



RESEARCH

POWER UNIT

FIRE DEPARTMENT

US Fire Department Profile 2018

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Key Findings

There were an estimated 1,115,000 career and volunteer firefighters in the United States in 2018.

The 370,000 career firefighters in 2018 represented a decrease of 1 percent from the previous year.

There were 745,000 volunteer firefighters in 2018, an increase of 9 percent from the previous year, but similar to the 2016 number.

In 2018, 93,700, or 8 percent, of the firefighters were female. Of the career firefighters, 15,200 (4 percent) were female firefighters. There were 78,500 volunteer firefighters who were female, which was 11 percent of the total number of volunteer firefighters.

Fifty percent of firefighters are between 30 and 49 years old.

Forty-one percent of volunteer firefighters have more than 10 years of active service (tenure period).

There were 29,705 fire departments in the United States in 2018. Of these, 18 percent were all career or mostly career departments and protected 68 percent of the US population.

Nationwide 38 percent of fire departments provided no emergency medical services, 45 percent provided basic life support (BLS), and 17 percent provided advanced life support (ALS).

From 1980 to 2019, local fire protection service expenditures (adjusted for inflation in 2017 dollars) increased 196 percent.

Background and Objectives

This report provides an overview of local and municipal fire departments in the United States. The analysis includes firefighters, fire departments, apparatus, and stations. The results are based on

data collected during the NFPA Survey of Fire Departments for US Fire Experience During 2018 and the NFPA Fire Service Survey, in which data was collected over the period 2016–2018. An earlier report, *Fire Loss in the United States during 2018*, measured the national fire experience in terms of the number of fires that fire departments responded to and the resulting civilian deaths, civilian injuries, and property losses that occurred. Estimates of non-fire incidents were also included.

Firefighters

There were approximately 1,115,000 career and volunteer firefighters in the US in 2018, according to estimates based on NFPA's Survey of Fire Departments for US Fire Experience During 2018. This is a 6 percent increase from 2017.

Career firefighters include full-time uniformed firefighters regardless of assignments (e.g., suppression, prevention/inspection, and administrative). For the purpose of this survey, career firefighters include only firefighters in municipal fire departments that protect people, residences, and public buildings; they do not include firefighters working in private fire brigades or for state and federal agencies.

Volunteer firefighters include any active part-time (call or volunteer) firefighters. Active volunteers are defined as being involved in firefighting. Of the total number of firefighters, 370,000 (33 percent) were career, while 745,000 (67 percent) were volunteers.¹

Most career firefighters (67 percent) work in communities that protect 25,000 or more people. Most volunteer firefighters (95 percent) are in departments that protect fewer than 25,000 people. Approximately half (49 percent) of the volunteer firefighters are with small, rural departments that protect fewer than 2,500 people.

Since 1986, the number of career firefighters in the US has increased steadily from 237,750 in 1986 to 370,000 in 2018, an increase of

¹ Note that these results are based on a sample survey, and as a result there is a 95 percent confidence interval associated with each estimate. Based on the data reported by the fire departments responding to the 2018 National Fire Experience Survey, the NFPA is confident that the actual number of career firefighters falls between 357,800 and 382,200; and the actual number of volunteer firefighters falls between 724,000 and 766,000.

56 percent over this period (see Figure 1). For mostly career or all career departments, the rates of career firefighters per 1,000 people protected have remained in a range of 1.54 to 1.81 this period (see Figure 1). Even though the number of career firefighters has increased over time, the number of people protected by career firefighters has remained relatively consistent as the population in the US has increased.

Number and Rates of Firefighters

The number of volunteer firefighters declined in the late 1980s and late 1990s, each time returning to the same level soon after. From 2005 through 2009, the number of volunteer firefighters was stable at a level slightly higher than any previously recorded other than in 1995 (see Figure 2). After a dip in 2010 through 2011, the number of volunteers appeared to increase and was in the range of 783,300 to 814,850, an increase of 4.0 percent over this period. In 2018 the number of volunteer firefighters increased to 745,000. When the rates of volunteer firefighters per 1,000 people protected for mostly volunteer or all volunteer departments are examined, the rates show a downward trend and range from a high of 8.05 in 1987 to a low of 5.8 in 2017 per 1,000 population protected.

According to the US Department of Labor, Bureau of Labor Statistics, from 2014-2018 8.0 percent of career firefighters were Hispanic or Latino; 8.4 percent were African-American; 1.1 percent were Asian; and 4.7 percent were female.²

Figure 1. Number of Career Firefighters and Rate per 1,000 People

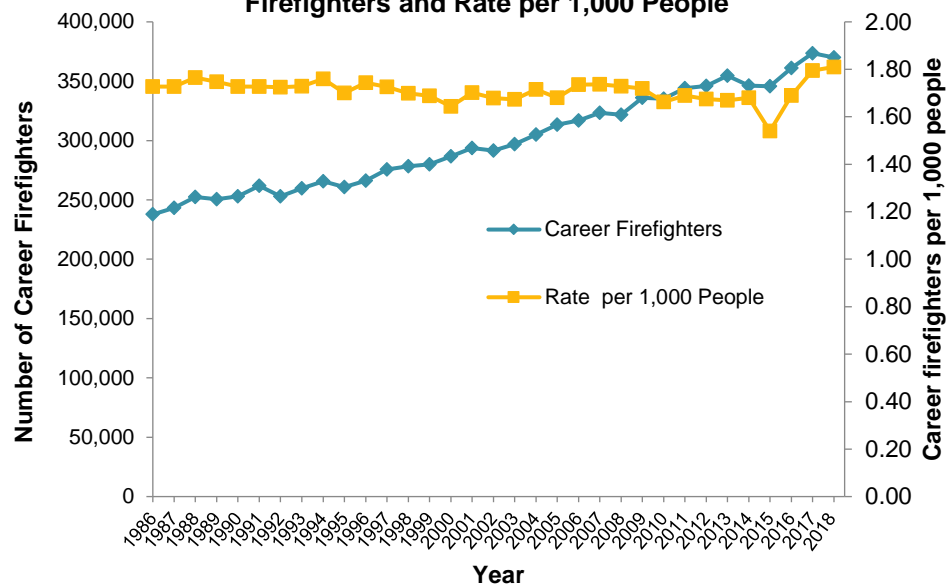
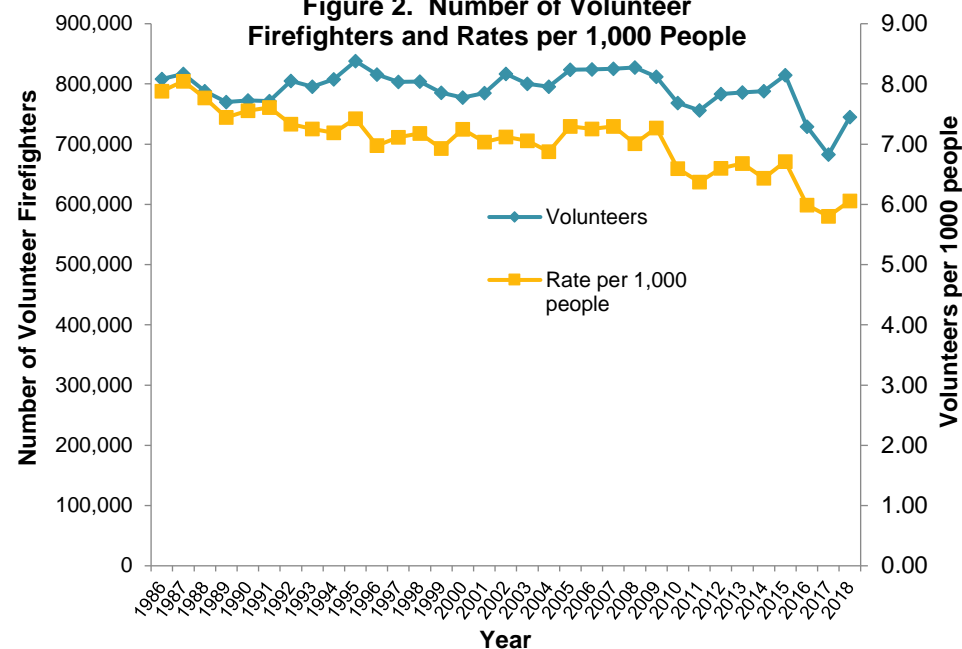


Figure 2. Number of Volunteer Firefighters and Rates per 1,000 People



² Figures are from the *Annual Averages Tables Employment and Earnings* (2013–2017) Bureau of Labor Statistics, Washington D.C. These numbers can change considerably from year to year because of their small size and sample variability.

NFPA estimates that in 2018, there were 15,200 female career firefighters and 78,500 female volunteer firefighters employed by local fire departments.³

A good way to develop a sense of the size of departments relative to the population they protect is to examine the rate of firefighters per 1,000 population as shown in Table 3 and Table 4 in the [supporting tables document](#).

It is important to note that the rates are based on data reported to the NFPA and do not reflect recommended rates or some defined fire protection standard.

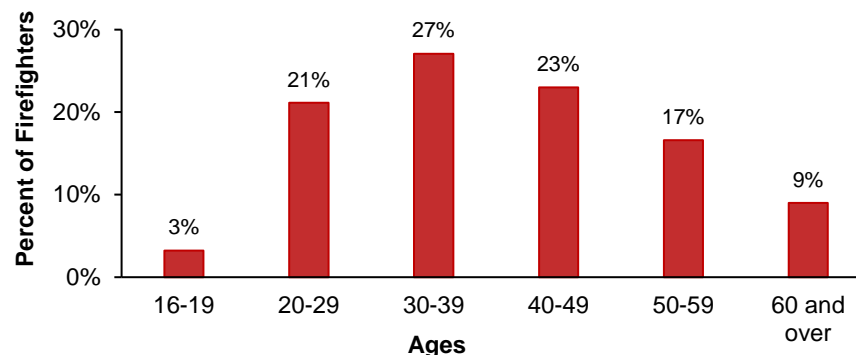
Fire departments protecting communities of 25,000 people or more had median rates of 0.87 to 1.32 career firefighters per 1,000 people. Departments experience great variation in their specific circumstances and policies, including length of work week, unusual hazards, geographical dispersion of the community, and scope of services provided (e.g., whether the department handles emergency medical calls).

Fire departments protecting less than 25,000 people had median rates of volunteer firefighters per 1,000 persons in the range of 0.96 to 18.96. This wide range in median rates for smaller communities reflects the minimum number of firefighters needed to staff a department regardless of community size. Volunteer firefighters are often available on a part-time basis only; it may take more volunteers to ensure an adequate response to each alarm. The median rate for volunteer firefighters increases as population protected decreases.

Length of work week and its effect on rate of career firefighters per 1,000 population by size of community is provided in Table 5 of the [supporting tables document](#). Generally, longer workweeks correlate with fewer career firefighters per 1,000 population protected. Tables 6 and 7 of the supporting tables document provide median rates for career and volunteer firefighters by region and size of community.

Of the 1,115,000 firefighters, the age group accounting for the largest share of firefighters was the 30–39 group, 27 percent of all firefighters (see Figure 3).

Figure 3. Number of Firefighters in the US by Age Group, 2018



Age group patterns did vary somewhat by population of community protected. Departments protecting less than 25,000 people and comprised mostly of volunteers tended to have higher proportions of firefighters in the under-30 age group, while departments that protect 25,000 people or more and are comprised mostly of career firefighters had higher proportions of firefighters in the 30–39 and 40–49 age groups. Departments protecting less than 2,500 people had the highest percentage of firefighters age 50 and older (34 percent).

When age group patterns by year are examined for the 1997–2018 period, there were slight changes over time (see Figure 4). The 30–39 and the 40–49 age groups showed slight decreases over the period, while the 50–59 and 60 and over groups showed moderate increases over the period. Volunteer firefighter tenure periods show that more than two of every five (41 percent) volunteers have more than 10 years of active service. Almost two-thirds (63 percent) of volunteer firefighters have more than 5 years of active service.

³ Note that these results are based on a sample survey, and as a result there is a 95 percent confidence interval associated with each estimate. Based on the data reported by the fire departments responding to the 2018 National Fire Experience Survey, the NFPA is confident that the actual number of female career firefighters falls between 14,000 and 16,400; and the actual number of female volunteer firefighters falls between 73,400 and 83,600.

Fire Departments

There are an estimated 29,705 fire departments⁴ in the United States. Of these, 3,009 (10 percent) of departments are comprised solely of career firefighters⁵, and 19,122 (64 percent) of departments are comprised of all volunteer firefighters. An estimated 2,368 (8 percent) are mostly career, while 5,206 (18 percent) are mostly volunteer firefighters.

Fire departments categorized as all career or mostly career represent one-sixth (18 percent) of all departments and protect more than two-thirds (68 percent) of the US population, while departments categorized as mostly volunteer or all volunteer represent five-sixths (82 percent) of all departments and protect one-third (32 percent) of the US population.

The number of all career or mostly career departments increased from 3,043 in 1986 to 5,377 in 2018, an increase of 77 percent, while the number of all volunteer or mostly volunteer departments decreased from 26,797 in 1986 to 24,328 in 2018, a decrease of 9 percent.

The number of fire departments by size of community is provided in Table 13 of the [supporting tables document](#). Department type varied considerably by population protected. For community sizes 25,000 and above, the percentage of departments classified as all career or mostly career ranged from 75 percent to 100 percent, while for community sizes less than 25,000, the percentage of departments classified as all volunteer or mostly volunteer ranged from 49 percent to 97 percent.

Figure 4: Percent of Firefighters in the US by Age Group, 2018

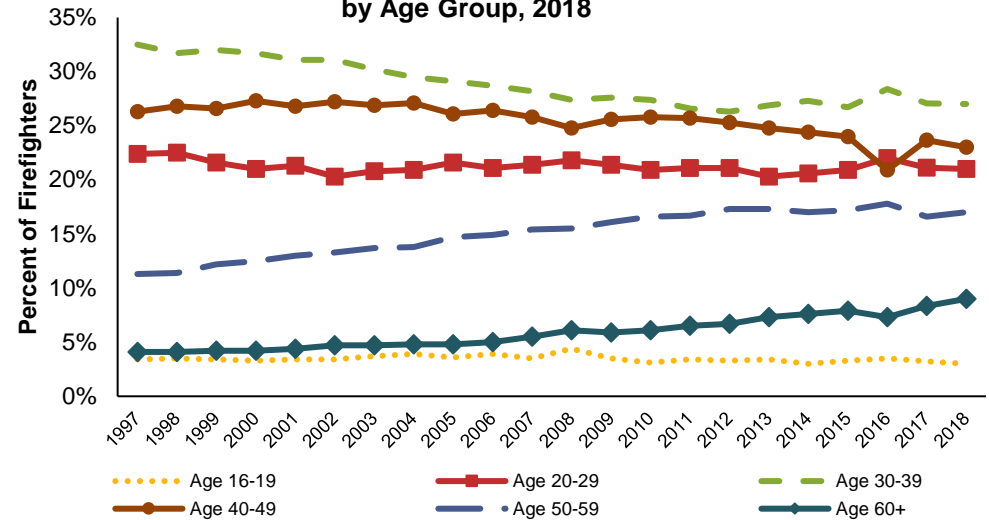
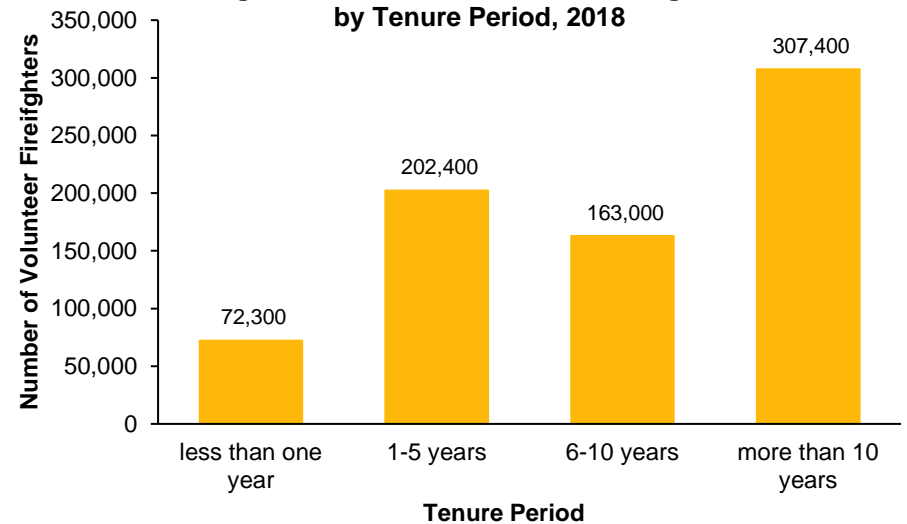


Figure 5: Number of Volunteer Firefighters by Tenure Period, 2018



⁴ A fire department is a public organization that provides fire prevention, fire suppression and associated emergency and non-emergency services to a jurisdiction such as a county, municipality, or organized fire district.

⁵ Department type is broken into four categories. All career departments are comprised 100 percent of career firefighters. Mostly career is comprised of 51 to 99 percent career firefighters, while mostly volunteer is comprised of 1 to 50 percent career firefighters. All volunteer departments are comprised 100 percent of volunteer firefighters.

Fire Department Apparatus and Stations

Estimates of the number of apparatus and stations in the United States for the 2016–2018 period indicate that there were 72,100 pumpers, 7,400 aerial apparatuses, 80,900 other suppression vehicles (e.g., pumpers less than 1,000 gpm, brush vehicles, tankers), 50,700 other vehicles (e.g., rescue, lighting, and ambulance vehicles), and 57,500 stations. A breakdown of average apparatus and station rates by community size and trend data can be found in Table 15 and Appendix B of the [supporting tables document](#)⁶.

It is worth emphasizing what the indicated rates in Table 15 represent. The numbers reflect apparatus averages and station rates per 1,000 people by population protected reported to the NFPA. They do *not* represent recommended rates or some defined fire protection standard.

The rates are higher for departments protecting smaller communities (under 2,500). This is because it takes a minimum number of apparatus and stations to operate a fire department regardless of the number of people protected. For example, for a department protecting 1,000 people, you would expect according to Table 15 an average of 1.13 pumpers, 1.84 other suppression vehicles, 0.04 aerial apparatus, and 0.91 stations. The 0.91 stations per 1,000 people is the highest rate shown in Table 15, but for this community size it is equivalent to roughly one station per department. In other words, for every 100 departments protecting 1,000 people, you would expect approximately 113 pumpers, 184 other suppression vehicles, 4 aerial apparatus, and 91 stations.

The prevalence of pumpers, other suppression vehicles, aerial apparatus, and stations by size of community are covered in Tables 16–19 in the [supporting tables document](#).

Emergency Medical Services

The level of emergency medical service (EMS) provided by fire departments by size of community protected for the 2016–2018 period is provided in Table 20 of the [supporting tables document](#).

The larger the community, the more likely EMS service was provided. Nationwide, 45 percent of departments provided EMS with basic life support, 17 percent of departments provided EMS with advanced life support, and 38 percent of departments did not provide EMS.

US Expenditures on Local Fire Protection

Table 21 of the [supporting tables document](#) provides expenditures on local fire protection by governments, with and without adjustment for inflation. Note that these expenditures, when adjusted for inflation, have risen 196 percent from 1980 to 2015. Other municipal service costs like police protection have risen in a similar manner.

Fire protection costs have risen 135 percent since 1986, while the number of career firefighters has increased 57 percent. (See Table 2 in the [supporting tables document](#)). Since chiefs of fire departments serving larger communities report problems with shrinking budgets or with level budgets combined with increasing responsibilities, this clear pattern of increasing fire department resources nationwide is difficult to interpret. Some of the factors possibly contributing to this increase in costs are (1) shrinkage of the work week⁷ for some departments, which results in a need to increase staffing and apparatus or to pay firefighters at overtime rates; (2) increased EMS responsibilities that require increased staffing and, in some communities, a more frequent replacement of apparatus; and (3) rising costs of retirement and health benefits.

Methods

The report is primarily based on two data sources: the annual NFPA Survey of Fire Departments for US Fire Experience During 2018 and the NFPA Fire Service Survey, 2016–2018.

The Survey of Fire Departments for US Fire Experience utilizes a sample of fire departments in the United States to make national projections of the fire problem. The sample is stratified by the size of the community protected by the fire department. All US fire departments that protect communities with a population of more than 5,000 are included in the sample. The 8,854 departments in the eight highest strata protect a population of 283 million or 85 percent of the US population as of July 2018.

The remainder of the sample included 14,338 randomly selected departments in the smallest communities (less than 5,000 population protected), for a total sample size of 23,192 (78 percent) of all known fire departments to the NFPA in the United States.

A total of 2,631 departments responded to the Survey of Fire Departments for US Fire Experience During 2018. National projections are made by weighting sample results according to the proportion of total US population accounted for by communities of each size. There is a confidence interval that measures the statistical certainty (or uncertainty) of the estimate around any estimate based on a sample survey. We are confident that the actual number of total firefighters falls within 5 percent of the estimate.

The NFPA Fire Service Survey is a 3-year cycle survey that reaches about one-third of the states in the country each year. The survey includes questions on the number of career firefighters, the number of volunteer firefighters, length of work week, number of apparatus and stations, etc. In recent years, the survey has had a response rate of between 13–16 percent from departments.

The results in this report are based on local and municipal fire departments. State and federal firefighting entities were not included in this sample. No adjustments were made for private fire brigades, such as industrial or military installations.

Acknowledgments

The authors would like to thank the fire departments who participated in this annual NFPA Survey of Fire Departments for US Fire Experience and/or the NFPA Fire Service Survey.

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