, among those departments that are able to communicate with their partners. The majority of departments (>75%) can communicate with most or all of their partners at an incident scene.

More than 95% of 911 calls are not answered directly by the fire department.

Table 6-3 shows who has the primary responsibilities of answering 911 calls, by community size. For the departments protecting communities of 500,000 or more, 57% use a public safety answering point (PSAP) service to receive 911 calls and 39% have 911 calls answered by the police department. For departments in the smallest communities of under 2,500, 75% use a PSAP and 16% have 911 calls answered by the police. Another way of looking at the data is that police departments were six times more likely than fire departments (15% vs. 2.5%) to have primary dispatch responsibility, compared to 27% vs. 5% in 2010 and 33% vs. 9% in 2001. Figures 6-1 through 6-7 further illustrate the findings by representing who has primary responsibilities for answering 911 calls for the entire sample and for each community size.

Overall, 38% of fire departments have no backup dispatch facility, not a substantial change from 35% in 2010 and 39% in 2001. Table 6-4 shows the results by community size and indicates a higher percentage of 47% of departments in the smallest communities that have no backup dispatch facilities.

The next set of questions were geared towards understanding the dispatch process and determining how many parties were involved in receiving and routing a call.

Departments in smaller communities are more likely to have fire calls processed by the same center that answered the initial 911 call. Table 6-5 describes the responses to the question, "If the 911 call is determined to be a fire call, is that call processed by the same center that answered the initial 911 call?" In departments protecting populations of 500,000 or more, 41% of departments have fire calls processed by the same center, as compared to 93% of departments protecting populations of less than 2,500.

Departments protecting larger populations are more likely to have different people process and dispatch the same fire call. Table 6-6 shows the responses to the question, "Does the 911 center that processes the fire call typically have one person that processes and dispatches the same fire call?" In departments protecting populations of 500,000 or more, 96% of departments have separate call takers and dispatchers, as compared to 18% of departments protecting populations of less than 2,500.

In the situation where there are different call takers and dispatchers, almost all departments report having at least 2 people on duty at the 911 center.

Table 6-7 describes results for the question, "(If there are typically call takers and separate dispatchers), Does the 911 center that processes the fire call typically have at least 2 people on duty at all times?" From the largest community size to the smallest, the majority of departments report having at least 2 people on duty at the 911 center, with percentages ranging from 100% to 94%.

Figure 6-1. Who has the Primary Responsibilities (i.e., Public Safety Answering Point (PSAP) of Answering 911 Calls for All Sizes of Communities, for 2015

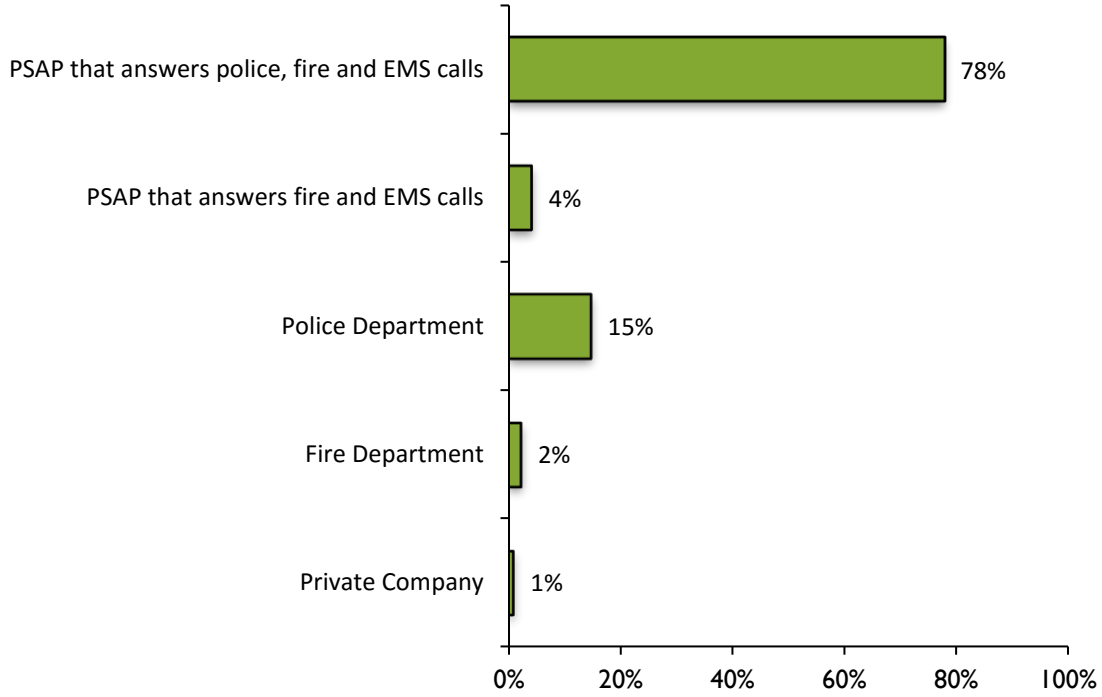


Figure 6-2. Who has the primary responsibilities (i.e., public safety answering point (PSAP) of answering 911 calls by Departments for Population Protected 250,000 or more, for 2015

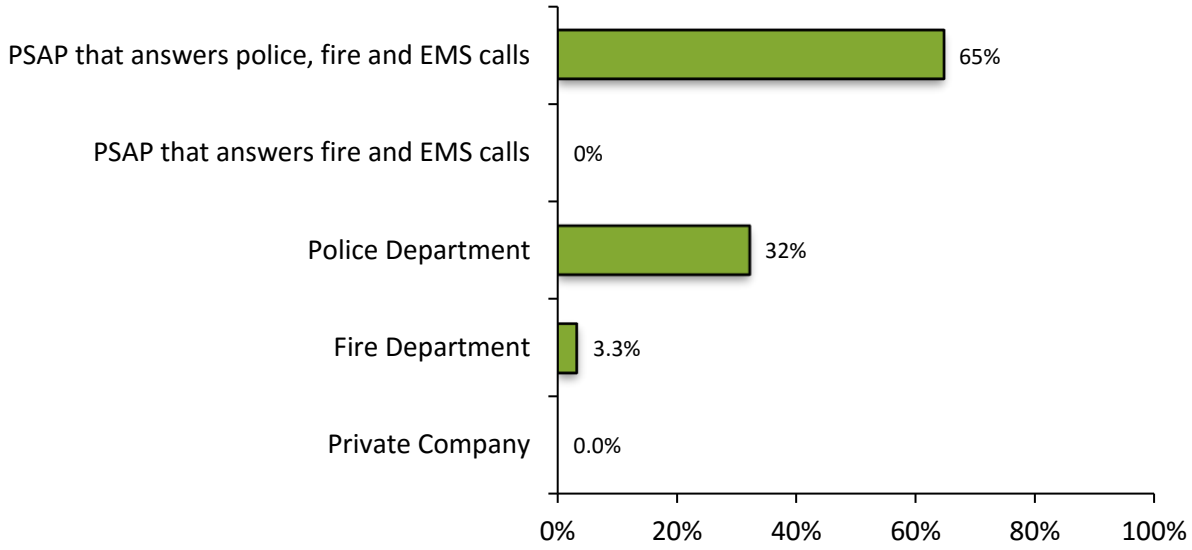


Figure 6-3. Who has the primary responsibilities (i.e., public safety answering point (PSAP) of answering 911 calls for Population Protected 25,000 to 249,999, for 2015

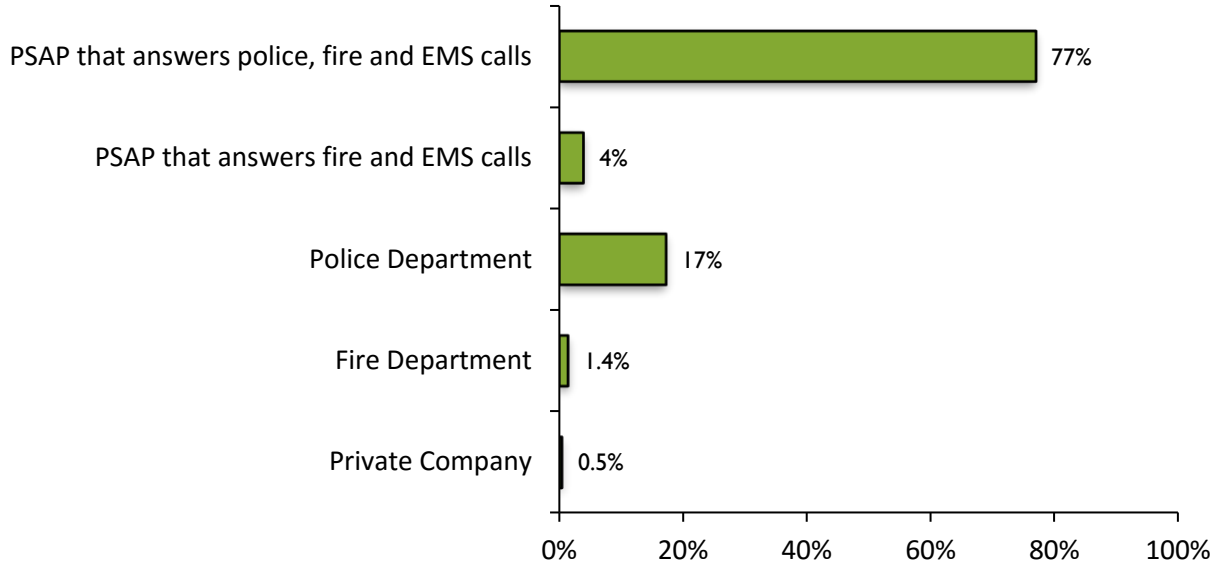


Figure 6-4. Who has the primary responsibilities (i.e., public safety answering point (PSAP) of answering 911 calls for Population Protected 10,000 to 24,999, for 2015

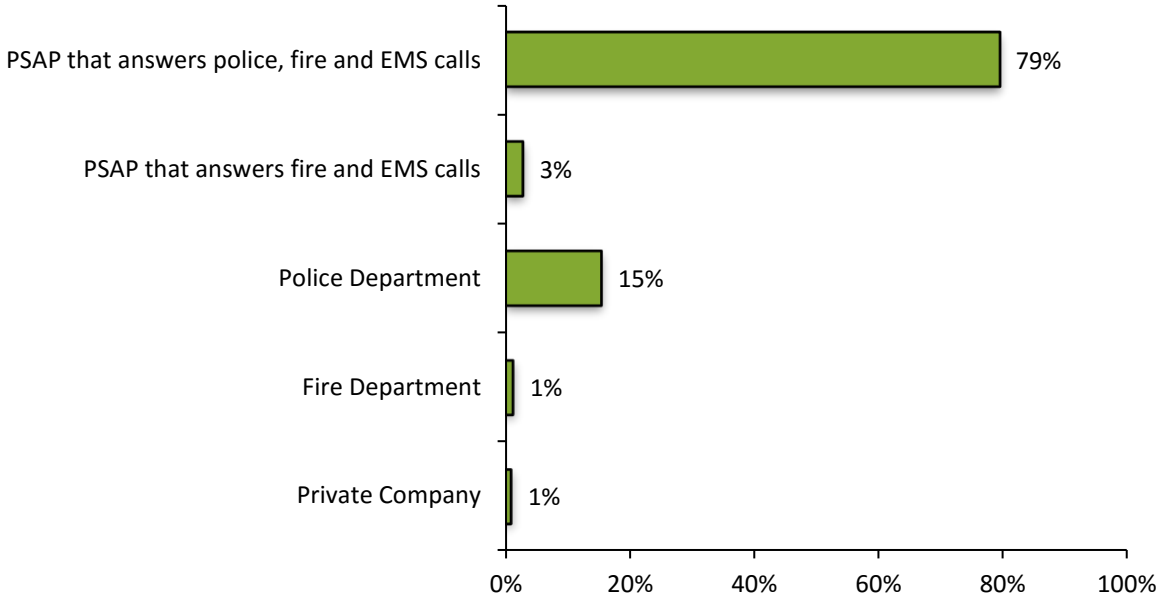


Figure 6-5. Who has the primary responsibilities (i.e., public safety answering point (PSAP) of answering 911 calls for Population Protected 5,000 to 9,999, for 2015

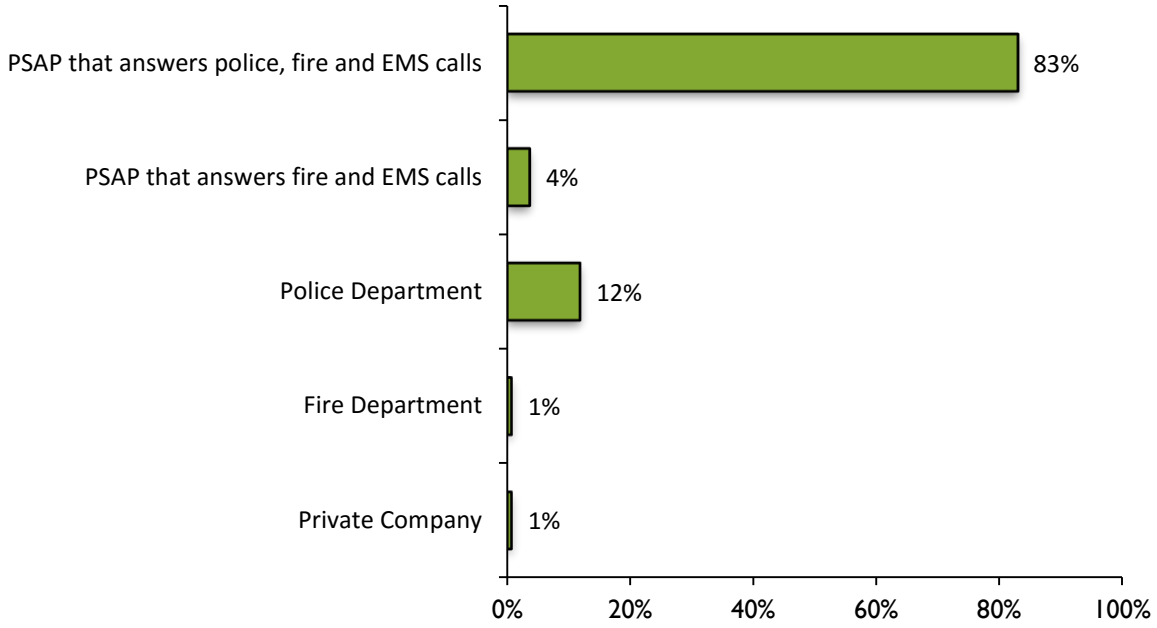


Figure 6-6. Who has the primary responsibilities (i.e., public safety answering point (PSAP) of answering 911 calls for Population Protected 2,500 to 4,999, for 2015

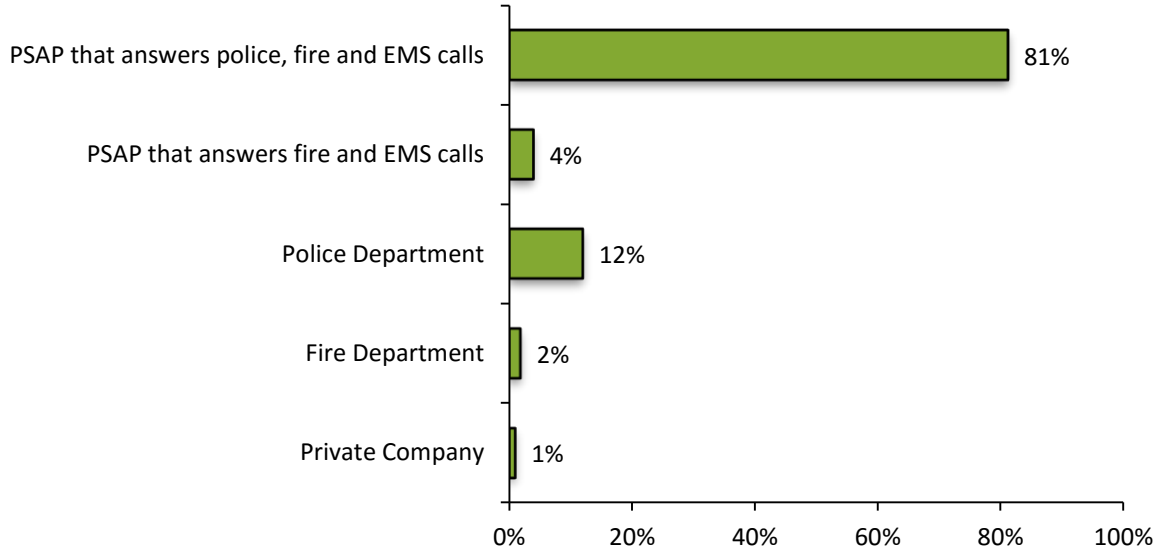
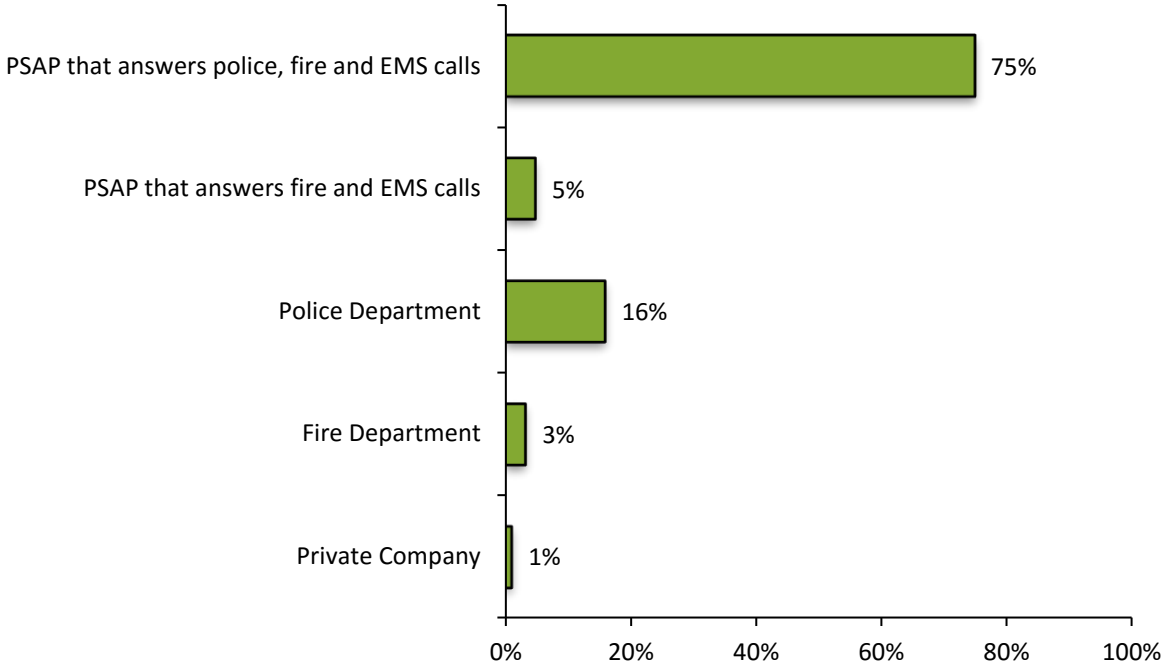


Figure 6-7. Who has the primary responsibilities (i.e., public safety answering point (PSAP) of answering 911 calls for Population Protected 2,500 and under, for 2015



Advanced Technology

One of the final questions on the survey addressed using advanced technological approaches. Table 6-8 contains the results by community size. Figures 6-8 through 6-14 illustrate the findings for each technology for the entire sample and for each community size in separate graphs. A separate but related question focused on the use of thermal imaging cameras on the fireground, and these results are presented in Table 6-9.

Computer aided dispatch (CAD) was being used by more than 95% of departments in community sizes of 50,000 or greater. In communities of less than 2,500, 39% of departments used computer aided dispatch. CAD technology allows efficient processing of calls, establishment of resource allocation, integration with record management systems, and data interoperability with other agencies.

Physiological monitoring of firefighters was not common among departments. Overall, only 3% of departments conducted physiological monitoring. This percentage increased to 26% for the largest departments protecting populations of 500,000 or more. This advancement involves wearable noninvasive technologies that monitor physiological performance during firefighting. It can be used to establish performance measures in firefighter physical fitness, operational awareness, development of EMS protocols, and effectiveness of fire ground rehabilitation.

Mobile web based geographic information systems (GIS) was common among departments in community sizes of 100,000 or more, with 79%-86% of departments reporting implementation of GIS. The percentage decreased in the smaller community sizes, with 12% of departments protecting populations of less than 2,500 having access to GIS. The use of GIS can improve fire service capabilities in preplanning, response and mitigation, as well as measure fire department performance. By incorporating data from multiple sources including government agencies as well private industry, decision making can be improved for service delivery on the strategic level as well as the tactical level. For example, the local fire department receives several calls reporting a fire at a specific location. The closest units are dispatched using geospatial technology incorporated into computer aided dispatch. During the response GIS information provides dispatchers with real time response patterns of the vehicles providing response time. Data from the local water supply board has been included into the GIS system informing responding units that the closest hydrant is currently not working and shut off for repairs. The technology has already identified a secondary water supply so all responders can use this type of information to alter their tactics. After the incident, local fire service leaders can measure their agencies performance against predetermined benchmarks by reviewing incident data collected.

Aerial robotics (UAV/UAS/Drone) are still in their infancy and are not in widespread use. Eight to fourteen percent of departments in the larger community sizes (100,000 or more) reported having aerial robotics. Fire departments can utilize UAV technology to deliver aerial views of incidents in order to provide situational awareness to incident commanders as well as fire investigators. Other uses for aerial robotics include fire detection, wildland applications, and fire suppression applications.

Advanced personnel location equipment was more likely to be available in departments serving larger communities compared to smaller communities. Twenty to twenty-six percent of departments in the largest community sizes (250,000 or more) utilized advanced personnel location equipment. This percentage dropped to 3% for the smallest community size. This is technology utilizing advanced telecommunications networks to assist in emergency scene communications, accountability, and resource management for incident commanders.

Tablet software was being used in over 50% of departments in community sizes of 25,000 or greater. In the smallest communities, 7% of departments utilized tablets. Tablet software or apps that are designed to be used in conjunction with CAD and GIS information enable responders to identify building hazards and hydrant locations and assist with incident reporting. Software applications can be developed for fire inspections, incident command, and public education realms.

Infrared sensing surveillance was less common with 19-26% of departments protecting populations of 100,000 or more reporting its use. This percentage dropped to 3% for the smallest community size. Infrared sensing includes thermal imaging technology. The most critical thermal imaging application is the use of handheld as well as SCBA facepiece-mounted tactical thermal imaging cameras on the fire ground to improve firefighter safety as well as survivability of fire victims.

Of note, half of the departments serving populations less than 2,500 reported having none of the listed advanced technologies.

In a separate question regarding thermal imaging cameras (see Table 6-9), over 85% of departments in community sizes of 10,000 or more had access to a thermal imager for all fireground incidents. This percentage decreased to 57% for departments in the smallest communities of under 2,500.

Figure 6-8. Advanced Technological Approaches in Use by Departments for All Sizes of Communities, for 2015

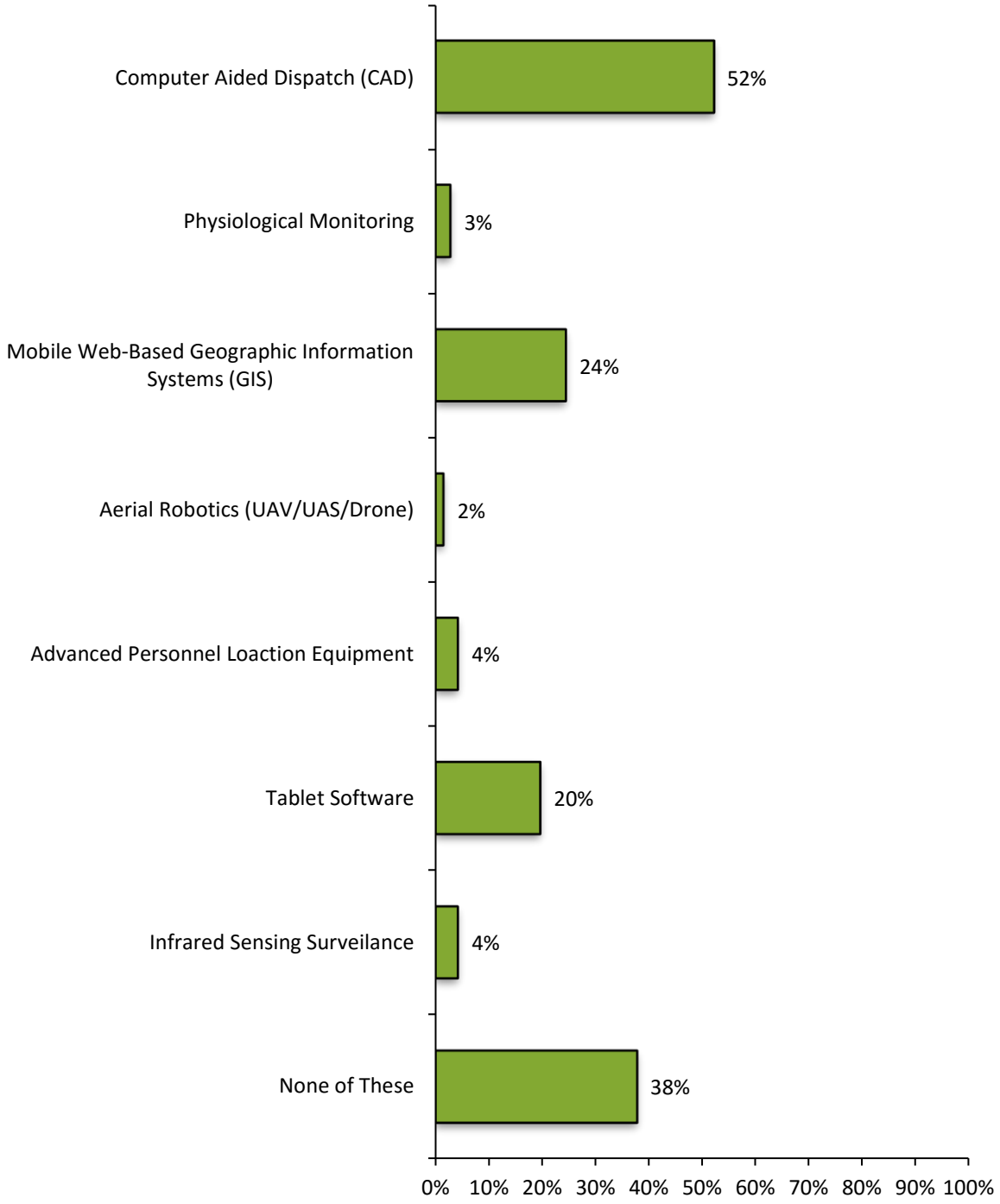


Figure 6-9. Advanced Technological Approaches in Use by Departments for Population Protected 250,000 or More, for 2015

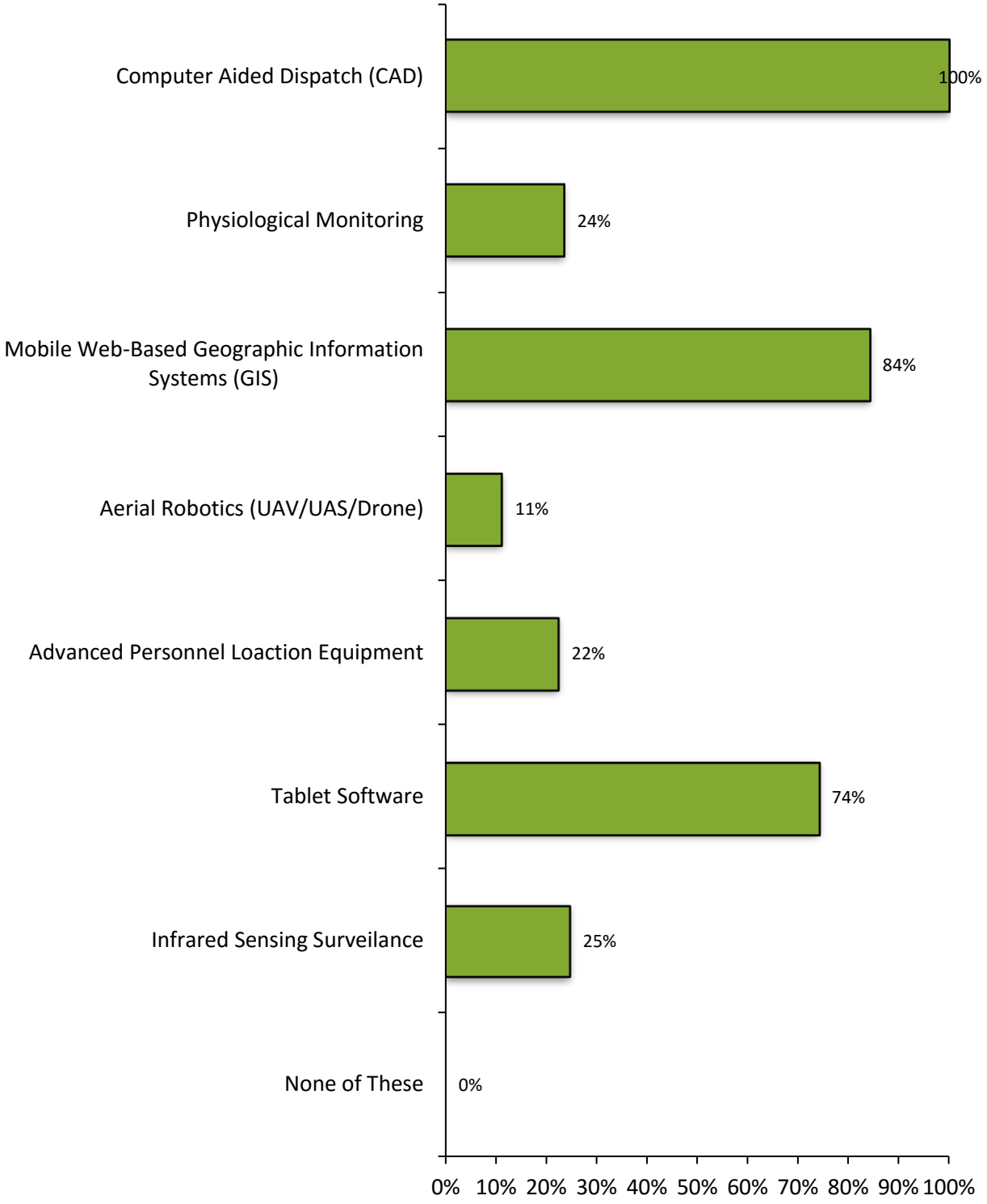


Figure 6-10. Advanced Technological Approaches in Use by Departments for Population Protected 25,000 to 249,999, for 2015

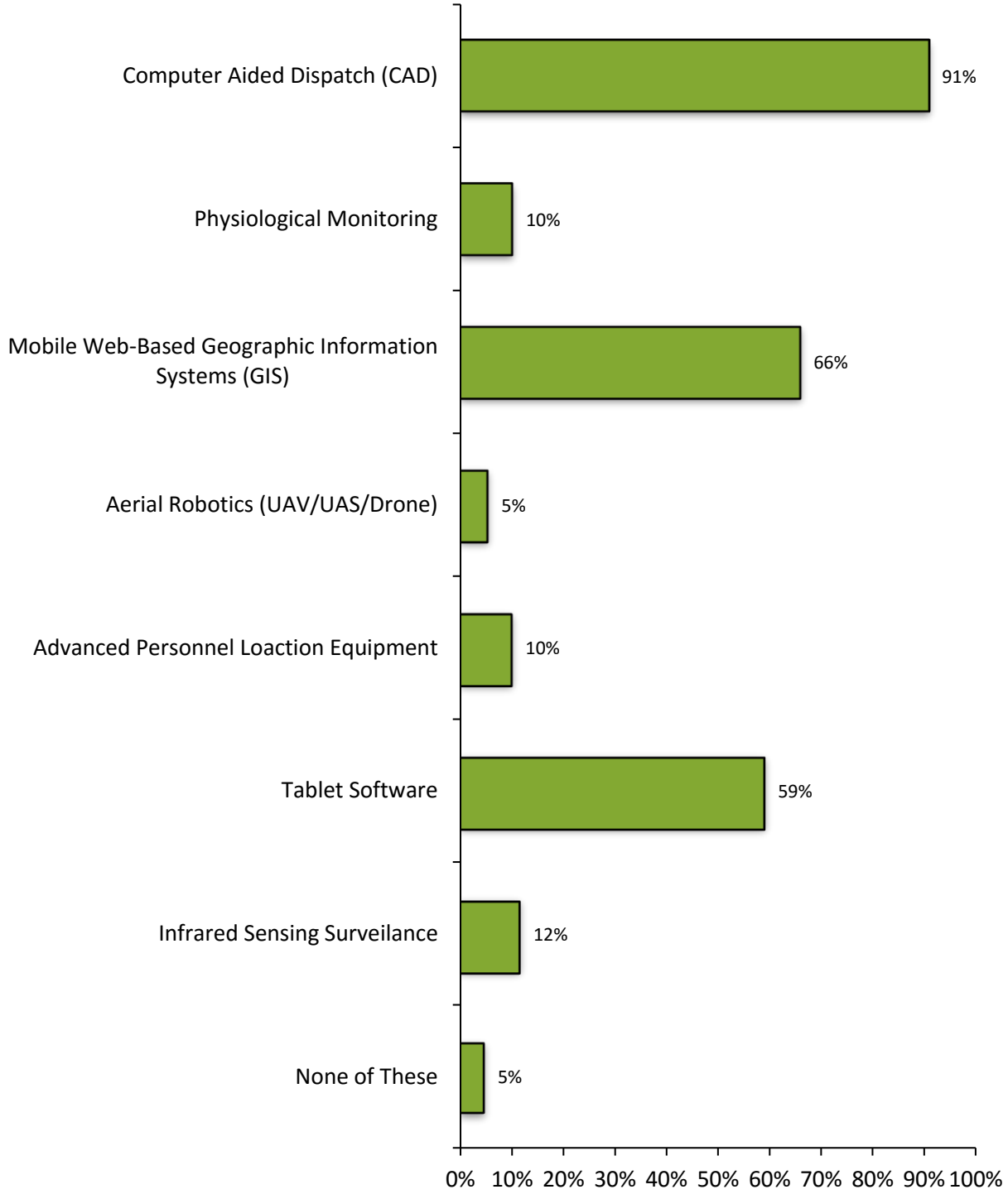


Figure 6-11. Advanced Technological Approaches in Use by Departments for Population Protected 10,000 to 24,999, for 2015

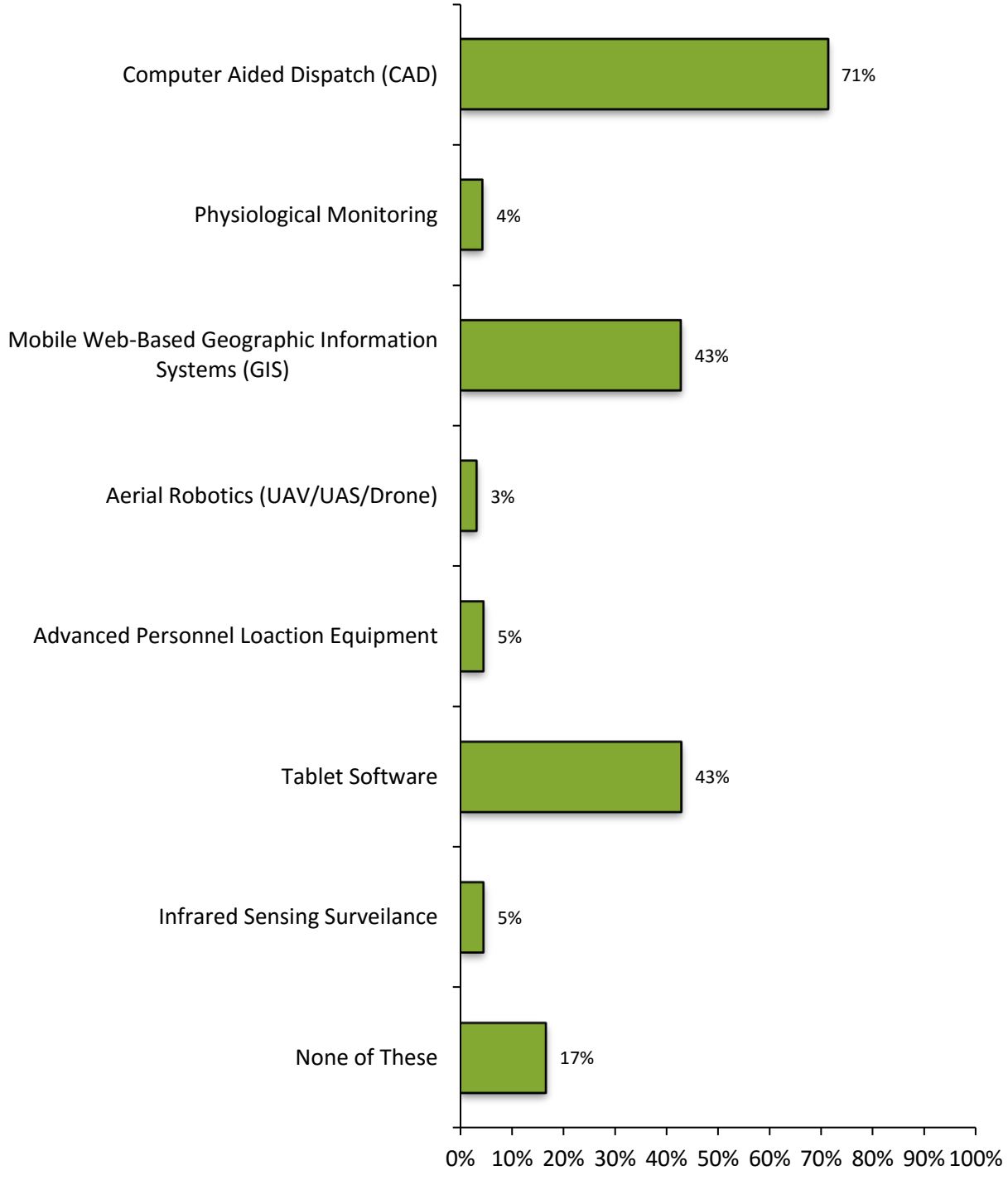


Figure 6-12. Advanced Technological Approaches in Use by Departments for Population Protected 5,000 to 9,999, for 2015

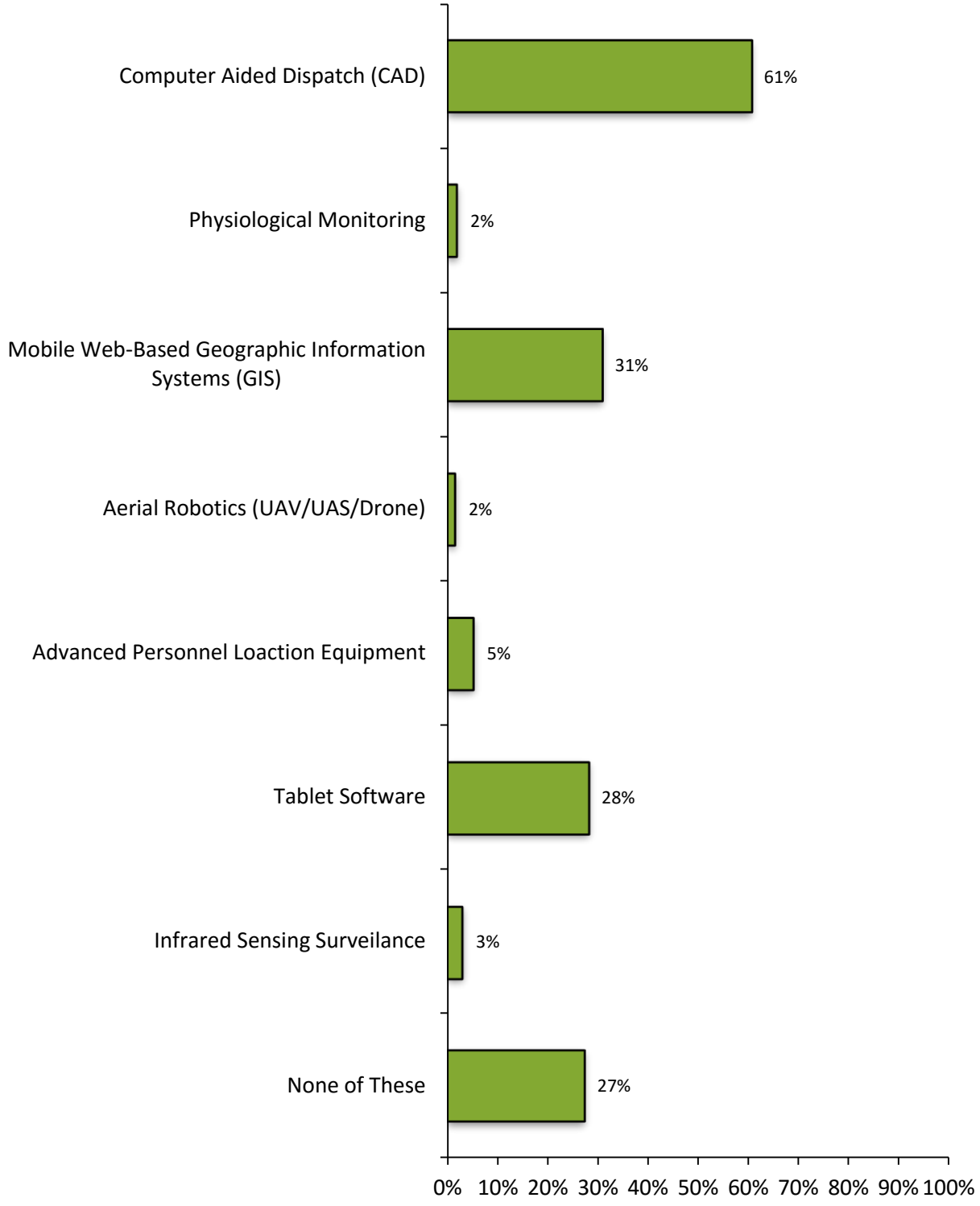


Figure 6-13. Advanced Technological Approaches in Use by Departments for Population Protected 2,500 to 4,999, for 2015

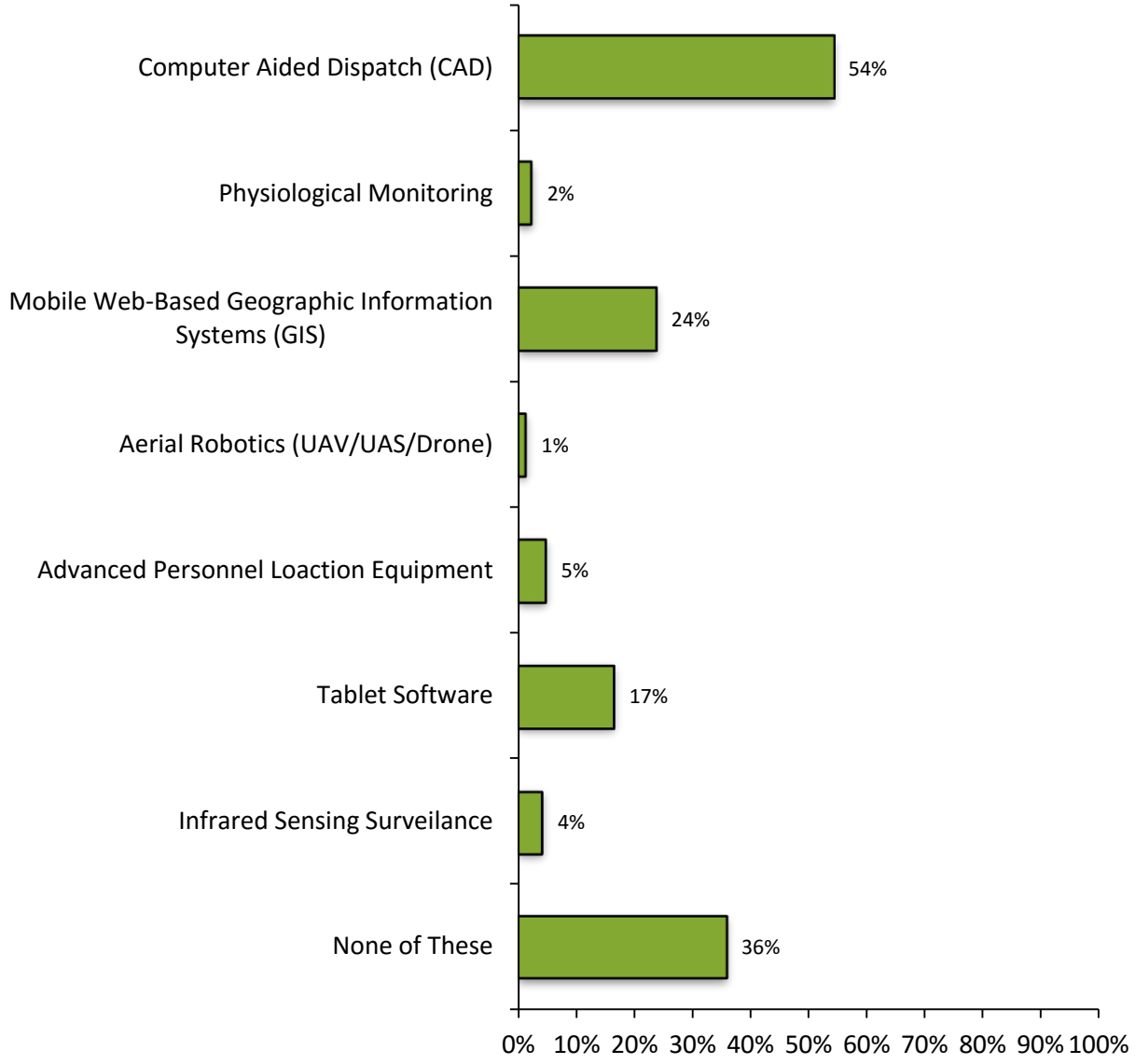


Figure 6-14. Advanced Technological Approaches in Use by Departments for Population Protected Under 2,500, for 2015

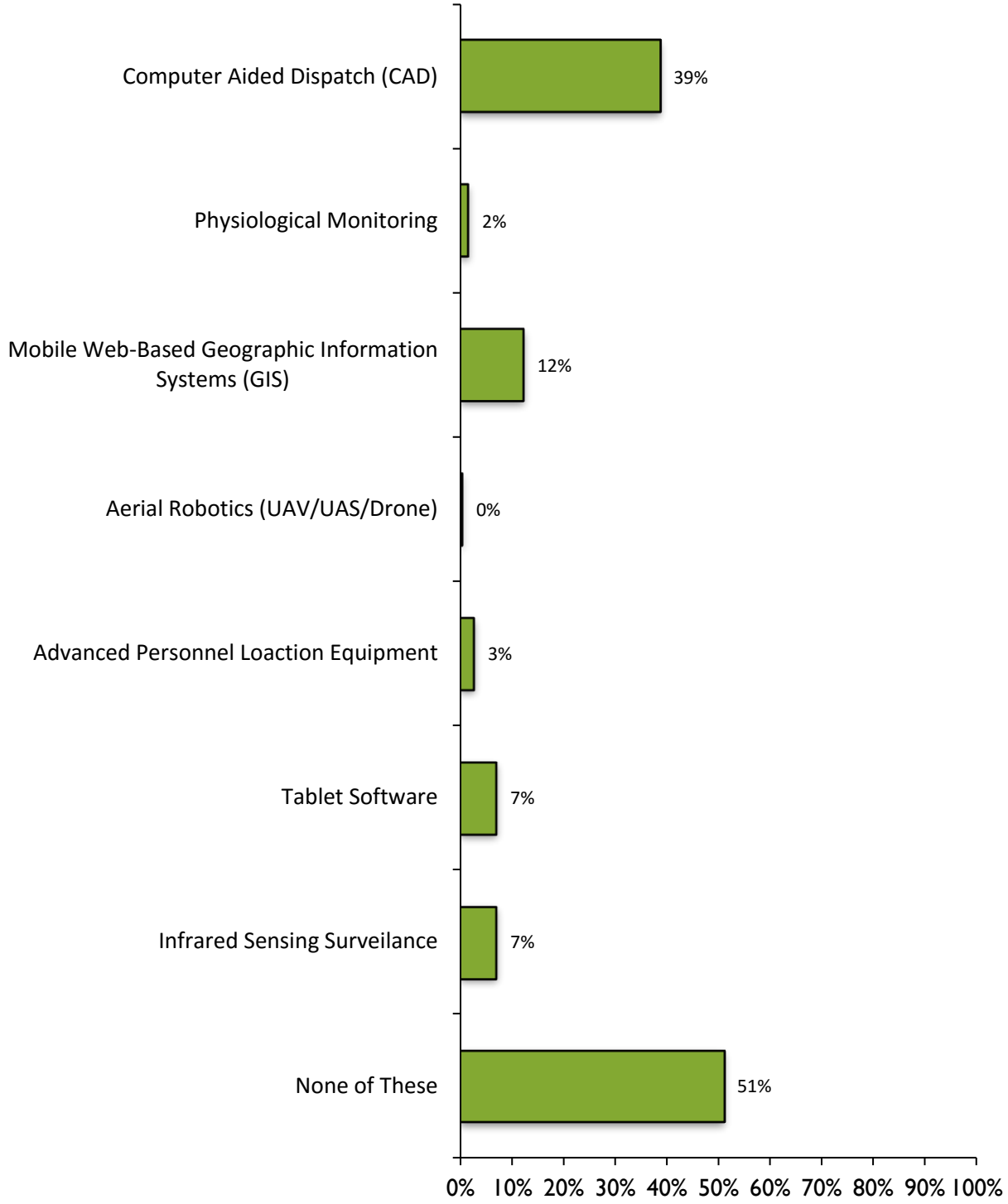


Table 6-1
Can Department Communicate by Radio at an Incident Scene with Federal, State or Local Partners? by Community Size (Q. 42a)

	Yes		No		Don't Know		Total	
Population of Community	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent
500,000 or more	55	97.8%	0	0.0%	1	2.2%	56	100%
250,000 to 499,999	60	97.7%	1	2.3%	0	0.0%	61	100%
100,000 to 249,999	238	95.1%	11	4.3%	2	0.6%	250	100%
50,000 to 99,999	452	93.6%	26	5.4%	5	1.0%	483	100%
25,000 to 49,999	1,010	91.5%	82	7.5%	11	1.0%	1,103	100%
10,000 to 24,999	2,593	87.6%	317	10.7%	50	1.7%	2,960	100%
5,000 to 9,999	3,282	88.6%	320	8.7%	101	2.7%	3,703	100%
2,500 to 4,999	4,096	85.8%	534	11.2%	142	3.0%	4,773	100%
Under 2,500	11,440	88.5%	1,037	8.0%	456	3.5%	12,933	100%
Total	23,225	88.2%	2,329	8.8%	768	2.9%	26,322	100%

Source: NFPA 2015 Survey of the Needs of the US Fire Service.

The above projections are based on 5,049 departments reporting on Question 42a. Number may not add to totals due to rounding.

Q. 42a: Can you communicate by radio on an incident scene with your local/state/federal emergency response partners (includes frequency compatibility)?

Table 6-2
For Departments That Can Communicate With Partners at an Incident Scene What Fraction of Partners Can They Communicate With?
Percent of Departments by Community Size (Q. 42b)

	All (100%)		Most (76-99%)		Many (51-75%)		Some (26-50%)		Few (1-25%)		None (0%)		Don't Know		Total	
Population of Community	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Dept	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent
500,000 or more	35	64.4%	13	24.4%	4	6.7%	0	0.0%	1	2.2%	0	0.0%	1	2.2%	55	100.0%
250,000 to 499,999	34	57.1%	17	28.6%	6	9.5%	1	2.4%	0	0.0%	0	0.0%	1	2.4%	60	100.0%
100,000 to 249,999	133	55.8%	79	33.3%	5	1.9%	9	3.9%	3	1.3%	0	0.0%	9	3.9%	238	100.0%
50,000 to 99,999	236	52.2%	156	34.4%	39	8.7%	13	2.9%	5	1.1%	0	0.0%	3	0.7%	452	100.0%
25,000 to 49,999	569	56.3%	322	31.9%	63	6.2%	34	3.3%	11	1.1%	0	0.0%	11	1.1%	1,010	100.0%
10,000 to 24,999	1,344	51.8%	850	32.8%	218	8.4%	98	3.8%	38	1.5%	0	0.0%	44	1.7%	2,593	100.0%
5,000 to 9,999	1,721	52.5%	1,063	32.4%	271	8.3%	138	4.2%	51	1.5%	0	0.0%	37	1.1%	3,282	100.0%
2,500 to 4,999	2,123	51.8%	1,232	30.1%	431	10.5%	173	4.2%	90	2.2%	0	0.0%	48	1.2%	4,096	100.0%
Under 2,500	5,639	49.3%	3,253	28.4%	964	8.4%	658	5.8%	577	5.0%	18	0.2%	333	2.9%	11,440	100.0%
Total	11,833	51.0%	6,986	30.1%	2,000	8.6%	1,125	4.8%	775	3.3%	18	0.1%	488	2.1%	23,225	100.0%

Source: NFPA 2015 Survey of the Needs of the US Fire Service.

The above projections are based on 4,188 departments reporting on Question 42b. Number may not add to totals due to rounding.

Q. 42b. [If you can communicate by radio on an incident scene with your federal, state, and local emergency response partners], how many of your partners (agencies/departments) can you communicate with at an incident scene?

Table 6-3
Who has Primary Responsibilities (i.e., public safety answering (PSAP)) of answering 911 calls? (Q. 43a)

	PSAP that answers police, fire and EMS calls		PSAP than answers fire and EMS calls		Police Department		Fire Department		Private Company		Total	
Population of Community	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent
500,000 or more	32	56.5%	-	0.0%	22	39.1%	2	4.4%	-	0.0%	56	100.0%
250,000 to 499,999	44	72.1%	-	0.0%	16	25.6%	1	2.3%	-	0.0%	61	100.0%
100,000 to 249,999	173	69.1%	6	2.4%	65	26.1%	5	1.8%	2	0.6%	250	100.0%
50,000 to 99,999	361	74.7%	19	4.0%	92	19.0%	6	1.3%	5	1.0%	483	100.0%
25,000 to 49,999	879	79.7%	47	4.2%	159	14.5%	16	1.4%	2	0.2%	1,103	100.0%
10,000 to 24,999	2,353	79.5%	84	2.9%	457	15.4%	38	1.3%	28	1.0%	2,960	100.0%
5,000 to 9,999	3,072	83.0%	137	3.7%	439	11.9%	27	0.7%	27	0.7%	3,703	100.0%
2,500 to 4,999	3,875	81.2%	189	4.0%	573	12.0%	89	1.9%	47	1.0%	4,773	100.0%
Under 2,500	9,688	74.9%	627	4.9%	2,062	15.9%	422	3.3%	135	1.0%	12,933	100.0%
Total	20,477	77.8%	1,110	4.2%	3,884	14.8%	606	2.3%	246	0.9%	26,322	100.0%

Source: NFPA 2015 Survey of the Needs of the US Fire Service

The above projections are based on 5,059 departments reporting on Question 43a. Number may not add to totals due to rounding.

Q. 43a. Who has primary responsibility for dispatch operations?

Table 6-4
Does Department Have a Backup Dispatch Facility?
by Community Size (Q. 43e)

	Yes		No		Total	
Population of Community	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent
500,000 or more	54	95.7%	2	4.3%	56	100.0%
250,000 to 499,999	52	86.0%	9	14.0%	61	100.0%
100,000 to 249,999	221	88.4%	29	11.6%	250	100.0%
50,000 to 99,999	395	81.8%	88	18.2%	483	100.0%
25,000 to 49,999	819	74.3%	284	25.7%	1,103	100.0%
10,000 to 24,999	2,184	73.8%	776	26.2%	2,960	100.0%
5,000 to 9,999	2,607	70.4%	1,096	29.6%	3,703	100.0%
2,500 to 4,999	3,186	66.8%	1,587	33.2%	4,773	100.0%
Under 2,500	6,820	52.7%	6,113	47.3%	12,933	100.0%
Total	16,339	62.1%	9,983	37.9%	26,322	100.0%

Source: NFPA 2015 Survey of the Needs of the US Fire Service.

The above projections are based on 5,012 departments reporting on Question 43e. Number may not add to totals due to rounding.

Q. 43e: Do you also have a backup dispatch facility?

Table 6-5
If the 911 call is determined to be a fire call, is that call processed by the same center that answered the initial 911 call?
by Community Size (Q. 43b)

	Yes		No		Total	
Population of Community	**Number Depts**	**Percent**	**Number Depts**	**Percent**	**Number Depts**	**Percent**
500,000 or more	23	41.3%	33	58.7%	56	100.0%
250,000 to 499,999	41	67.4%	20	32.6%	61	100.0%
100,000 to 249,999	186	74.4%	64	25.6%	250	100.0%
50,000 to 99,999	397	82.2%	86	17.8%	483	100.0%
25,000 to 49,999	927	84.0%	176	16.0%	1,103	100.0%
10,000 to 24,999	2,562	86.6%	398	13.4%	2,960	100.0%
5,000 to 9,999	3,271	88.3%	432	11.7%	3,703	100.0%
2,500 to 4,999	4,375	91.7%	398	8.3%	4,773	100.0%
Under 2,500	11,967	92.5%	966	7.5%	12,933	100.0%
Total	23,749	90.2%	2,573	9.8%	26,322	100.0%

Source: NFPA 2015 Survey of the Needs of the US Fire Service.

The above projections are based on 5,025 departments reporting on Question 43b. Number may not add to totals due to rounding.

Q. 43b: If the 911 call is determined to be a fire call, is that call process by the same center that answered the initial 911 call??

Table 6-6
Does the 911 Center that processes the fire call typically have at least one person that processes and dispatches the same fire call?
(Q. 43c)

	Yes		No		Total	
Population of Community	**Number Depts**	**Percent**	**Number Depts**	**Percent**	**Number Depts**	**Percent**
500,000 or more	2	4.3%	54	95.7%	56	100.0%
250,000 to 499,999	13	20.9%	48	79.1%	61	100.0%
100,000 to 249,999	64	25.5%	186	74.5%	250	100.0%
50,000 to 99,999	221	45.8%	262	54.2%	483	100.0%
25,000 to 49,999	675	61.2%	428	38.8%	1,103	100.0%
10,000 to 24,999	1,989	67.2%	971	32.8%	2,960	100.0%
5,000 to 9,999	2,663	71.9%	1,040	28.1%	3,703	100.0%
2,500 to 4,999	3,665	76.8%	1,108	23.2%	4,773	100.0%
Under 2,500	10,665	82.5%	2,268	17.5%	12,933	100.0%
Total	19,957	75.8%	6,365	24.2%	26,322	100.0%

Source: NFPA 2015 Survey of the Needs of the US Fire Service.

The above projections are based on 5,020 departments reporting on Question 43c. Number may not add to totals due to rounding.

Q. 43c: Does the 911 Center that processes the fire call typically have at least one person that processes and dispatches the same fire call? (Q.43c)

Table 6-7
If the 911 center typically has call takers and separate dispatchers, does the call center have 2 people on duty at all times?
(Q. 43d)

	Yes		No, sometimes we cut back to one person on duty		No, we never have two persons on duty		Total	
Population of Community	**Number Depts**	**Percent**	**Number Depts**	**Percent**	**Number Depts**	**Percent**	**Number Depts**	**Percent**
500,000 or more	54	100.0%	0	0.0%	-	0.0%	54	100.0%
250,000 to 499,999	47	97.1%	1	2.9%	-	0.0%	48	100.0%
100,000 to 249,999	180	96.7%	3	1.6%	3	1.6%	186	100.0%
50,000 to 99,999	254	96.8%	5	1.9%	3	1.3%	262	100.0%
25,000 to 49,999	404	94.2%	20	4.7%	5	1.1%	428	100.0%
10,000 to 24,999	879	90.5%	54	5.6%	38	3.9%	971	100.0%
5,000 to 9,999	984	94.6%	37	3.6%	19	1.8%	1,040	100.0%
2,500 to 4,999	1,029	92.9%	54	4.9%	24	2.2%	1,108	100.0%
Under 2,500	2,130	93.9%	46	2.0%	92	4.1%	2,268	100.0%
Total	5,959	93.6%	222	3.5%	184	2.9%	6,365	100.0%

Source: NFPA 2015 Survey of the Needs of the US Fire Service.

The above projections are based on 1,504 departments reporting on Question 43d. Number may not add to totals due to rounding.

Q. 43d: If the 911 center typically has call takers and separate dispatcher (i.e. answered "no" in Q43c), does this call center that processes the fire call typically have at least 2 people on duty at all times? (Q. 43d)

Table 6-8
Departments Currently Using Advanced Technological Approaches by Community Size (Q. 46)

Population Protected	Computer aided dispatch (CAD)	Mobile web based geographic information systems (GIS)	Tablet software	Advanced personnel location equipment	Infrared sensing surveillance	Physiological monitoring	Aerial robotics (UAV/UAS/Drone)	None of these
500,000 or more	100.0%	82.6%	73.9%	19.6%	26.1%	26.1%	8.7%	0.0%
250,000 to 499,999	100.0%	86.0%	74.4%	25.6%	23.3%	20.9%	14.0%	0.0%
100,000 to 249,999	97.0%	79.4%	66.7%	13.9%	18.8%	9.7%	7.9%	1.8%
50,000 to 99,999	95.7%	72.3%	63.0%	11.9%	14.2%	13.5%	5.6%	1.7%
25,000 to 49,999	86.0%	57.7%	54.1%	7.6%	7.6%	8.2%	4.4%	7.4%
10,000 to 24,999	71.3%	42.9%	43.0%	4.6%	4.6%	4.4%	3.3%	16.7%
5,000 to 9,999	60.6%	30.8%	28.2%	5.3%	3.1%	2.0%	1.6%	27.3%
2,500 to 4,999	54.3%	23.8%	16.5%	4.8%	4.2%	2.3%	1.4%	35.8%
Under 2,500	38.7%	12.3%	7.1%	2.7%	3.3%	1.6%	0.5%	51.1%
Total	52.1%	24.4%	19.6%	4.2%	4.2%	2.8%	1.5%	37.7%

Source: NFPA 2015 Survey of the Needs of the US Fire Service

The above projections are based on 5,106 departments reporting on Question 46. Number may not add to totals due to rounding.

Q. 46: Are you [department] using advanced technological approaches?
Computer aided dispatch
Physiological monitoring
Mobile web based geographic information systems (GIS)
Aerial robotics (UAV/UAS/Drone)
Advanced personnel location equipment
Tablet software
Infrared sensing surveillance
None of these

Table 6-9: Percentage of Fireground Incidents where Departments Have a Thermal Imager/Thermal Imaging Cameras Available
Percent of Departments by Community Size
(Q. 41)

	All (100%)		Most (76-99%)		Many (51-75%)		Some (26-50%)		Few (1-25%)		None (0%)		Don't Know		Total	
Population of Community	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent	Number Depts	Percent
500,000 or more	50	89.1%	2	4.4%	0	0.0%	1	2.2%	1	2.2%	0	0.0%	1	2.2%	56	100.0%
250,000 to 499,999	57	93.0%	3	4.7%	0	0.0%	1	2.3%	0	0.0%	0	0.0%	0	0.0%	61	100.0%
100,000 to 249,999	235	93.9%	9	3.6%	3	1.2%	0	0.0%	3	1.2%	0	0.0%	0	0.0%	250	100.0%
50,000 to 99,999	462	95.6%	15	3.0%	0	0.0%	0	0.0%	2	0.3%	2	0.3%	3	0.7%	483	100.0%
25,000 to 49,999	1,007	91.3%	67	6.1%	11	1.0%	9	0.8%	0	0.0%	7	0.6%	2	0.2%	1,103	100.0%
10,000 to 24,999	2,586	87.4%	232	7.9%	38	1.3%	35	1.2%	16	0.5%	50	1.7%	3	0.1%	2,960	100.0%
5,000 to 9,999	3,065	82.8%	383	10.3%	64	1.7%	59	1.6%	73	2.0%	55	1.5%	4	0.1%	3,703	100.0%
2,500 to 4,999	3,633	76.1%	496	10.4%	59	1.2%	100	2.1%	147	3.1%	325	6.8%	12	0.3%	4,773	100.0%
Under 2,500	7,311	56.5%	1,028	8.0%	197	1.5%	304	2.4%	626	4.8%	3,360	26.0%	107	0.8%	12,933	100.0%
Total	18,406	69.9%	2,235	8.5%	371	1.4%	510	1.9%	868	3.3%	3,798	14.4%	134	0.5%	26,322	100.0%

Source: NFPA 2015 Survey of the Needs of the U.S. Fire Service

The above projections are based on 5,059 departments reporting on Question 41. Numbers may not add to totals due to rounding.

Q. 41: For what percentage of fireground incidents do you have a thermal imager/thermal imaging cameras available?

none few some many most all don't know

APPENDIX 1: GRANT PROGRAM EVALUATION

Program Evaluation Concepts and Linking the Findings on Needs to Implications for the Grants Programs

Evaluation of a program like the Assistance to Firefighters Grant (AFG) program or the Staffing for Adequate Fire & Emergency Response (SAFER) grant program should proceed in stages, consistent with the identified stages of program evaluation. For example:

- Formative evaluation (feasibility, appropriateness, acceptability, and applicability): This kind of evaluation was already conducted as part of the justification that led to the creation of the grants program. It need not be revisited here.

- Process evaluation (whether the program is reaching the target population): By comparing the grants awarded to the needs reported by the grantee fire departments, it is possible to evaluate the grants program process. NFPA has conducted two such matching studies. The first compared grants in 2001-2004 to needs reported in 2001, for those departments whose grant applications and needs survey responses could be "matched."[5] The second compared grants in 2005-2008 to needs reported in 2005.[6] These studies showed that grants have been awarded to departments with needs that were reported on the Needs Assessment Surveys.

- Impact evaluation (whether program is changing the targeted conditions): This is where the Needs Assessment Surveys are most valuable, because they can be used to examine changes in needs of various kinds and compare the patterns of large versus small reductions in needs with the areas of focus of the grants program.

- Outcome evaluation (whether program is changing the targeted outcomes): An evaluation of changes in the targeted outcomes – fewer fires, fewer civilian or firefighter deaths or injuries, less loss, less cost – is understood to be the final and defining test of a program's success but also, for most programs, a judgment that requires many years to make. Deaths are so rare nationally that it can take a decade for a nationally implemented program to show a statistically significant result. Injuries are so rare in a single department or even a group of departments that multiple years are likely required. Also, the outcomes of interest are normally driven by many factors in addition to the program being evaluated. Sorting out the differential effect of the program can be complex and require even more data. It is important to avoid rushed judgments under these conditions.

Based on the above, the grants programs could be evaluated using the following argument:

1. If the grant funds appear to have been well-matched to significant needs of the fire service, and
2. If the needs addressed by significant funding appear to be significantly declining, even if there may still be significant residual need, and
3. If the expertise and consensus processes employed by the sources of the standards, codes, regulations and other guidance used to define needs are considered sufficiently strong as to make a basic case that meeting needs will lead to improved outcomes in time, then
4. The Needs Assessment Survey will support a conclusion that the grant program is effective but not *yet* applied on the scale required to eliminate most critical needs and to produce significant changes in targeted outcomes. This is because the amount of available grant funding is small compared to the entire need of the fire service.

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[5] *Matching Assistance to Firefighters Grants to the Reported Needs of the U.S. Fire Service*, FA-304, U.S. Fire Administration and NFPA, October 2006.

[6] *Matching Assistance to Firefighters Grants to the Reported Needs of the U.S. Fire Service – Second Analysis Report*, NFPA, December 2010.

APPENDIX 2: PRINTED VERSION OF THE FOURTH NEEDS ASSESSMENT SURVEY WITH ONLINE-ONLY QUESTIONS INCLUDED AT THE END

NATIONAL FIRE PROTECTION ASSOCIATION

Fourth Survey of the Needs of the U.S. Fire Service

MAKE IT EASY

Complete the Survey Online
www.nfpa.org/2015needsassessment

NFPA FDID top left corner
PASSWORD top right corner

PART I. Basic Information

Name of person completing form: _____

Rank/Title: _____ NFIRS FDID: _____

E-mail address: _____ Phone: (_____) _____

1. Population (permanent residents) your department has primary responsibility to protect (exclude mutual aid areas): _____
2. Area (in square miles) your department has primary responsibility to protect (exclude mutual aid areas): _____
3. Number of buildings in community that are 3 or more stories in height:
   (Check one) ☐ None ☐ 1–4 ☐ 5–10 ☐ 11 or more
4. What share (%) of your budgeted revenue is from (total 100%)? Taxes: _____% Fundraising: _____%
   Payment per call/Contract services: _____% Other *(specify)* _____%

PART II. Personnel and Their Capabilities

5. Has your department had a reduction or increase in total funded positions firefighter or full time equivalents (FTE) since 2011? ☐ Yes ☐ No
   A. If yes, how many firefighter positions or FTEs were: Gained _____ Lost _____
6. Total number of full-time (career) uniformed firefighters: _____ How many are female? _____
   (If none, go to Question 11.)

   Average number of full time career/paid firefighters on duty available to respond to emergencies: _____
7. Minimum number of on-duty career/paid personnel ASSIGNED to an engine/pumper:
   (Check one) ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5+ ☐ Not applicable
8. Number of on-duty career/paid personnel TYPICALLY STAFFING an engine/pumper (may be the same as the number assigned): *(Check one)* ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5+ ☐ Not applicable
9. Minimum number of on-duty career/paid personnel ASSIGNED to a ladder truck/aerial:
   (Check one) ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5+ ☐ Not applicable
10. Number of on-duty career/paid personnel TYPICALLY STAFFING a ladder truck/aerial (may be the same as the number assigned): *(Check one)* ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5+ ☐ Not applicable
11. Total number of active part-time (including call or volunteer) firefighters: _____ How many are female? _____
    Average number of call/volunteer personnel available who respond to emergencies:

    During weekdays: Days: _____ Nights: _____ During weekends: Days: _____ Nights: _____

12. How many active members of your fire department only fill support or auxiliary roles and have no direct firefighting activities? _____

If any fill only those roles, check all that apply

□ First aid □ Directing traffic □ Command post ops □ Rehab
□ Water supply □ Communications □ Logistics □ Other *(specify)* _____

13. Structural firefighting.

A. Is this a role your fire department performs? *(Check one)* □ Yes □ No (If no, go to Question 14.)

B. What percentage of the personnel who perform this duty have received formal training (for example in a classroom or online) at the local, regional or state level (not just on-the-job training)?
□ None (0%) □ Few (1–25%) □ Some (26–50%) □ Many (51–75%) □ Most (76–99%) □ All (100%)

C. What percentage of department personnel who perform this duty are certified to Firefighter Level I (NFPA 1001)?
□ None (0%) □ Few (1–25%) □ Some (26–50%) □ Many (51–75%) □ Most (76–99%) □ All (100%)

D. What percentage of your fire department's firefighters are restricted to exterior firefighting only?
□ None (0%) □ Few (1–25%) □ Some (26–50%) □ Many (51–75%) □ Most (76–99%) □ All (100%)

14. Emergency medical service (EMS).

A. Is this a service your fire department provides? *(Check one)* □ Yes □ No

B. If yes to 14A, what percentage of department personnel performing this duty are certified to the following levels? *(For all that apply, include percentages for highest level. Total must equal 100%)*
a. No certification _____% b. First responder _____% c. EMT-Basic _____%
d. EMT Intermediate (EMT/I) _____% e. EMT with Advanced Life Support (ALS) or local equivalent _____%
f. EMT-Paramedic or equivalent _____%

C. Does your community provide ambulance services? □ Yes □ No (If no, go to Question 14E.)

D. If yes to 14C, is this a fire department based service? □ Yes □ No

E. Does your fire department provide Tactical EMS for law enforcement operations? □ Yes □ No

15. Hazardous materials response (Hazmat).

A. Is this a service your fire department provides? *(Check one)* □ Yes □ No (If no, go to Question 16.)

B. What percentage of department personnel performing this duty are certified to the following levels? *(For all that apply, include percentages for highest level. Total must equal 100%)*
a. No certification _____% b. Awareness _____% c. Operational _____% d. Technician _____%

16. Wildland-Urban Interface (WUI)/Wildland (brush, grass, forest) firefighting.

A. Is this a role your fire department performs? *(Check one)* □ Yes □ No (If no, go to Question 17.)

B. What percentage of the personnel who perform this duty have received formal training (for example in a classroom or online) at the local, regional or state level (not just on-the-job training)?
□ None (0%) □ Few (1–25%) □ Some (26–50%) □ Many (51–75%) □ Most (76–99%) □ All (100%)

C. Does this training include specialized Wildland-Urban Interface firefighting operations training? □ Yes □ No

D. How many of your emergency responders are equipped with wildland fire personal protective clothing?
□ None (0%) □ Few (1–25%) □ Some (26–50%) □ Many (51–75%) □ Most (76–99%) □ All (100%)

17. Technical rescue.

A. Is this a role your fire department performs? *(Check one)* □ Yes □ No (If no, go to Question 18.)

B. What percentage of the personnel who perform this duty have received formal training (for example in a classroom or online) at the local, regional or state level (not just on-the-job training)?
□ None (0%) □ Few (1–25%) □ Some (26–50%) □ Many (51–75%) □ Most (76–99%) □ All (100%)

18. Fire prevention (preparedness & mitigation).

A. Is this a role your fire department performs? *(Check one)* □ Yes □ No

B. If yes, what percentage of the personnel who perform this duty have received formal training (for example in a classroom or online) at the local, regional or state level (not just on-the-job training)?
□ None (0%) □ Few (1–25%) □ Some (26–50%) □ Many (51–75%) □ Most (76–99%) □ All (100%)

19. Code enforcement.

A. Is this a role your fire department performs? *(Check one)* □ Yes □ No

B. If yes, what percentage of the personnel who perform this duty have received formal training (for example in a classroom or online) at the local, regional or state level (not just on-the-job training)?

□ None (0%) □ Few (1–25%) □ Some (26–50%) □ Many (51–75%) □ Most (76–99%) □ All (100%)

20. Active shooter response.

A. Is this a role your fire department performs? *(Check one)* □ Yes □ No (If no, go to Question 21.)

B. If yes, does your department have SOP's / SOG's in place addressing proper response and action taken at an active shooter event? *(Check one)* □ Yes □ No

C. Have your department's personnel received multi-agency training (police, fire, EMS, Sheriffs, etc.) and been tested on the training and special equipment required? *(Check one)* □ Yes □ No

21. Traffic control.

A. Is this a role your department performs? *(Check one)* □ Yes □ No

B. If yes, what percentage of the personnel who perform this duty have received formal training (for example, in a classroom or online) at the local, regional or state level (not just on-the-job training)?

□ None (0%) □ Few (1–25%) □ Some (26–50%) □ Many (51–75%) □ Most (76–99%) □ All (100%)

22. Basic firefighter fitness and health.

A. Does your department have a program to maintain basic firefighter fitness and health (e.g., NFPA 1500)? *(Check one)* □ Yes □ No (If no, go to Question 23.)

B. Is the program associated with the IAFC / IAFF Wellness-Fitness Initiative (WFI)? □ Yes □ No

C. Does this program include a firefighter physical examination for *all firefighters*? □ Yes □ No

D. How often? □ New firefighters only □ Every 6 months or annually □ Every 2 years □ Every 3 years □ Other _____

E. Does this program include a fitness assessment for *all firefighters*? □ Yes □ No

F. How often? □ New firefighters only □ Every 6 months or annually □ Every 2 years □ Every 3 years □ Other _____

23. Does your department have a BEHAVIORAL HEALTH PROGRAM? □ Yes □ No

24. Does your department have an INFECTION CONTROL / PPE DECONTAMINATION PROGRAM (infectious and communicable disease hazards)? *(Check one)* □ Yes □ No

25. Does your department have an EXPOSURE CONTROL / PPE DECONTAMINATION PROGRAM (carcinogen and other toxic hazards)? *(Check one)* □ Yes □ No

26. Does your department MONITOR AIR QUALITY at fireground? *(Check one)*

□ O2 (Oxygen) □ HCN (Cyanide) □ CO (Carbon Monoxide) □ Volatile organic compound (VOC) □ None of these

PART III. Community Risk Reduction Activities

27. Which of the following engineering programs or activities does your department conduct? *(Check all that apply)*

□ Construction plans review

□ Permit approval

□ Routine testing of active automatic systems (e.g., fire sprinkler, detection / alarm, smoke control)

□ Hazard Mitigation Planning Risk Assessment

If you have a Hazardous Mitigation Planning Risk Assessment program, does your plan include:

□ Natural disasters (hurricanes, wildfire, tornadoes, floods, earthquakes)

□ Industrial chemical disasters

□ Transportation disasters

□ No such engineering programs

28. Who conducts the fire code inspections in your community? *(Check all that apply)*
- □ Full-time fire department inspectors
- □ In-service (on duty) firefighters
- □ Separate inspection bureau
- □ Building department
- □ State inspection / fire prevention bureau
- □ No one
- □ Other *(Specify)* _____

29. What percentage of commercial or inspectable properties are inspected once a year?
- □ None (0%) □ Few (1–25%) □ Some (26–50%) □ Many (51–75%) □ Most (76–99%) □ All (100%)
- □ Not responsible for conducting inspections

30. Who determines that a fire was deliberately set? *(Check all that apply)*
- □ Fire department fire investigator
- □ Regional / state fire task force investigator
- □ Incident commander or other front line or company fire officer
- □ Police department
- □ Contract investigator
- □ Insurance investigator
- □ Other *(Specify)* _____

31. Which of the following education programs or activities does your department conduct? *(Check all that apply)*
- □ Youth firesetter program
- □ School fire safety education program based on a national model curriculum
- □ Car seat installation
- □ Home fire sprinkler education
- □ Home safety visits
- □ Cardiopulmonary Resuscitation (CPR) instruction
- □ Wildfire safety program based on a national model program
- □ Older adult fire safety program based on a national model program
- □ Fire Prevention Week activities
- □ Free distribution of home smoke alarms
- □ Free installation of home smoke alarms
- □ Other prevention program *(Specify)* _____
- □ No education program

32. Does your department include HOME FIRE SPRINKLER information in their public education programs? □ Yes □ No □ N/A

PART IV. Facilities, Apparatus, and Equipment

33. Number of fire stations: _____

Number of stations over 40 years old: _____ Number of stations having backup power: _____

Number of stations equipped for exhaust emission control (e.g., diesel exhaust extraction): _____

34. Number of each type of apparatus in service and reserves *(numbers by age should sum to total):*

	Engines / Pumpers		Ladders / Aerials		Tankers / Tenders	
Age (years)	In Service	Reserve	In Service	Reserve	In Service	Reserve
0–14						
15–19						
20–29						
30 or more						
Unknown						
TOTAL						

35. Number of ambulances or other patient transport vehicles: _____

36. Does your fire department have a plan for apparatus replacement on a regular schedule? □ Yes □ No

37. Portable radios.

A. What percentage of your on-duty emergency responders on a single shift can be equipped with portable radios?
□ None (0%) □ Few (1–25%) □ Some (26–50%) □ Many (51–75%) □ Most (76–99%) □ All (100%)

B. What percentage of your portable radios are DESIGNED TO BE safe in an explosive atmosphere?
□ None (0%) □ Few (1–25%) □ Some (26–50%) □ Many (51–75%) □ Most (76–99%) □ All (100%) □ Don't know

38. Self-contained breathing apparatus (SCBA).

A. What percentage of your on-duty emergency responders on a single shift can be equipped with SCBA?
□ None (0%) □ Few (1–25%) □ Some (26–50%) □ Many (51–75%) □ Most (76–99%) □ All (100%)

B. What percentage of your SCBA are 10 years old or older?
□ None (0%) □ Few (1–25%) □ Some (26–50%) □ Many (51–75%) □ Most (76–99%) □ All (100%) □ Don't know

39. Personal alert safety system (PASS) devices.

How many responding firefighters who work in immediately dangerous to health or life (IDHL) environment are equipped with a PASS device?
□ None (0%) □ Few (1–25%) □ Some (26–50%) □ Many (51–75%) □ Most (76–99%) □ All (100%)

40. Personal protective clothing.

A. How many of your emergency responders are equipped with personal protective clothing?
□ None (0%) □ Few (1–25%) □ Some (26–50%) □ Many (51–75%) □ Most (76–99%) □ All (100%)

B. How many of your department's personal protective clothing is at least 10 years old?
□ None (0%) □ Few (1–25%) □ Some (26–50%) □ Many (51–75%) □ Most (76–99%) □ All (100%) □ Don't know

C. Do you have reserve personal protective clothing sufficient to equip 10% of your emergency responders?
(Check one) □ Yes □ No □ Don't know

D. Is your personal protection clothing inspected and tested each year? □ Yes □ No

E. Does your department have laundering facilities or provide services (external) to clean contaminated personal protection clothing? □ Yes □ No

41. For what percentage of fireground incidents do you have a thermal imager/thermal imaging cameras available?
□ None (0%) □ Few (1–25%) □ Some (26–50%) □ Many (51–75%) □ Most (76–99%) □ All (100%) □ Don't know

PART V. Communications and Communications Equipment

42. Multi-agency communication.

A. Can you communicate by radio on an incident scene with your local/state/federal emergency response partners (includes frequency compatibility)? *(Check one)* □ Yes □ No □ Don't know

B. If yes to 42A, how many of your partners (agencies/departments) can you communicate with at an incident scene?
□ None (0%) □ Few (1–25%) □ Some (26–50%) □ Many (51–75%) □ Most (76–99%) □ All (100%) □ Don't know

43. Dispatch.

A. Who has the primary responsibilities (i.e., public safety answering point (PSAP)) of answering 911 calls?
□ PSAP that answers police, fire and EMS calls □ PSAP that answers fire and EMS calls
□ Police department □ Fire department □ Private company

B. If the 911 call is determined to be a fire call, is that call processed by the same center that answered the initial 911 call?
□ Yes □ No, the call is transferred to another center to be processed

C. Does the 911 center that processes the fire call typically have one person that processes and dispatch the same fire call?
□ Yes □ No, we typically have call takers and separate dispatchers.

D. If no in 43C. Does the 911 center that processes the fire call typically have at least 2 people of duty at all times?
□ Yes □ No, sometimes we cut back to one person on duty □ No, we never have two persons on duty

E. Do you also have a backup dispatch facility? *(Check one)* □ Yes □ No

PART VI. Ability to Handle Unusually Challenging Incidents

Each question is based on an example incident. We want to know whether you have enough local resources to handle such an incident, and if not, how far you would have to go to obtain sufficient resources. Both the type and the size of the incident are specified to give you something specific to react to and a challenge that will often need more than local resources.

44. Technical rescue and EMS for a building with occupants after structural collapse following a fire or a no-notice catastrophic event such as an earthquake or tornado:

    A. How far would you have to go to obtain enough people with specialized training for this incident?
    (Check one) ☐ Local would be enough ☐ Regional ☐ State ☐ National

    B. How far would you have to go to obtain enough specialized equipment to handle this incident?
    (Check one) ☐ Local would be enough ☐ Regional ☐ State ☐ National

    C. Do you have a plan for obtaining assistance from others on this type of incident?
    (Check one) ☐ Yes, written agreement ☐ Yes, informal ☐ Yes, other *(Specify)* _____ ☐ No

45. Wildland-Urban Interface (WUI) fire affecting structures.

    A. Is protecting structures in the Wildland-Urban Interface (WUI) a role your fire department performs?
    (Check one) ☐ Yes ☐ No *(If no, go to Part VII)*

    B. What is the maximum number of structures your department could handle alone?
    ☐ 1 ☐ 2–5 ☐ 6–20 ☐ 21 plus

    C. What is the maximum area (acres) your department could handle alone?
    ☐ Less than 1 acre ☐ 1–10 acres ☐ 11–50 acres ☐ 51–100 acres ☐ Greater than 100 acres

    D. If you had an incident affecting 2–5 structures how far would you have to go to obtain enough people with specialized training and equipment for this incident?
    (Check one) ☐ Local would be enough ☐ Regional ☐ State ☐ National

    E. If you had an incident affecting 6–20 structures how far would you have to go to obtain enough people with specialized training and equipment for this incident?
    (Check one) ☐ Local would be enough ☐ Regional ☐ State ☐ National

    F. If you had an incident affecting more than 20 structures how far would you have to go to obtain enough people with specialized training and equipment for this incident?
    (Check one) ☐ Local would be enough ☐ Regional ☐ State ☐ National

    G. Do you have a plan for obtaining assistance from others on this type of incident?
    (Check one) ☐ Yes, written agreement ☐ Yes, informal ☐ Yes, other *(Specify)* _____ ☐ No

PART VII. Advanced Technology

46. Are you using advanced technological approaches? *(Check all that apply)*

- □ Computer aided dispatch (CAD) equipment
- □ Physiological monitoring
- □ Mobile web based geographic information systems (GIS)
- □ Aerial robotics (UAV/UAS/Drone)
- □ Advanced personnel location
- □ Tablet software
- □ Infrared sensing surveillance
- □ None of these

PART VIII. Your Top 3 Needs In Your Words:

1. _____
2. _____
3. _____

Questions? Don't Hesitate To Contact Us

Toll free: 1-800-343-8890 **Fax:** 1-617-984-7478 **E-mail:** nasurvey@nfpa.org

NFPA, Fire Analysis & Research Division, 1 Batterymarch Park, Quincy, MA 02169

Question 17: Online survey questions 'only' blocked out.

Technical rescue.

Is this a role your fire department performs? ◉ Yes ○ No

	None (0%)	Few (1-25%)	Some (26-50%)	Many (51-75%)	Most (76-99%)	All (100%)
What percentage of the personnel who perform this duty have received formal training (for example in a classroom or online) at the local, regional or state level (not just on-the-job training)?	○	◉	○	○	○	○

For each of the following rescue resources, please indicate if they are available within your department/jurisdiction: *(check all that apply)*

- ☑ Urban Search and Rescue Task Force:
  Multi-disciplined organization which conducts search, rescue, and recovery in the rescue disciplines
- ☑ Structural Collapse Rescue Team:
  Conducts rescue in collapsed structures and debris fields, both natural and human-caused
- ☑ Structural Collapse Search Team:
  Conducts searches in collapsed structures and debris fields, both natural and human-caused
- ☐ *None of these are available*

Specific rescue resource you host or support *(defined in Resource Typing Library Tool)*

Urban Search and Rescue Task Force
(Resource 8-508-1160)

	Yes - Host (own resources)	Yes - Support (multi-discipline owned)	No - Don't have such rescue resources
Type 1 Task Force: 70-person	○	○	○
Type 2 Task Force: 70-person	○	○	○
Type 3 Task Force: 35-person	○	○	○
Type 4 Task Force: 22-person	○	○	○

Structural Collapse Rescue Team
(Resource 8-508-1159)

	Yes - Host (own resources)	Yes - Support (multi-discipline owned)	No - Don't have such rescue resources
Type I (Heavy): 6-person	○	○	○
Type II (Medium): 6-person	○	○	○
Type III (Light): 5-person	○	○	○

Structural Collapse Search Team
(Resource 8-508-1158)

	Yes - Host (own resources)	Yes - Support (multi-discipline owned)	No - Don't have such rescue resources
Type I (Heavy): 5-person	○	○	○
Type II (Medium): 3 person	○	○	○
Type III (Light): 2-person	○	○	○

← Back Next →

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Question 37 and 38 online survey 'only' questions blocked out.

Portable radios.

	None (0%)	Few (1-25%)	Some (26-50%)	Many (51-75%)	Most (76-99%)	All (100%)
What percentage of your on-duty emergency responders on a single shift can be equipped with portable radios?	○	○	○	○	○	○

	None (0%)	Few (1-25%)	Some (26-50%)	Many (51-75%)	Most (76-99%)	All (100%)	*Don't know*
What percentage of your portable radios are water-resistant?	○	○	○	○	○	○	○
What percentage of your portable radios are DESIGNED TO BE safe in an explosive atmosphere?	○	○	○	○	○	○	○

Do you have a number of reserve portable radios available that is equal to or greater than 10% of your in-service radios? ○ Yes ○ No ○ *Don't know*

Self-contained breathing apparatus (SCBA).

	None (0%)	Few (1-25%)	Some (26-50%)	Many (51-75%)	Most (76-99%)	All (100%)
What percentage of your on-duty emergency responders on a single shift can be equipped with SCBA?	○	○	○	○	○	○

	None (0%)	Few (1-25%)	Some (26-50%)	Many (51-75%)	Most (76-99%)	All (100%)	*Don't know*
What percentage of your SCBA are 10 years old or older?	○	○	○	○	○	○	○
What percentage of your SCBA are CBRN compliant? *(NOTE: all SCBA manufactured since 2007 are compliant)*	○	○	○	○	○	○	○

APPENDIX 3: SURVEY METHODOLOGY

The Needs Assessment Survey was conducted as a census (meaning that all the fire departments in our national database were sent a survey), with appropriate adjustments for non-response. The choice of a census approach rather than a random sample approach was based on two considerations.

First NFPA wanted to give every fire department in the United States with administrative and emergency response responsibilities the opportunity to participate in the survey.

Second, the survey was expanded and changed to compliment how the fire service has changed since the needs assessment of the U.S. Fire Service survey was first initiated in 2001. Several questions on fire service capabilities and training addressed in the survey were believed to target sufficiently rare situations, so it would benefit to have that the largest possible study base for analysis.

The NFPA used its own list of local fire departments[1] as the mailing list and census frame of all fire departments in the U.S. In all, 26,322 fire departments with administrative and emergency response responsibilities were mailed survey forms and provided an alternative means to complete the survey online using the SNAP Survey platform. Response rates by population groups are shown in Table A-1. Figure A-1 illustrates the response rates by state.

Table A-1. Sample Size and Number of Fire Departments Responding by Community Size in 2015

Population Protected	Number of Fire Departments in FSI	Number Fire Departments Responding	Absolute Response Rate (% of FSI)
500,000 or more	56	46	82.1%
250,000 to 499,999	61	43	70.5%
100,000 to 249,000	250	165	66.0%
50,000 to 99,999	483	303	62.7%
25,000 to 49,999	1,103	499	45.2%
10,000 to 24,999	2,960	952	32.2%
5,000 to 9,999	3,703	817	22.1%
2,500 to 4,999	4,773	812	17.0%
Under 2,500	12,933	1,469	11.4%
Total	26,322	5,106	19.4%

[1] The NFPA Fire Service Inventory (FSI) file is a listing of all known fire departments in the U.S. The file is continuously maintained by a three year cycle survey which surveys one-third of the country each year. The survey is also updated by review of fire marshal listings by state, other NFPA mailings, and other data sources.

For comparison purposes, in 2010, a stratified random sample of departments that amounted to 75% of the known departments at the time received a survey (see Table A-2).

Table A-2. Sample Size and Number of Fire Departments Responding by Community Size in 2010

Population Protected	Number of Fire Departments in FSI	Number of Fire Departments in Stratified Random Sample	Number Fire Departments Responding	Absolute Response Rate (% of FSI)
500,000 or more	53	53	31	58.5%
250,000 to 499,999	62	62	38	61.3%
100,000 to 249,000	238	238	139	58.4%
50,000 to 99,999	447	447	262	58.6%
25,000 to 49,999	1,085	978	467	43.0%
10,000 to 24,999	2,951	2,537	910	30.8%
5,000 to 9,999	3,755	3,443	795	21.2%
2,500 to 4,999	4,875	4,273	831	17.0%
Under 2,500	12,964	7,962	1,187	9.2%
Total	26,430	19,992	4,660	17.6%

The content of the survey was developed by NFPA, in collaboration with an ad hoc technical advisory group consisting of representatives of the full spectrum of national organizations and related disciplines associated with the management of fire and related hazards and risks in the U.S. A copy of the survey form is provided in Appendix 2.

The fire departments were mailed the survey form the week of September 15, 2015. A second mailing was sent the week of November 02, 2015 to departments that had not responded to the initial mailing.

Overall, NFPA received 5,106 completed surveys. Half were received via the SNAP Survey online platform and half were paper survey returns that were edited, coded and keyed for analysis. The overall response rate was 19.4% which is slightly down from 2010, however 446 more surveys were received and the response rates from the larger fire departments protecting populations more than 50,000 was considerably higher, with 66% of fire departments reporting versus the 58% that reported in 2010.

There are two estimation methods used in this report. The first estimation method used for the survey was ratio estimation with stratification by community size. For each statistic a sample rate was computed for each stratum. This rate consisted of the total for that particular statistic from all fire departments reporting it, divided by the total population protected by the departments reporting the statistic. Note that this means that departments used in calculating

each statistic could be different, reflecting differences in unreported statistics. The sample rates by stratum were then multiplied by the population weighting factors to determine the estimates and are then combined to provide an overall national estimate. For example, this method was used in Table 1-3 of this report.

If this method of estimation is to be effective, estimates of the total number of fire departments and total population protected in each stratum must be accurate. The NFPA makes every effort to ensure this is the case. The population weights used for the national estimates were developed using the NFPA FSI (Fire Service Inventory) File and the U.S. Census population figures.

As noted in Table A-1, not all of the departments responded, so there is uncertainty in how well the sample estimates reflects the true population value due to weighting and potential response bias. To estimate error for estimates by strata, we computed standard error (standard deviation of proportion) if all the respondents for these communities were in fact a random sample selected from that population (with finite population corrections applied). Standard errors for the other strata reflect standard calculations.

The second estimation method used in this report is a simple projection based on the number of fire departments with administrative and fire response responsibilities. For each statistic a sample ratio was computed for each stratum. This ratio consisted of the total for that particular statistic from all fire departments reporting it divided by the total number of fire departments reporting on this statistic for each stratum. The ratio is then projected (multiplied) across the whole known population of fire departments by stratum. For example, this method was used in the Tables 1-15 and 1-16 of this report. Note that this means that departments used in calculating each statistic could be different, reflecting differences in unreported statistics.

Figure A-1. Survey response rates by state.