



RESEARCH

Fire Loss in the United States During 2015

September 2016

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EXHIBIT A

Abstract

U.S. fire departments responded to an estimated 1,345,500 fires in 2015. These fires resulted in 3,280 civilian fire fatalities, 15,700 civilian fire injuries and an estimated \$14.3 billion in direct property loss. There was a civilian fire death every 2 hours and 40 minutes and a civilian fire injury every 33.5 minutes in 2015. Home fires caused 2,560, or 78 percent, of the civilian fire deaths. Fires accounted for four percent of the 33,602,500 total calls. Eight percent of the calls were false alarms; 64 percent of the calls were for aid such as EMS.

Keywords: fire statistics, fire incidents, non-fire incidents, fire fatalities, fire injuries, fire losses, intentional fires, regional fire loss rates.

Acknowledgements

NFPA is grateful to the many fire departments that responded to the *2015 National Fire Experience Survey* for their continuing efforts to provide the data necessary to make national projections. The author would also like to thank the members of NFPA staff who worked on this year's survey, including Justin Cronin, Frank Deely, and Jay Petrillo for editing the survey forms and making follow-up calls to fire departments, and Norma Candeloro, Helen Columbo for processing the survey forms.

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Number of Fires

- Public fire departments responded to 1,345,500 fires in 2015, a highly significant 3.7 percent increase over the previous year.
- Of these, 501,500 fires occurred in structures, a slight increase of 1.5 percent.
- Of the structure fires that occurred in 2015, 365,500, or 73 percent, occurred in home structures, which include one- and two-family homes, manufactured homes, and apartments. This was a slight decrease of 0.5 percent.
- There were also 174,000 fires in highway-type vehicles, an increase of 3.9 percent from the previous year.
- The 639,500 fires that occurred in outside and other properties represented an increase of 4.8 percent.
- Every 23 seconds, a U.S. fire department responds to a fire somewhere in the nation. A fire occurs in a structure at the rate of one every 63 seconds, and a home fire occurs every 86 seconds. Fires occur in highway vehicles at the rate of one every 3 minutes 1 second, and there is a fire in an outside and other property every 52 seconds.

Civilian Fire Deaths

- In 2015, 3,280 civilians died in fires, an increase of 0.2 percent from the previous year.
- Of these, 2,560, or 78 percent of all fire deaths, occurred in the home, a decrease of 6.7 percent compared to 2014.
- Another 445 civilians died in highway vehicle fires, which represents 13.6 percent of all fire deaths.
- Nationwide, a civilian died in a fire every 2 hours and 40 minutes, and a civilian died in a home fire every 3 hours and 25 minutes.

Civilian Fire Injuries

- Last year, 15,700 civilian fire injuries occurred, a decrease of 0.5 percent from the previous year. Many civilian injuries are not reported to the fire service, and the estimate for civilian injuries may be low.
- Of these, 13,000, or 83 percent of all civilian injuries, occurred in structure fires.
- Home fires were responsible for 11,075 civilian injuries, or 71 percent of all civilian injuries, in 2015.
- Another 1,550 civilian injuries, or 10 percent of all civilian injuries, occurred in highway vehicle fires.
- Nationwide, there was a civilian fire injury every 33.5 minutes, and a civilian fire injury in home fires every 47.5 minutes.

Property Damage

- An estimated \$14.3 billion in property damage occurred as a result of fire in 2015, an increase of 23.2 percent from the previous year.
- Of this, \$10.3 billion in property damage occurred in structure fires, including \$7 billion in property loss in home fires.
- A further \$2 billion in property damage occurred in two major California wildfires. The losses in these wildfires includes homes, outbuildings, commercial properties, and other structures.
- Highway vehicle fires resulted in \$1.2 billion in property loss last year.

Intentionally Set Fires

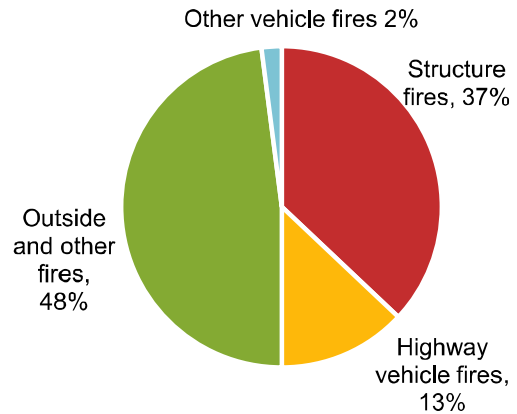
- An estimated 23,000 fires were intentionally set in 2015, excluding fires whose causes were unknown, a highly significant increase of 21.1 percent over the year before.
- Intentionally set fires in structures also resulted in 205 civilian deaths, a highly significant increase of 30.6 percent from the previous year.
- At the same time, intentionally set structure fires resulted in \$460 million in property loss, a highly significant decrease of 25 percent from 2014.
- There were 10,000 intentionally set vehicle fires, a highly significant increase of 25 percent from the previous year. These fires resulted in \$74 million in property damage, a highly significant decrease of 36.2 percent from year before.



FIRES IN THE UNITED STATES DURING 2015 FACT SHEET

1,345,500 fires were reported in the U.S. during 2015.

- **3,280** civilian fire deaths
- One civilian death occurred every two hours and 40 minutes
- **15,700** civilian fire injuries
- One civilian injury occurred every 34 minutes
- **\$14.3 billion** in property damage*
- A fire department responded to a fire every 23 seconds



STRUCTURE FIRES

501,500 structure fires occurred in the U.S. during 2015.

- **2,685** civilian fire deaths
- **13,000** civilian fire injuries
- **\$10.3 billion** in property damage
- One structure fire was reported every 63 seconds.

HIGHWAY VEHICLE FIRES

174,000 highway vehicle fires occurred in the U.S. during 2015.

- **445** civilian fire deaths
- **1,550** civilian fire injuries
- **\$1.2 billion** in property damage
- One highway vehicle fire was reported every 181 seconds.

OUTSIDE AND OTHER FIRES

639,500 outside and other fires occurred in the U.S. during 2015.

- **95** civilian fire deaths
- **825** civilian fire injuries
- **\$252 million** in property damage*
- One outside fire was reported every 52 seconds.

OTHER VEHICLE FIRES

30,500 other vehicle fires occurred in the U.S. during 2015.

- **55** civilian deaths
- **325** civilian injuries
- **\$579 million** in property damage
- One other vehicle fire was reported every 17 minutes, 14 seconds.

*An additional \$2 billion in property damage occurred in two major California wildfires.

Background and Objective

Since 1977, the NFPA has surveyed public fire departments to quantify the annual fire experience for the United States (U.S.). This sample survey of U.S. fire departments enables NFPA to make national fire problem estimates as measured by the number of fires that local fire departments attend, and the resulting deaths, injuries and property losses that occur at these incidents.

This report summarizes key findings based on the NFPA survey of fire departments for the U.S. fire experience during 2015 and provide fire loss trends from 1977 to 2015.

Methods

Sample Selection

The NFPA currently has 29,763 public fire departments listed in the US in its Fire Service Inventory (FSI) file. Based on desired levels of statistical precision for the survey results and the staff available to process, edit, and follow up on the individual questionnaires, the NFPA set a target of 3,000 fire department survey responses for the 2015 sample.

Because of the variation in fire loss results by community size, fire departments were placed in one of the following 10 strata by size of community protected – Table 1.

**Table 1:
Fire Department Stratum by Size of Community Protected.**

Stratum	Population Size of Community Protected
1	1,000,000 and up
2	500,000 to 999,999
3	250,000 to 499,999
4	100,000 to 249,999
5	50,000 to 99,999
6	25,000 to 49,999
7	10,000 to 24,999
8	5,000 to 9,999
9	2,500 to 4,999
10	2,500 and under

Sample sizes for the individual strata were chosen to ensure the best estimate of civilian deaths in one-and two-family dwellings, the statistic that most aptly reflects the overall severity of the fire problem. All departments that protect more than 2,500 people or more were included. These 13,565 departments in the nine highest strata protect a population of 300,304,722 or 93% of the U.S. population as of July, 2015.

The rest of the sample included 8,562 randomly selected departments from stratum 10 (less than 2,500 population protected), for a total sample size of 22,127 or 74% of all known departments to the NFPA in the United States.

Data Collection

The surveys were sent during the 2nd week of January 2016. A second mailing was sent in mid-March to fire departments that had not responded to the first mailing. A total of 2,605 departments responded to the questionnaire - 1,637 to the first mailing and 968 to the second. One thousand three hundred and sixty four or 52% responded by using the 'new' SNAP Surveys online platform.

Table 2 shows the number of departments that responded by region and size of community. The overall response rate was 12%, although response rates were considerably higher for departments protecting larger communities than they were for departments protecting smaller communities. The overall response rate was 49% for departments protecting communities of 50,000 population or more (same previous survey), 21% for departments protecting communities of 10,000 to 49,999 (down from previous survey), and 8% for departments protecting communities less than 10,000 population, which are comprised of mostly volunteers (down from previous survey). The 2,605 departments that did respond protect 126,471,124 people or 39% of the total U.S. population.

After the NFPA received the surveys, technical staff members of the Fire Analysis and Research Division reviewed them for completeness and consistency. When appropriate, they followed up on questions with a telephone call.

After the edit, procedures were completed, the survey data were keyed to a computer file, where additional checks were made. The file was then ready for data analysis and estimation procedures.

**Table 2:
Number of Fire Departments Responding to 2015 NFPA Survey
by Region and Community Size**

Population of Community	All Regions	Northeast	Midwest	South	West
1,000,000 or more	13	2	1	5	5
500,000 to 999,999	31	1	3	16	11
250,000 to 499,999	38	2	6	21	9
100,000 to 249,999	134	14	19	51	50
50,000 to 99,999	203	17	77	68	41
25,000 to 49,999	294	34	132	93	35
10,000 to 24,999	561	92	257	160	52
5,000 to 9,999	387	91	153	101	42
2,500 to 4,999	334	66	146	82	40
Under 2,500	610	97	303	122	88
Total	2,605	416	1,097	719	373

Source: NFPA's Survey of Fire Departments for the 2015 Fire Experience.

Estimation Methodology

The estimation method used for the survey was ratio estimation¹ with stratification by community size. For each fire statistic a sample loss 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 the departments used in calculating each statistic could be different, reflecting differences in unreported statistics. The sample fire loss rates by stratum were then multiplied by population weighing factors to determine the estimates and then are combined to provide the overall national estimate.

If this method of estimation is to be effective, estimates of the total number of fire departments and the total population protected in each stratum must be accurate. The NFPA makes every effort to ensure that this is the case. The population weights used for the national estimates were developed using the NFPA FSI (Fire Service Inventory) File and U.S. Census population figures.

For each estimate, a corresponding standard error was also calculated. The standard error is a measure of the error caused by the fact that estimates are based on a sampling of fire losses rather than on a complete census of the fire problem. Due to the fact that the survey is based on a random sample of the smaller departments, we can be very confident that the actual value falls within the percentage noted in parentheses for the overall national fire loss statistics: number of fires (1.7%), number of civilian deaths (10.7%), number of civilian injuries (6.0%), and property loss (2.5%).

The standard error helps in determining whether year-to-year differences are statistically significant. Differences that were found to be statistically significant were so noted in tables. Property loss estimates are particularly prone to large standard errors because they are sensitive to unusually high losses, and, as a result, large percentage differences from year to year may not always be statistically significant. In 2015, for instance, property damage in stores and offices was estimated to be \$635,000,000. This represented an increase of 10.3% from the year before, but was found not to be statistically significant.

In addition to sampling errors, there are non-sampling errors. These include biases of the survey methodology, incomplete or inaccurate reporting of data to the NFPA and differences in data collection methods by the fire departments responding. As an example of a non-sampling error, most of the fires included in the survey took place in highly populated residential areas, because the fire departments selected for the surveys are primarily public fire departments that protect sizable residential populations. Fires that occur in sparsely populated areas protected primarily by State and Federal Departments of Forestry are not likely to be included in the survey results.

The NFPA Fire Incident Data Organization (FIDO) data base was also used in conjunction with the annual survey to help identify any large loss fires or deaths that the survey might have missed.

The editors of survey data attempted to verify all reported civilian deaths in vehicle fires. They contacted most of the fire departments that reported fire-related deaths in vehicles and found that many of the deaths were indeed the results of fire. In some instances, however, impact was found to have been the cause of death. This effort can have a considerable impact on the estimates.

The results presented in this report are based on fire incidents attended by public fire departments. No adjustments were made for unreported fires and losses (e.g., fires extinguished by the occupant). Also, no adjustments were made for fires attended solely by private fire brigades (e.g., industry and military installations), or for fires extinguished by fixed suppression systems with no fire department response.

Results

Number of Fires

Based upon the data we received in response to our 2015 National Fire Experience Survey, we estimate that public fire departments in the U.S. responded to 1,345,500 fires last year, a highly significant increase of 3.7 percent from 2014.

Of these fires, an estimated 501,500 were structure fires, an increase of 1.5 percent from the year before. The number of structure fires decreased steadily from 1977, when NFPA began gathering this data, to 2015. Structure fires were at their peak in 1977, with 1,098,000, then fell throughout the 1980s, dipping below 600,000 for the first time in 1995. From 1998 to 2008, the number of structure fires fluctuated between 505,000 and 530,500 annually before decreasing to 480,500 in 2009. Since then, structure fire levels have ranged between 480,000 and 501,500.

We categorize structure fires as residential and non-residential. Residential properties include one- and two-family homes including manufactured homes, apartments or other multi-family housing, hotels and motels, dormitories, and boarding houses. The term “home” encompasses one or two-family homes, including manufactured housing, and apartments or other multi-family homes. Homes are the places people normally live and are much less regulated than other residential properties. Non-residential structure properties include public assembly, schools and colleges, health care and penal institutions, stores and offices, industrial facilities, storage facilities, and other structures such as outbuildings and bridges.

In 2015, there were 388,000 residential structure fires, accounting for 77.4 percent of all structure fires. This was an increase of 1,500 fires from the year before. Of these fires, 270,500 occurred in one- and two-family homes, including manufactured homes, accounting for 53.9 percent of all structure fires. Another 95,000 fires occurred in apartments, accounting for 18.9 percent of all structure fires. There were also 113,500 non-residential structure fires in 2015, an increase of 5.6 percent from the year before.

The 639,500 outside fires or other non-structure, non-vehicle fires accounted for almost half (47.5 percent) of all reported fires. These included 297,000 brush, grass, and forest fires (22.1 percent of total fires); 163,000 outside rubbish fires (12 percent of total fires); 76,000 outside fires involving property of value (5.6 percent); and 103,500 (7.7 percent of total fires) other non-structure, non-vehicle fires.

From 2014 to 2015, outside or other fires increased 4.8 percent. Outside and other fires peaked in 1977 at 1,658,500. The number of such fires then decreased steadily to 1,011,000 in 1983 then remained relatively flat through the 1980s. By 1993, the number of outside fires dropped to 910,500, and stayed near the 1 million level for the next three years. In 2013, outside and other fires dropped to a record low of 564,500 fires, the only year these fires have dropped below 600,000.

From 2014 to 2015, brush, grass, or forest fires increased 2.2 percent; outside rubbish fires increased 3.5 percent; fires involving property of value increased significantly by 16.9 percent; and other non-structure, non-vehicle fires increased 6.2 percent.

In addition to residential, non-residential, and outside fires, there were an estimated 174,000 highway vehicle fires in 2015, an increase of 3.9 percent from the year before, and 30,500 other vehicle fires, a highly significant increase of 17.3 percent. The national rate of fires per thousand population is 4.5 (see Figure 2).

**Table 3:
Estimates of 2015 Fires, Civilian Deaths, Civilian Injuries and
Property Loss in the United States**

	Estimate	Range ¹	Percent Change From 2014
Number of Fires	1,345,500	1,334,000 to 1,309,500	+3.7**
Number of Civilian Deaths	3,280	3,105 to 3,455	+0.2
Number of Civilian Injuries	15,770	16,325 to 15,225	+0.9
Property Loss ²	\$14,298,000,000 ³	\$14,116,000,000 to 14,480,000,000	+10.4**

The estimates are based on data reported to the NFPA by fire departments that responded to the 2015 National Fire Experience Survey.

¹ These are 95 percent confidence intervals.

² This includes overall direct property loss to contents, structures, vehicles, machinery, vegetation, and anything else involved in a fire. It does not include indirect losses. No adjustment was made for inflation in the year-to-year comparison.

³ This figure includes the California Wildfires 2015 with an estimated property loss of \$1,950,000,000. Loss by specific property was not available.

**Change was statistically significant at the .01 level.

**Table 4:
Estimates of 2015 Fires and Property Loss by Property Use**

Type of Fire	Number of Fires		Property Loss ¹	
	Estimate	Percent Change from 2014	Estimate	Percent Change from 2014
California Wildfires 2015 ²			\$1,950,000,000	
Fires in Structures	501,500	+1.5	\$10,280,000,000	+4.4
Fires in Highway Vehicles	174,000	+3.9	\$1,237,000,000	+8.3
Fires in Other Vehicles ³	30,500	+17.3**	\$579,000,000	+52.4**
Fire Outside but no vehicle (outside-storage, crops, timber, etc.)	76,000	+16.9**	\$151,000,000	+7.1
Fires in Brush, Grass, Wildland (excluding crops and timber) with no value or loss involved	297,000	+2.2		
Fires in Rubbish, Including dumpsters (outside of structures), with no value or loss involved	163,000	+3.5		
All Other Fires	103,500	+6.2	\$101,000,000	+5.2
Total	1,345,500	+3.7**	\$14,298,000,000	+23.2**

The estimates are based on data reported to the NFPA by fire departments that responded to the 2015 National Fire Experience Survey.

¹This includes overall direct property loss to contents, structure, a vehicle, machinery, vegetation or anything else involved in a fire. It does not include indirect losses, e.g., business interruption or temporary shelter costs. No adjustment was made for inflation in the year-to-year comparison.

² Includes total property loss for the Valley and Butte Wildfires. Loss by specific property type was not available for these fires.

³ This includes trains, boats, ships, aircraft, farm vehicles and construction vehicles.

*Change was statistically significant at the .05 level.

**Change was statistically significant at the .01 level.

**Table 5:
Estimates of 2015 Structure Fires and Property Loss by Property Use**

Property Use	Structure Fires		Property Loss ¹	
	Estimate	Percent Change from 2014	Estimate	Percent Change from 2014
Public Assembly	17,000	+21.4	\$323,000,000	-24.7*
Educational	5,000	0.0	\$40,000,000	-32.2
Institutional	6,500	0.0	\$51,000,000	+27.5
Residential (Total)	388,000	+0.39	\$7,210,000,000	+3.1
One- and Two-Family Homes ²	270,500	-1.10	\$5,799,000,000	-0.8
Apartments	95,000	1.06	\$1,161,000,000	+18.3*
Other Residential ³	22,500	+18.4*	\$250,000,000	+50.6**
Stores and Offices	16,500	-5.7	\$635,000,000	-10.3
Industry, Utility, Defense ⁴	9,000	-10.0	\$924,000,000	+47.6**
Storage in Structures	30,500	+10.9*	\$1,032,000,000	+32.1**
Special Structures	29,000	+7.4	\$65,000,000	-69.2**
Total	501,500	+1.5	\$10,280,000,000	+4.4

The estimates are based on data reported to the NFPA by fire departments that responded to the 2015 National Fire Experience Survey.

¹ This includes overall direct property loss to contents, structure, a vehicle, machinery, vegetation or anything else involved in a fire. It does not include indirect losses, e.g., business interruption or temporary shelter costs. No adjustment was made for inflation in the year-to-year comparison.

² This includes manufactured homes.

³ Includes hotels and motels, college dormitories, boarding houses, etc.

⁴ Incidents handled only by private fire brigades or fixed suppression systems are not included in the figures shown here.

*Change was statistically significant to the 0.05 level

**Change was statistically significant at the .01 level.

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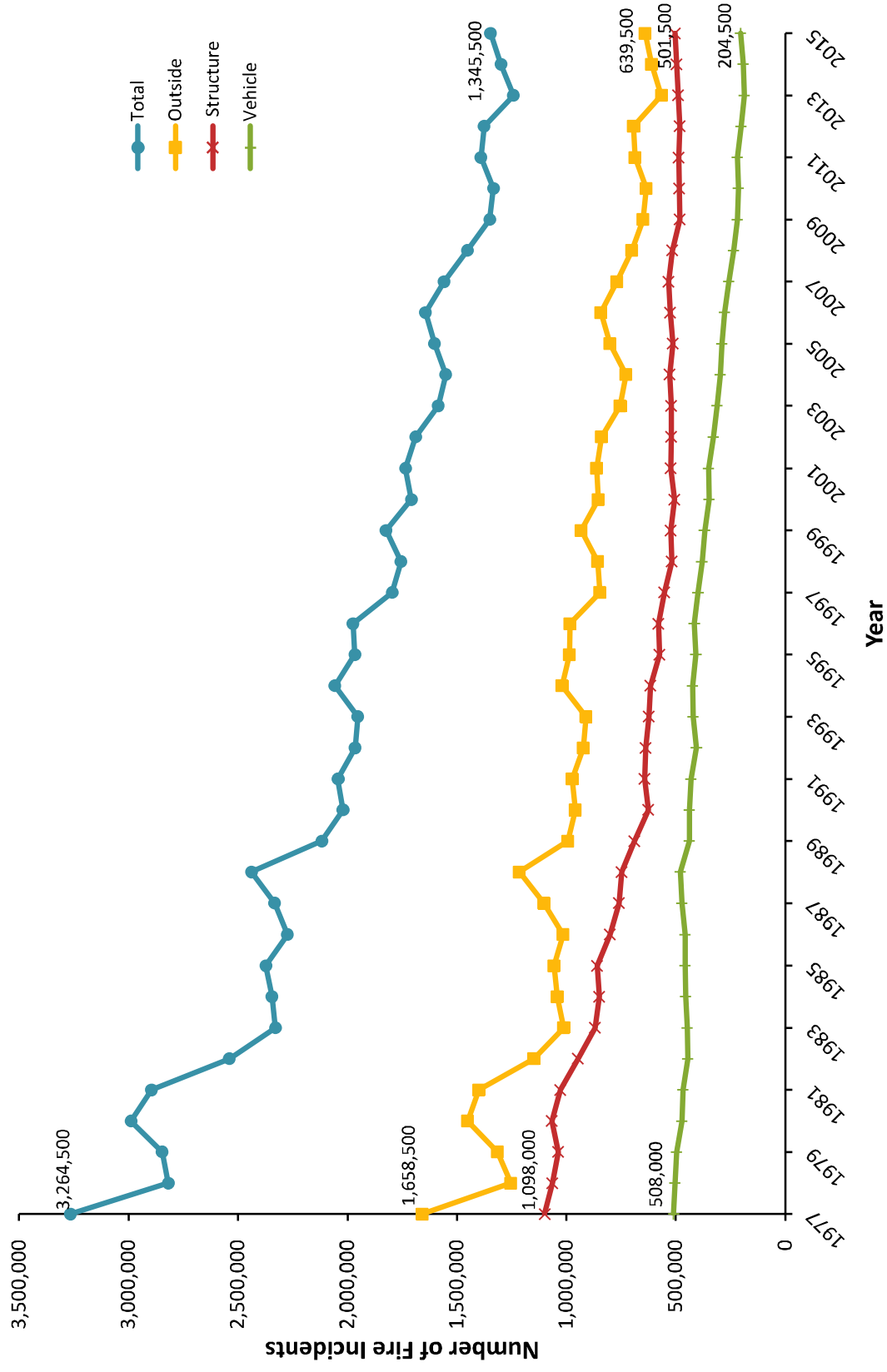


Figure 1. Fire Incidents by Type in the United States by Year (1977-2015)

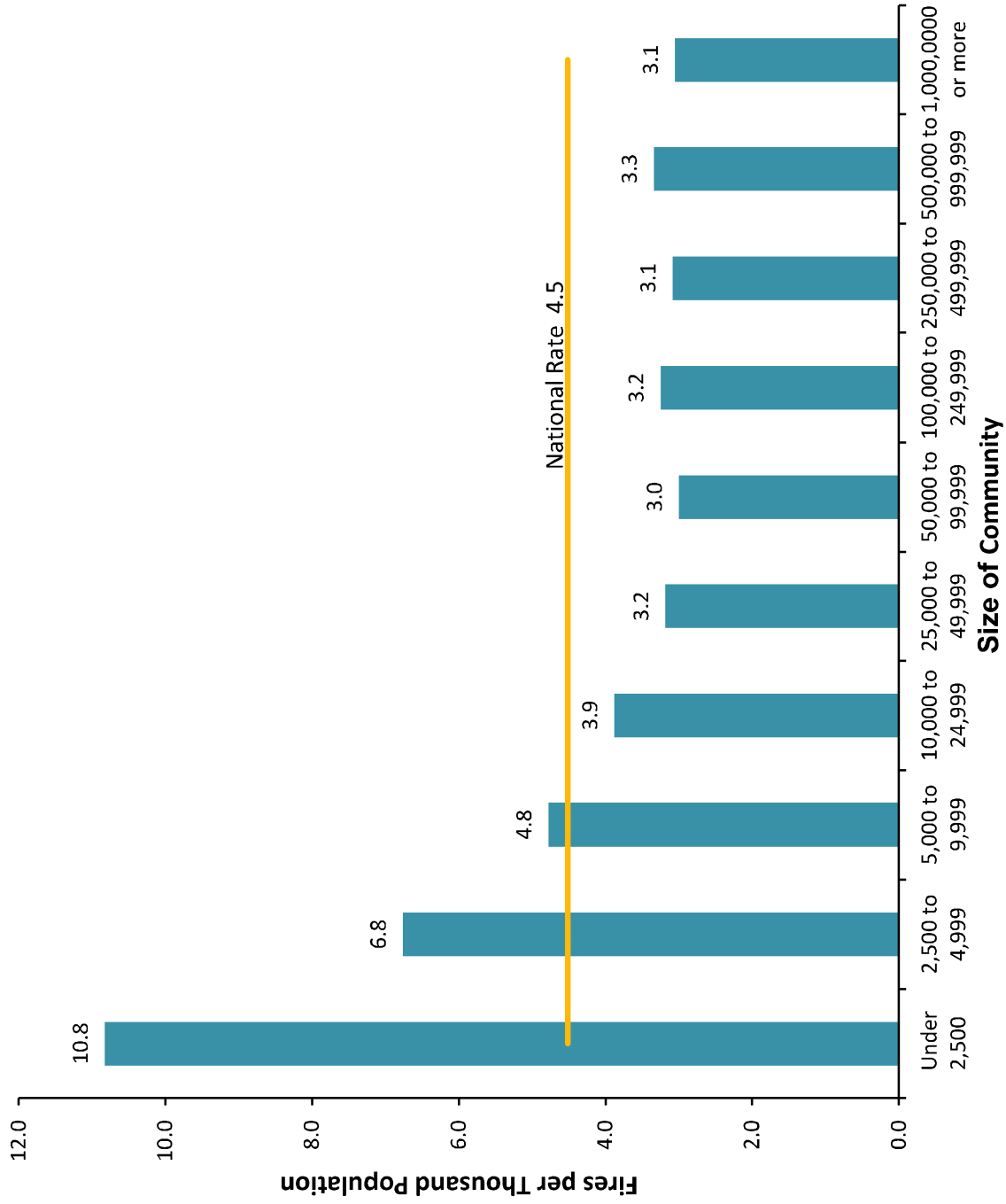


Figure 2. Fires per Thousand Population by Size of Community, 2011-2015

Civilian Fire Deaths

The 1,345,500 fires reported by fire departments in 2015 resulted in an estimated 3,280 civilian deaths, a very slight increase (0.2 percent) over the 2014 civilian death toll and the highest the number of deaths since 2008, when 3,320 civilians died in fires. We can better understand the nature of this increase by examining by types of properties in which the deaths occurred.

In one category, highway vehicle fires, the number of deaths increased from an estimated 310 in 2014 to an estimated 445 civilians in 2015. These numbers exclude deaths due to trauma if the fire was not a factor in the death. Between 1980 and 2009, the number of highway vehicle deaths decreased 60 percent. Since the low of an estimated 260 deaths in 2009, the number of deaths from highway vehicle fires has steadily increased to an estimated 445 deaths in 2015, an increase of 71.2 percent over that period. The median number of vehicle deaths of over the last decade is 305 deaths. The number of deaths in 2015 represents a 45.9 percent increase over this median estimate and is a cause for concern.

The 365,500 home structure fires (which includes one- and two-family homes and apartments) caused 2,560 civilian deaths, a decrease of 6.7 percent from 2014. This includes 2,155 deaths (66 percent of the total number of civilian deaths) in one- and two-family homes and 405 in apartments or other multi-family housing including condominiums. Deaths in one- or two-family homes fell 8.1 percent, while apartment deaths actually increased by a slight 1.3 percent from 2014. Seventy-eight percent of civilian fire deaths resulted from home fires. This is the first time the percentage of home fire deaths has fallen below 80 percent since 2003.

Home fire deaths were at their peak in 1978, when 6,015 people died in such fires. The number decreased fairly steadily until recent years, falling and staying below 5,000 per year since 1982, and, except for 1996, remaining below 4,000 per year since 1991. Since 2006, home fire deaths have stayed below 3,000 per year. The 2,560 in 2015 is the third-lowest home fire death toll since NFPA began collecting data 1977.

Overall, home fire deaths over the period 1977 to 2015 declined from 5,865 to 2,560, a drop of 56.4 percent. The number of home fires also dropped steadily over the same period for an overall decrease of 49.5 percent. However, the death rate per 1,000 home fires fluctuated considerably during that period, from 8.1 in 1977 to a high of 9.7 in 1996 and a low of 6.5 in 2006 to 7.0 in 2015, for an overall decrease during that period of 13.6 percent. This suggests that, even though the number of home fires and home fire deaths declined similarly during the period, the fire death rate risk has not changed much.

In 2015, there were also 45 civilian fire deaths in other residential occupancies, such as hotels, motels, dormitories, and boarding houses, with a decrease of 10 percent. In addition, 80 civilians died in non-residential structure fires, an increase of 23.1 percent from the year before.

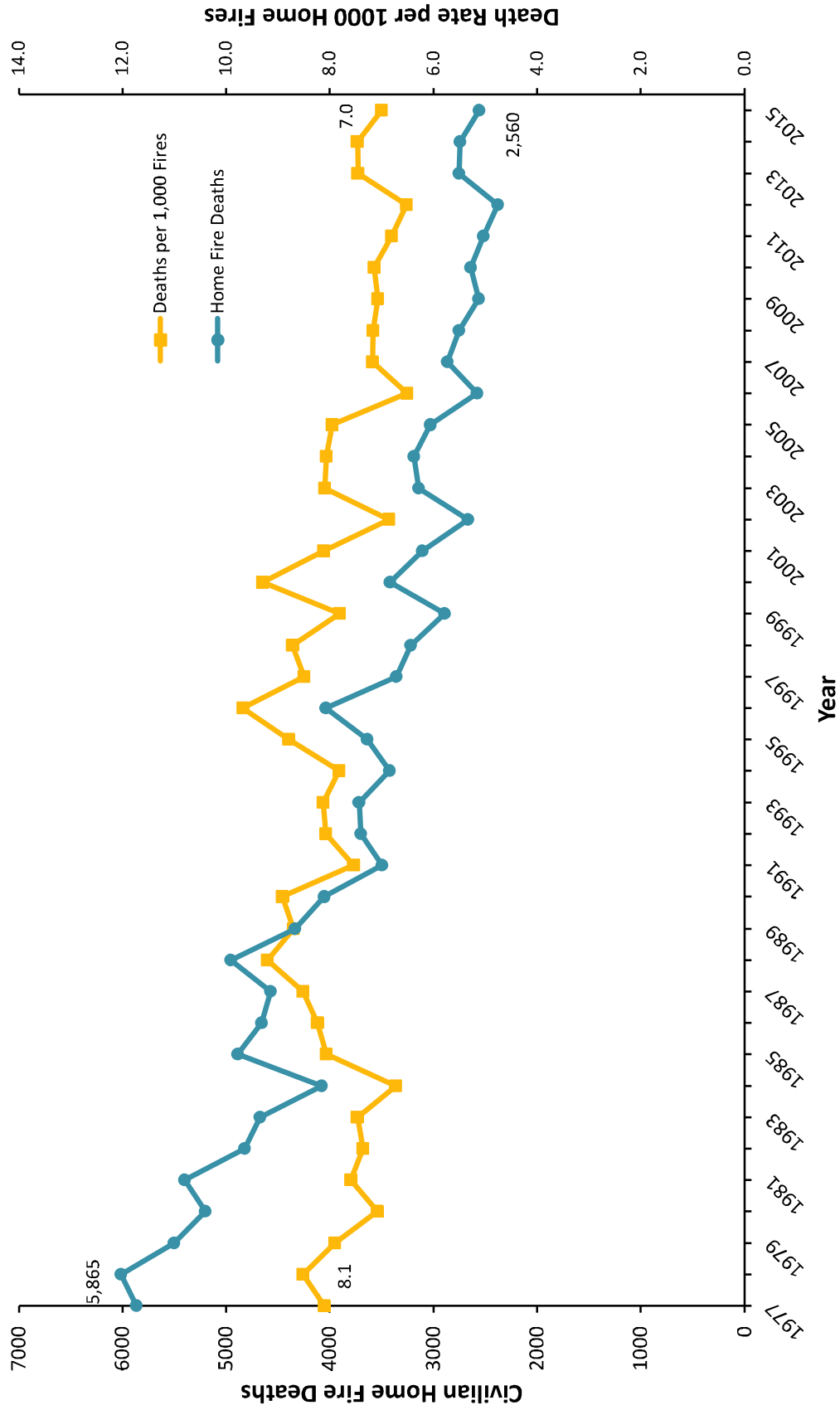


Figure 3. Civilian Home Fire Deaths and Rates per 1000 Fires, 1977-2015

Of the 2,685 civilians that died in structure fires in all properties, fires in other residential occupancies, and fires in non-residential structures, 205, or 7.6 percent, died in fires that were intentionally set.

With 2,560 home fire deaths accounting for 78 percent of all civilian fire deaths, fire-safety initiatives targeted at the home remain the key to any reductions in the overall fire death toll. There are five major strategies for reducing the death toll in home fires. First, more widespread public fire safety education is needed on how to prevent fires and how to avoid serious injury or death if a fire occurs. Information on the common causes of fatal home fires should be used in the design of fire safety education messages. Second, people need to install and maintain smoke alarms and to develop and practice escape plans. Third, wider use of residential sprinklers must be aggressively pursued. Fourth, additional ways must be sought to make home products safer from fire. The regulations requiring more child-resistant lighters are a good example, as are fire-safe cigarettes. Finally, the special fire safety needs of high-risk groups such as young children, older adults, the poor, and people with disabilities need to be addressed.^{3,4}

**Table 6:
Estimates of 2015 Civilian Fire Deaths and Injuries by Property Use**

Property Use	Estimate	Civilian Deaths		Civilian Injuries		
		Percent Change From 2014	Percent of all Civilian Deaths	Estimate	Percent Change From 2014	Percent of all Civilian Injuries
Residential (total)	2,605	-6.8	79.4	11,575	-4.9	73.7
One- and Two-Family Homes ¹	2,155	-8.1	65.7	8,050	+0.3	51.3
Apartments	405	+1.3	12.3	3,025	-20.4*	19.3
Other Residential ²	45	-10.0	1.4	500	+42.9	3.2
Non-Residential Structures ³	80	+23.1	2.4	1,425	+14.0	9.1
Highway Vehicles	445	+43.5	13.6	1,550	+21.6	9.9
Other Vehicles ⁴	55	+57.1	1.7	325	+85.7**	2.1
All Other ⁵	95	+35.7	2.9	825	-8.3	5.3
Total	3,280	+1.1		15,700	-0.5	

The estimates are based on data reported to the NFPA by fire departments that responded to the 2014 National Fire Experience Survey.

Note all of the changes were not statistically significant; considerable year-to-year fluctuation is to be expected for many of these totals because of their small size.

¹ This includes manufactured homes.

² Includes hotels and motels, college dormitories, boarding houses, etc.

³ This includes public assembly, educational, institutional, store and office, industry, utility, storage, and special structure properties.

⁴ This includes trains, boats, ships, farm vehicles and construction vehicles.

⁵ This includes outside properties with value, as well as brush, rubbish, and other outside locations.

*Change was statistically significant to the 0.05 level

**Change was statically significant to the 0.01 level

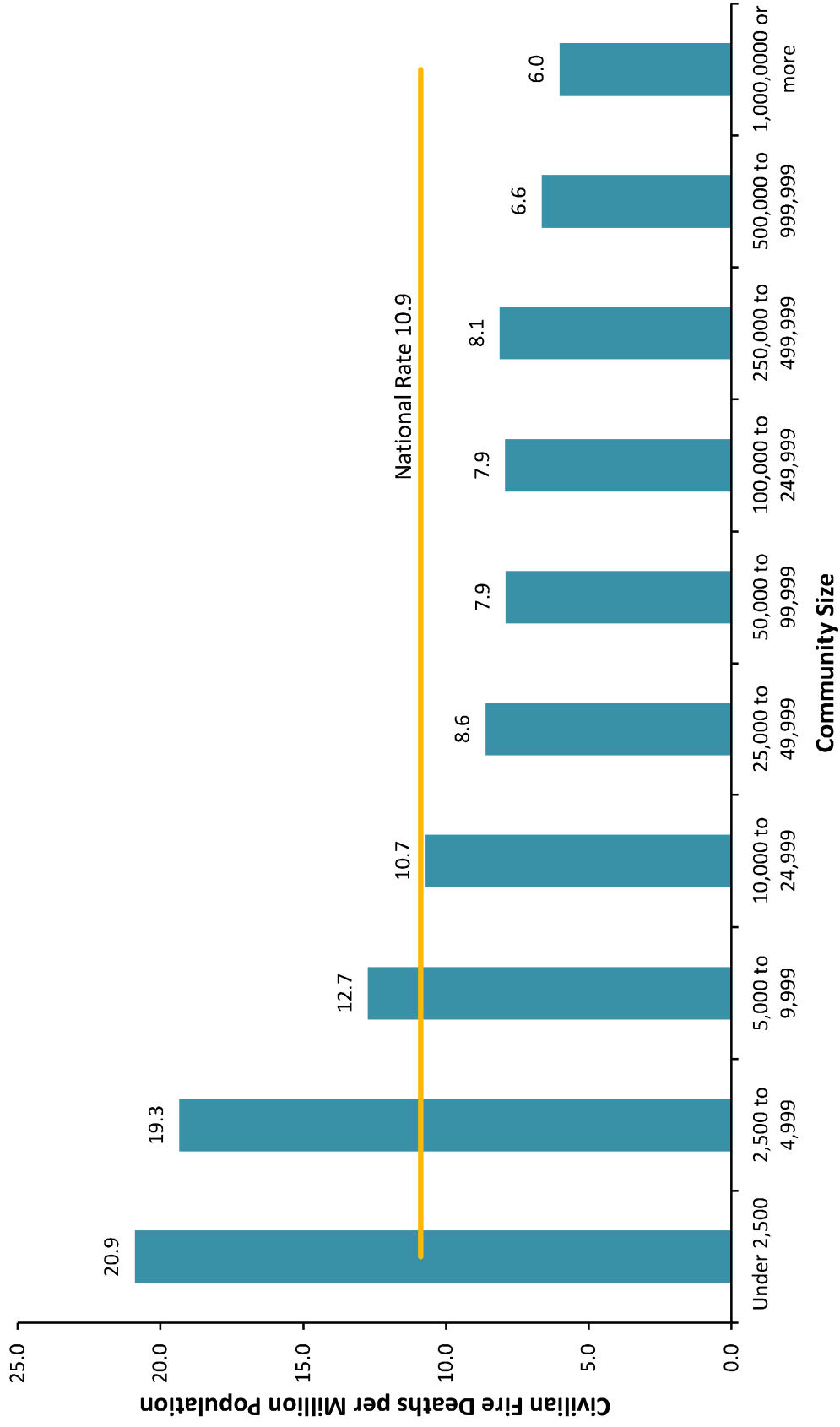


Figure 4. Civilian Fire Deaths per Million Population by Community Size, 2011-2015

Civilian Fire Injuries

In addition to the 3,280 civilians who died in fires in 2015, there were an estimated 15,700 civilian fire injuries. This is a decrease of 0.5 percent from the year before, and is the lowest the number has been since we started using our current survey methodology in 1977. Since civilian fire injuries are not always reported to the fire service, estimates of civilian fire injuries may be lower than actual levels. For example, many injuries occur at small fires to which fire departments do not respond, and even when fire departments do respond, they may be unaware of injured persons they did not transport to medical facilities themselves.

Of the 15,700 civilians injured last year, we estimate that 13,000 civilians were injured in structure fires, and of those, we estimate that 11,075 were injured in home structure fires, a decrease of 6.3 percent from the previous year. Of these injuries, 8,050 occurred in one- and two-family homes and manufactured homes, and 3,025 occurred in apartments. An additional 1,425 civilians were injured in non-residential structure fires in 2015, an increase of 14 percent from the year before. Additionally, 1,550 civilians were injured in highway vehicle fires, a 21.6 percent increase from 2014. Other vehicle fires (including planes, trains, ships, construction, and farm vehicles) represent a highly significant increase of 85.7 percent from 2014 where there were 175 injuries to 325 injuries in 2015. This large increase is in part due to the District of Columbia Metro train fire incident where 84 civilians were injured and one person killed.

Between 1977 and 2015, the number of civilian injuries ranged from a peak of 31,325 in 1979 to a low of 15,700 in 2015, a decrease of 50 percent. Since 1997, civilian injuries have remained below 35,000 per year, below 19,000 since 2002, and below 16,000 since 2013.

Property Loss

NFPA estimates that the 1,345,500 fires to which the fire service responded in 2015 caused \$14.3 billion in property damage, 23.2 percent more than the year before. Two major California wildfires—the Valley Fire, with \$1.5 billion in property damage, and the Butte Fire, with \$450 million in property damage—contributed to this highly significant increase.

Fires in structures not related to wildfires resulted in \$10.3 billion in property damage, an increase of 4.4 percent from 2014. Each structure fire resulted in an average property loss of \$20,499, an increase of 2.8 percent from the previous year.

From 1977 to 2015, excluding the events of September 11, 2001, the average loss per structure fire was \$3,757 in 1977 and \$20,499 in 2015, for an overall increase of 446 percent. When property loss is adjusted for inflation in 2015 dollars, however, the increase in the average structure fire loss between 1977 and 2015 is 39.5 percent.

Of the 2015 property loss in structures, \$7 billion occurred in home structures, a decrease of 2 percent from the previous year. An estimated \$5.8 billion of this loss occurred in one- and two-family homes, a decrease of .8 percent. An estimated loss of \$1.2 billion occurred in apartments or other multi-family housing like condominiums. While apartment property loss increased significantly, by 18.2 percent, from the previous year, the number of fires in apartments increased at a lower rate, for a 1 percent year-over-year decrease.

Other property damage results for 2015 include \$323 million in public assembly properties, a significant decrease of 24.7 percent; \$635 million in stores and office properties, a 10.3 percent decrease; \$1.2 billion in highway vehicles, an 8.3 percent increase; and \$579 million in other vehicles, a significant increase of 52.4 percent, partly due to the aircraft fire that occurred at Offutt Air Force Base, Nebraska. There was a highly significant 32.1 percent increase in storage properties, to \$1 billion, partly due to two major fires in Louisville, Kentucky, and Duryea, Pennsylvania. Property loss on industrial and manufacturing properties rose to \$924 million over the year before, a highly significant 47.6 percent increase. This jump was caused in part by an industrial facility fire that occurred in Okolona, Kentucky.

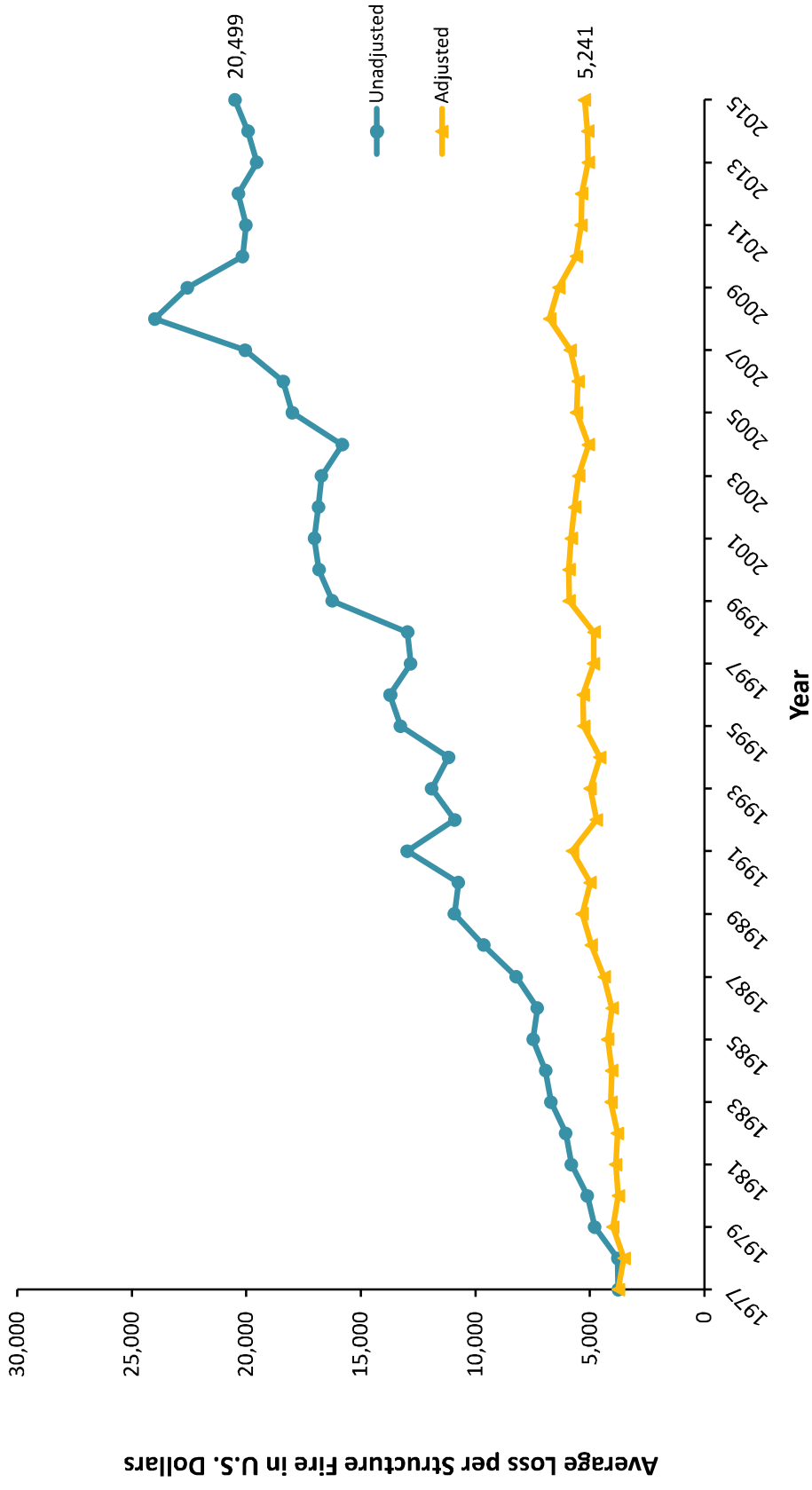


Figure 5. Average Loss per Structure Fire in the United States, 1977-2015

Intentionally Set Fires

NFPA estimates 23,000 structure fires were intentionally set in 2015, a highly significant increase of 21.1 percent over the year before. These fires resulted in an estimated 205 civilian deaths, an increase of 30.6 percent from the previous year. At the same time, though, these fires resulted in \$460 million in property loss, a highly significant decrease of 25 percent compared to 2014.

In 2015, there were also an estimated 10,000 intentionally set vehicle fires, 25 percent more than the year before. These fires set resulted in \$74 million in property loss, a decrease of 36.2 percent from 2014.

Estimates of intentionally set fires do not include allocation of fires whose causes were unknown or unreported.

**Table 7:
Estimate of 2015 Losses in Intentionally Set Structure Fires**

Intentionally¹ Set Structure Fires	Estimate	Percent change from 2013
Number of Structure Fires	23,000	+21.1**
Civilian Deaths	205	+30.6
Property Loss ²	\$460,000,000	-25.0**

The estimates are based on data reported to the NFPA by fire departments that responded to the 2015 National Fire Experience Survey.

¹ The NFPA Survey is based on the NFIRS 5.0 system. This system has an intentionally set category which is equivalent to the old incendiary category. There is no new equivalent to the old suspicious category, which has been eliminated.

² This includes overall direct property loss to contents, structure, a vehicle, machinery, vegetation, or anything else involved in a fire. It does not include indirect losses, e.g., business interruption or temporary shelter costs. No adjustment was made for inflation in the year-to-year comparison.

*Change was statistically significant to the 0.05 level

**Change was statically significant to the 0.01 level

Regional Analysis

Fire loss rates nationwide for 2015 and by region⁴ can be seen in [Table 8](#). The South (4.8), and Northeast (4.6) had the highest fire incident rate per thousand people. The Northeast with 13.7 had the highest civilian death rate per million population.

The Northeast with (77.6) had the highest civilian injury rate per million population, while the West with \$64.6 had the highest property loss per capita rate. This was in large part due to the two major wildfires that occurred in California.

Fire incident rates by region and community size can be seen in [Table 9](#). The Northeast had the highest rates for communities of 25,000 or more population, and the South had the highest rates for communities less than 24,999 population.

Civilian fire deaths per million population by region and community size are shown in [Table 10](#). The Midwest had the highest rate for communities of 250,000 to 499,999 and communities of 10,000 to 24,999, the Northeast had the highest rates for communities of 25,000 to 249,999, the West had the highest rates for communities of less than 9,999 population.

Civilian fire injuries per million population by region and community size are shown in [Table 11](#). The Northeast had the highest rates for communities of 500,000 or more, communities of 10,000 to 249,999; the Midwest had the highest rates for communities of 250,000 to 499,999; the West had the highest rate for communities 2,500 to 5,000, and the South had the highest rate for the smaller communities (population of less than 2,500).

Property loss per capita by region and community size are shown in [Table 12](#). The Midwest had the highest rates for the larger communities of 250,000 or more and smaller communities of 4,999 or less. The South has the highest property loss per capita rate for communities 5,000 to 24,999 population.

**Table 8:
Fire Loss Rates Nationwide and by U.S. Census Region, 2015**

Region	Number of Fires per Thousand Population	Civilian Deaths per Million Population	Civilian Injuries per Million Population	Property Loss per Capita*
Nationwide	4.2	10.2	48.8	\$44.5
Northeast	4.6	13.7	77.6	\$40.7
Midwest	3.9	10.5	44.3	\$32.2
South	4.8	10.5	44.5	\$45.3
West*	3.3	6.7	48.3	\$64.6

Source: NFPA's Survey of Fire Departments for 2015 U.S. Fire Experience.

*Includes California Wildfires 2015

**Table 9:
2015 Fires per Thousand Population
By Region and Size of Community**

Population of Community	All Regions	Northeast	Midwest	South	West
500,000 or more	3.0	4.7	3.6	2.4	2.6
250,000 to 499,999	3.0	4.7	4.4	2.5	2.9
100,000 to 249,999	3.3	5.9	2.6	3.7	2.5
50,000 to 99,999	2.9	5.3	2.4	2.9	2.6
25,000 to 49,999	3.0	4.0	2.4	3.6	2.7
10,000 to 24,999	3.7	3.4	3.3	4.5	3.6
5,000 to 9,999	4.9	4.6	4.0	6.3	5.3
2,500 to 4,999	6.6	4.7	6.1	8.4	7.9
under 2,500	11.4	9.3	8.9	17.2	14.4

Source: NFPA's Survey of Fire Departments for 2015 U.S. Fire Experience.

**Table 10:
2015 Civilian Fire Deaths per Million Population by Region and Size of Community**

Population of Community	All Regions	Northeast	Midwest	South	West
500,000 or more	5.7	8.1	7.3	6.2	3.3
250,000 to 499,999	8.2	*	15.5	7.1	6.2
100,000 to 249,999	7.3	15.1	7.7	9.2	3.0
50,000 to 99,999	8.6	13.9	10.0	8.0	5.4
25,000 to 49,999	10.5	17.8	9.9	10.6	6.4
10,000 to 24,999	13.6	9.7	14.9	14.1	12.6
5,000 to 9,999	14.5	15.9	8.4	19.6	21.3
2,500 to 4,999	24.1	34.7	12.7	28.0	38.1
under 2,500	19.9	18.0	20.6	14.3	33.6

Source: NFPA's Survey of Fire Departments for 2015 U.S. Fire Experience.

*insufficient data

**Table 11:
2015 Civilian Fire Injuries per Million Population by Region and Size of Community**

Population of Community	All Regions	Northeast	Midwest	South	West
500,000 or more	52.7	79.4	38.6	46.9	40.1
250,000 to 499,999	51.9	*	66.1	57.0	31.1
100,000 to 249,999	56.8	95.5	71.0	63.5	32.5
50,000 to 99,999	53.2	69.5	50.6	60.3	40.0
25,000 to 49,999	55.8	80.7	64.2	49.1	23.4
10,000 to 24,999	57.8	68.4	61.6	52.5	36.2
5,000 to 9,999	45.0	41.3	51.8	44.8	24.9
2,500 to 4,999	38.6	33.4	33.2	28.1	87.4
under 2,500	54.5	20.3	17.8	77.7	54.8

Source: NFPA's Survey of Fire Departments for 2015 U.S. Fire Experience.

*insufficient data

**Table 12:
2015 Property Loss per Person by Region and Size of Community**

Population of Community	All Regions	Northeast	Midwest	South	West
500,000 or more	\$31.4	*	\$27.5	\$26.4	\$26.8
250,000 to 499,999	25.5	*	34.1	23.8	26.8
100,000 to 249,999	27.7	45.1	29.4	27.5	24.7
50,000 to 99,999	37.3	34.3	24/6	59.4	24.3
25,000 to 49,999	34.2	28.5	31.6	39.4	34.8
10,000 to 24,999	42.7	31.1	46.4	42.6	41.0
5,000 to 9,999	57.9	50.6	50.2	84.0	39.5
2,500 to 4,999	72.5	52.6	78.8	76.0	76.6
under 2,500	113.8	86.5	124.1	119.2	91.6

Source: NFPA's Survey of Fire Departments for 2015 U.S. Fire Experience.

*insufficient data

Average Fire Experience

Average fire experience by community size for all fires and residential properties can be seen in Tables 13 and 14. Note that communities with larger populations are expected to more fires and losses.

**Table 13:
Average 2015 Fire Experience by Size of Community**

Population of Community	Total Fires	Structure Fires	Civilian Deaths	Civilian Injuries	Property Loss
1,000,000 or more	4,521	1,794	8.20	51.70	\$65,922,431
500,000 to 999,999	2,302	975	5.27	29.37	19,602,805
250,000 to 499,999	1,023	427	2.82	17.82	8,708,921
100,000 to 249,999	513	229	1.12	8.73	4,265,644
50,000 to 99,999	197	82	0.59	3.64	2,560,212
25,000 to 49,999	105	41	0.37	1.94	1,211,482
10,000 to 24,999	58	23	0.21	0.90	1,242,008
5,000 to 9,999	35	13	0.10	0.32	422,863
2,500 to 4,999	23	7	0.08	0.14	293,798
under 2,500	12	3	0.02	0.05	109,380

**Table 14:
Average 2015 Residential Fire Experience by Size of Community**

Population of Community	Number of Fires	Civilian Deaths	Civilian Injuries	Property Loss
1,000,000 or more	1,368	5.09	53.91	\$34,096,702
500,000 to 999,999	773	3.63	21.10	12,238,469
250,000 to 499,999	347	2.37	14.51	5,285,415
100,000 to 249,999	166	0.87	6.34	2,370,715
50,000 to 99,999	67	0.48	2.90	10,957,898
25,000 to 49,999	33	0.27	1.55	639,791
10,000 to 24,999	18	0.16	0.69	452,484
5,000 to 9,999	10	0.08	0.22	217,939
2,500 to 4,999	5	0.06	0.10	257,132
under 2,500	2	0.01	0.02	60,113

Source: NFPA's Survey of Fire Departments for 2015 U.S. Fire Experience.

**Table 15:
Fire Department Responses by Type of Call, 2015**

	Number	Percentage of Calls	Percent Change From 2014
Fire Incidents	1,345,500	4.0%	+3.7
Medical Aid Responses (Ambulance, EMS, Rescue)	21,500,000	64.0%	+6.6
False Alarms	2,533,500	7.5%	+1.8
Mutual Aid or Assistance Calls	1,492,500	4.4%	+3.2
Hazardous Material Responses (Spills, Leaks, etc.)	442,000	1.3%	+9.1
Other Hazardous Responses (arcing wires, bomb removal etc.)	643,000	1.9%	+4.2
All Other Responses (smoke scares, lock-outs, etc.)	5,646,000	16.8%	+8.3
Total Incidents	33,602,500	100.0%	+6.2

The percent of fires and nonfire incidents by community size is shown in Table 16.

A further breakdown on false responses was collected on the 2015 surveys and the results can be seen in Table 17.

**Table 16:
Average Number of Fires and Nonfire Incidents by Community Size, 2014-2015**

		Community Size									
		500,000 to 1,000,000 or more	250,000 to 499,999	100,000 to 249,999	50,000 to 99,999	25,000 to 49,999	10,000 to 24,999	5,000 to 9,999	2,500 to 4,999	under 2,500	
Fires		5,582	2,233	974	486	195	107	61	36	32	15
Rescue, EMS etc.,		137,961	65,030	24,949	12,634	4,794	2,162	1,019	384	217	57
False alarm responses		16,131	5,713	2,268	1,248	600	314	142	58	28	6
Mutual aid responses		1,733	1,482	576	378	205	136	92	57	44	16
Hazardous materials		2,554	813	346	182	88	52	27	11	5	1
Other hazardous		22,749	1,051	608	287	145	74	36	17	11	3
All other responses		74,341	13,584	7,390	2,869	1,244	509	213	86	43	10
Total for all incidents		262,151	89,839	37,110	18,088	7,299	3,359	1,584	650	379	107
		500,000 to 1,000,000 or more	250,000 to 499,999	100,000 to 249,999	50,000 to 99,999	25,000 to 49,999	10,000 to 24,999	5,000 to 9,999	2,500 to 4,999	under 2,500	
Fires		2.1%	2.5%	2.6%	2.7%	2.7%	3.2%	3.9%	5.5%	8.4%	13.8%
Rescue, EMS etc.,		52.6%	72.4%	67.2%	69.8%	65.7%	64.4%	64.4%	59.1%	57.1%	53.3%
False alarm responses		6.2%	6.4%	6.1%	6.9%	8.2%	9.3%	9.0%	9.0%	7.3%	6.0%
Mutual aid responses		0.7%	1.6%	1.6%	2.1%	2.8%	4.1%	5.8%	8.8%	11.6%	14.9%
Hazardous materials		1.0%	0.9%	0.9%	1.0%	1.2%	1.6%	1.7%	1.7%	1.4%	1.1%
Other hazardous		8.7%	1.2%	1.6%	1.6%	2.0%	2.2%	2.3%	2.6%	2.8%	2.8%
All other responses		28.4%	15.1%	19.9%	15.9%	17.0%	15.2%	13.4%	13.3%	11.2%	9.0%
Total		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: NFPA's Survey of Fire Departments for U.S. Fire Experience, 2014-2015

**Table 17:
Estimates of False Alarms by Type of Call, 2015**

	Estimate	Percent Change From 2013	Percent of All False Alarms
Malicious, Mischievous False Call	166,000	2.79%	6.5%
System Malfunction	827,500	0.91%	32.2%
Unintentional Call	1,199,500	2.92%	46.7%
Other False Alarms (Bomb Scares, etc.)	373,500	9.37%	14.6%
Total	2,566,500	3.13%	100.0%

Source: NFPA's Survey of Fire Departments for 2015 U.S. Fire Experience.

Fire Experience of Nonrespondents

A telephone follow-up was made to a sample of Nonrespondents to determine whether fire departments that did not respond to the survey experienced fire loss rates similar to those that did respond. This would help the NFPA determine whether we received questionnaires only from departments that had experienced unusually high or low fire losses.

The sample of the nonrespondents selected was proportional by state and population of the community to the original sample selected for the survey. As a result of these efforts 79 fire departments were successfully contacted and answered some of the the questions about their fire experience. It is important to note that the number of nonrespondents sampled in the follow-up survey is significantly less than the number of respondents who completed the fire experience survey.

Table 18 compares fire loss rates for both respondents and nonrespondents. For communities of 100,000 to 249,999, the nonrespondant rate was 13% higher for civilian deaths, 49% higher for property loss and 8% higher for fires. (The result for civilian death and property loss was statistically significant).

For communities of 50,000 to 99,999, the respondent rate was 20.3% higher for civilian deaths and 46% higher for property loss , while the nonrespondent rate was 4% higher for fires. (Results for deaths were statistically significant).

For communities of 10,000 to 24,999, the respondent rate was 121% higher for civilians deaths and 13% higher for property loss, while the nonrespondent rate was 16% higher for fires. (Results for civilian deaths were statistically significant).

For communities of 5,000 to 9,999, the nonrespondent rate was 51% higher for fires, while the respondent rate was 13% higher for higher for property loss. Respondants were 9% higher for civilian death (Results for fires and civilian deaths were statistically significant).

**Table 18:
A Comparison of Respondents and Nonrespondents* to the 2015 NFPA Survey by Community Size**

Population Size of Community Protected	Number of Fires (Per Thousand Population)			Civilian Deaths (Per Million Population)			Property Loss (Per Capita)					
	n	Rate	n	Rate	n	Rate	n	Rate	n	Rate		
100,000 to 249,999	134	3.34	14	3.62	124	7.33	12	8.42	102	27.72	12	54.63
50,000 to 99,999	203	2.87	20	2.99	200	8.61	16	7.16	179	37.26	14	25.57
25,000 to 49,999	294	3.01	16	3.60	281	10.54	12	4.76	222	34.23	13	30.43
10,000 to 24,999	561	3.69	17	7.46	541	13.62	15	12.51	370	42.66	10	48.93
5,000 to 9,999	387	4.90	8	4.81	375	14.45	8	0.00	227	57.87	5	22.94

*Some departments did not return the questionnaire. A sample of these non respondents was contacted by telephone and questioned about their 2015 fire experience
 Note: "n" refers to the number of department reporting the statistic

Conclusions

The total number of fires continues to be on a downward trend, as does the number of outside fires, structure fires and vehicle fires. In [Figure 2](#), the number of fires per thousand population, the frequency of fire incident is much higher in communities with less than 5,000 population.

Since 1977, the number of home fires deaths has declined considerably, however the number of deaths per 1,000 fires has remained fairly flat between a high of 9.7 deaths per 1,000 fires in 1996 to a low of 6.5 deaths per 1,000 fires in 2013 (see [Figure 3](#)). One can conclude that even though the number fires is decreasing the risk of death in the event of a fire has remained relatively constant for the period 1977 to 2015. In [Figure 4](#), the rate of civilian fire deaths per million population in communities with less than 5,000 people is significantly worse than in larger communities. Considering the fact that the majority of these smaller communities are served predominately by volunteer fire departments, it may be helpful to invest (training, staffing and equipment) in these departments to better help lower the death rates in these small communities.

When looking at property loss adjusted for inflation (see [Figure 5](#)), the average loss per structure has remained relatively unchanged since 1977 at around \$5,000 per structure fire in 1977 dollars

In conclusion although the frequency of fire incidents is going down, the risk of death and property loss remains relatively constant when the fire incident occurs.

Definition of Terms

Civilian: The term “civilian” includes anyone other than a firefighter, and covers public service personnel such as police officers, civil defense staff, non-fire service medical personnel, and utility company employees.

Death: An injury that occurred as a direct result of a fire that is fatal or becomes fatal within one year.

Fire: Any instance of uncontrolled burning. Includes combustion explosions and fires out on arrival. Excludes controlled burning (whether authorized or not), over pressure rupture without combustion, mutual aid responses, smoke scares, and hazardous responses (e.g., oil spill without fire).

Injury: Physical damage that is suffered by a person as a direct result of fire and that requires (or should require) treatment by a practitioner of medicine (physician, nurse, paramedic, EMT) within one year of the incident (regardless of whether treatment was actually received), or results in at least one day of restricted activity immediately following the incident. Examples of injuries resulting from fire are smoke inhalation, burns, wounds and punctures, fractures, heart attacks (resulting from stress under fire condition), strains and sprains.

Property Damage: Includes all forms of direct loss to contents, structure, machinery, a vehicle, vegetation or anything else involved in the fire but not indirect losses, such as business interruption or temporary shelter provisions.

Structure: An assembly of materials forming a construction for occupancy or use in such a manner as to serve a specific purpose. A building is a form of structure. Open platforms, bridges, roof assemblies over open storage or process areas, tents, air-supported, and grandstands are other forms of structures.

Vehicles, Highway and Other: Fires in these instances may have been associated with an accident; however, reported casualties and property loss should be the direct result of the fire only. Highway vehicles include any vehicle designed to operate normally on highways, e.g., automobiles, motorcycles, buses, trucks, trailers (not mobile homes on foundations), etc. Other vehicles include trains, boats and ships, aircraft, and farm and construction vehicles.

Footnotes

1. William G. Cochran, *Sampling Techniques*, John Wiley, New York, NY, 1977, pp. 150-161.
2. As defined by the U.S. Bureau of the Census, the four regions are: Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont. Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin. South: Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia. West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington and Wyoming.
3. Marty Ahrens, *Characteristics of Home Fire Victims*, October 2014, Quincy: National Fire Protection Association, Fire Analysis and Research Division.
4. Rita F. Fahy and Alison L. Miller, "How Being Poor Affects Fire Risk", *Fire Journal*, Vol. 83, No. 1 (January 1989), p. 28.

Fires in the United States

1,345,500 total

fires were reported during 2015 in the U.S.



+3.7% from 2014

RESULTING IN:

3,280 civilian fire deaths, and
15,700 civilian fire injuries

\$14.3 billion in property damage

A fire department responding to a fire every



23 seconds

OF THESE:

639,500 fires

were classified as

Outside & 'Other' Fires

A increase of **+4.8%** from 2014

1 outside fire was reported every **52** seconds



501,500 fires

were classified as

Structure Fires

A slight increase of **+1.5%** from 2014

1 structure fire was reported every **63** seconds



174,000 fires

were classified as

Highway Vehicle Fires

An increase of **+3.9%** from 2014

1 highway fire was reported every **181** seconds



Appendix A.
Fire Loss in the United States Trend Tables, 1977-2015 and U.S. Fire
Rates by Unit of Time

The U.S. Fire Problem

Year	Fires	Civilian Deaths	Civilian Injuries	Firefighter Deaths	Firefighter Injuries	Direct Property Damage (in Billions)	
						As Reported	In 2015 Dollars
1977	3,264,500	7,395	31,190	157	112,540	\$4.7	\$18.4
1978	2,817,500	7,710	29,825	174	101,100	\$4.5	\$16.4
1979	2,845,500	7,575	31,325	126	95,780	\$5.8	\$18.9
1980	2,988,000	6,505	30,200	138	98,070	\$6.3	\$18.1
1981	2,893,500	6,700	30,450	136	103,340	\$6.7	\$17.5
1982	2,538,000	6,020	30,525	128	98,150	\$6.4	\$15.7
1983	2,326,500	5,920	31,275	113	103,150	\$6.6	\$15.7
1984	2,343,000	5,240	28,125	119	102,300	\$6.7	\$15.3
1985	2,371,000	6,185	28,425	128	100,900	\$7.3	\$16.1
1986	2,271,500	5,850	26,825	119	96,450	\$6.7	\$14.5
1987	2,330,000	5,810	28,215	132	102,600	\$7.2	\$15.0
1988	2,436,500	6,215	30,800	136	102,900	\$8.4	\$16.8
1989	2,115,000	5,410	28,250	118	100,700	\$8.7	\$16.6
1990	2,019,000	5,195	28,600	108	100,300	\$7.8	\$14.1
1991	2,041,500	4,465	29,375	108	103,300	\$9.5 ¹	\$16.5 ¹
1992	1,964,500	4,730	28,700	75	97,700	\$8.3	\$14.0
1993	1,952,500	4,635	30,475	79	101,500	\$8.5 ²	\$13.9 ²
1994	2,054,500	4,275	27,250	106	95,400	\$8.2	\$13.1
1995	1,965,500	4,585	25,775	98	94,500	\$8.9	\$13.8
1996	1,975,000	4,990	25,550	96	87,150	\$9.4	\$14.2
1997	1,795,000	4,050	23,750	99	85,400	\$8.5	\$12.6
1998	1,755,500	4,035	23,100	91	87,500	\$8.6	\$12.5
1999	1,823,000	3,570	21,875	112	88,500	\$10.0	\$14.2
2000	1,708,000	4,045	22,350	103	84,550	\$11.2	\$15.4
2001	1,734,500	6,196 ³	21,100 ⁴	443 ⁵	82,250	\$44.0 ⁶	\$58.9 ⁷
2002	1,687,500	3,380	18,425	98	80,800	\$10.3	\$13.6
2003	1,584,500	3,925	18,125	106	78,750	\$12.3 ⁷	\$15.8 ⁷
2004	1,550,500	3,900	17,875	104	75,840	\$9.8	\$12.3
2005	1,602,000	3,675	17,925	87	80,100	\$10.7	\$13.0
2006	1,642,500	3,245	16,400	89	83,400	\$11.3	\$13.3
2007	1,557,500	3,430	17,675	106	80,100	\$14.6 ⁸	\$16.7 ⁸

The U.S. Fire Problem (Continued)

Year	Fires	Civilian Deaths	Civilian Injuries	Firefighter Deaths	Firefighter Injuries	Direct Property Damage (in Billions)	
						As Reported	In 2015 Dollars
2008	1,451,500	3,320	16,705	105	79,700	\$15.5 ⁹	\$17.0 ⁹
2009	1,348,500	3,010	17,050	82	78,150	\$12.5	\$13.8
2010	1,331,500	3,120	17,720	73	71,875	\$11.6	\$12.6
2011	1,389,500	3,005	17,500	61	70,090	\$11.7	\$12.3
2012	1,375,000	2,855	16,500	64	69,400	\$12.4	\$12.8
2013	1,240,000	3,240	15,925	97	65,880	\$11.5	\$11.7
2014	1,298,000	3,275	15,775	64	63,350	\$11.6	\$11.6
2015	1,345,500	3,280	15,700	68	68,085	\$14.3 ¹⁰	\$14.3

¹This includes \$1.5 billion in damage caused by the Oakland Fire Storm, most of which was lost to homes but for which no detailed breakdown by property type was available.

²This includes \$809 million in damage caused by Southern California wildfires.

³This includes 2,451 civilian deaths that occurred from the events of 9/11/01.

⁴This includes 800 civilian injuries that occurred from the events of 9/11/01.

⁵This includes 340 firefighters at the World Trade Center, September 11, 2001.

⁶This includes \$33.44 billion in property loss that occurred from the events of 9/11/01.

⁷This includes the Southern California Wildfires (Cedar and Old Wildfires) with an estimated total property loss of \$2,040,000,000. Loss by specific property type for this fire was not available.

⁸This includes the California Fire Storm 2007 with an estimated property damage of \$1.8 billion.

⁹This includes the California wildfires 2008 with an estimated property damage of \$1.4 billion.

¹⁰This includes the California wildfires 2015 with an estimated property damage of \$2.0 billion.

Direct property damage figures do not include indirect losses, like business interruption.

Inflation adjustment to 2015 dollars is done using the consumer price index.

Source: [Fire Loss in the United States 2015](#), Hylton J.G. Haynes, NFPA, September 2016 and previous reports in the series; [Firefighter Fatalities in the United States](#), Rita F. Fahy, Paul R. LeBlanc, Joseph L. Molis, NFPA, June 2015 and previous reports in the series; [U.S. Firefighter Injuries](#), Michael J. Karter, Jr., Joseph L. Molis, NFPA, October 2016 and previous reports in the series.

The U.S. Structure Fire Problem

Year	Fires	Civilian Deaths	Civilian Injuries	Direct Property Damage (in Billions) ¹	
				As Reported	In 2015 Dollars
1977	1,098,000	6,505	26,310	\$4.1	\$16.0
1978	1,062,000	6,350	24,985	\$4.0	\$14.5
1979	1,036,500	5,970	24,850	\$5.0	\$16.3
1980	1,065,000	5,675	24,725	\$5.5	\$15.8
1981	1,027,500	5,760	25,700	\$6.0	\$15.6
1982	946,500	5,200	25,575	\$5.7	\$14.0
1983	868,500	5,090	26,150	\$5.8	\$13.8
1984	848,000	4,525	23,025	\$5.9	\$13.4
1985	859,500	5,265	23,350	\$6.4	\$14.1
1986	800,000	4,985	22,750	\$5.8	\$12.5
1987	758,000	4,880	23,815	\$6.2	\$12.9
1988	745,000	5,280	26,275	\$7.2 ²	\$14.4 ²
1989	688,000	4,655	24,025	\$7.5 ³	\$14.3 ³
1990	624,000	4,400	24,075	\$6.7	\$12.2
1991	640,500	3,765	24,975	\$8.3 ⁴	\$14.4 ⁴
1992	637,500	3,940	24,325	\$7.0 ⁵	\$11.8 ⁵
1993	621,500	3,980	26,550	\$7.4 ⁶	\$12.1 ⁶
1994	614,000	3,590	23,125	\$6.9	\$11.0
1995	573,500	3,985 ⁷	21,725	\$7.6	\$11.8
1996	578,500	4,220	21,875	\$7.9	\$11.9
1997	552,000	3,510	20,375	\$7.1	\$10.5
1998	517,500	3,420	19,425	\$6.7	\$9.7
1999	523,000	3,040	18,525	\$8.5	\$12.1
2000	505,500	3,535	19,600	\$8.5	\$11.7
2001 ⁸	521,500	3,220	17,225	\$8.9	\$11.9
2002	519,000	2,775	15,600	\$8.7	\$11.5
2003	519,500	3,385 ⁹	15,600	\$8.7 ¹⁰	\$11.2 ¹⁰
2004	526,000	3,305	15,525	\$8.3	\$10.4
2005	511,000	3,105	15,325	\$9.2	\$11.2
2006	524,000	2,705	14,350	\$9.6	\$11.3
2007	530,500	3,000	15,350	\$10.6 ¹¹	\$12.1 ¹¹

The U.S. Structure Fire Problem (Continued)

Year	Fires	Civilian Deaths	Civilian Injuries	Direct Property Damage (in Billions) ¹	
				As Reported	In 2015 Dollars
2008	515,000	2,900	14,960	\$12.4 ¹²	\$13.6 ¹²
2009	480,500	2,695	14,740	\$10.8	\$11.9
2010	482,000	2,755	15,420	\$9.7	\$10.5
2011	484,500	2,640	15,635	\$9.7	\$10.1
2012	480,500	2,470	14,700	\$9.8	\$9.9
2013	487,500	2,855	14,075	\$9.5	\$9.7
2014	494,000	2,860	13,425	\$9.8	\$9.8
2015	501,500	2,685	13,000	\$10.3 ¹³	\$10.4

¹ Individual incidents with large loss can affect the total for a given year.

² The 1988 figure includes a Norco, Louisiana petroleum refinery with a loss of \$330 million.

³ The 1989 figure includes a Pasadena, Texas polyolefin plant with a loss of \$750 million.

⁴ The 1991 figure includes the Oakland fire storm with a loss of \$1.5 billion and the Meriden Plaza high-rise fire in Philadelphia with a loss of \$325 million.

⁵ The 1992 figure includes the Los Angeles Civil Disturbance with a loss of \$567 million.

⁶ The 1993 figure includes Southern California wildfires with a loss of \$809 million.

⁷ Includes 168 deaths that occurred at the federal office building fire in Oklahoma City, OK.

⁸ Does not include the events of 9/11/01, where there were 2,451 civilian deaths, 800 civilian injuries and \$33.44 billion in property loss.

⁹ Includes 100 fire deaths in the Station Night Club Fire in Rhode Island and 31 deaths in two nursing home fires in CT and TN.

¹⁰ Does not include the Southern California wildfires with an estimated property damage of \$2 billion.

¹¹ This does not include the California Fire Storm 2007 with an estimated property damage of \$1.8 billion.

¹² Does not include the California wildfires 2008 with an estimated property damage of \$1.4 billion.

¹³ Does not include the California wildfires 2015 with an estimated property damage of \$2.0 billion.

Direct property damage figures do not include indirect losses, like business interruption.

Inflation adjustment to 2015 dollars is done using the consumer price index.

Source: [Fire Loss in the United States 2015](#), Hylton J.G. Haynes, NFPA, September 2016 and previous reports in the series.

The U.S. Home Structure Fire Problem

Year	Fires	Civilian Deaths	Civilian Injuries	Direct Property Damage (in Billions)	
				As Reported	In 2015 Dollars
1977	723,500	5,865	21,640	\$2.7	\$10.6
1978	706,500	6,015	20,400	\$2.1	\$7.6
1979	696,500	5,500	18,825	\$2.4	\$7.8
1980	734,000	5,200	19,700	\$2.8	\$8.0
1981	711,000	5,400	19,125	\$3.1	\$8.0
1982	654,500	4,820	20,450	\$3.1	\$7.6
1983	625,500	4,670	20,750	\$3.2	\$7.6
1984	605,500	4,075	18,750	\$3.4	\$7.6
1985	606,000	4,885	19,175	\$3.7	\$8.1
1986	565,500	4,655	18,575	\$3.5	\$7.5
1987	536,500	4,570	19,965	\$3.6	\$7.5
1988	538,500	4,955	22,075	\$3.9	\$7.8
1989	498,500	4,335	20,275	\$3.9	\$7.5
1990	454,500	4,050	20,225	\$4.2	\$7.6
1991	464,500	3,500	21,275	\$5.5 ¹	\$9.6 ¹
1992	459,000	3,705	21,100	\$3.8	\$6.4
1993	458,000	3,720	22,000	\$4.8 ²	\$7.9 ²
1994	438,000	3,425	19,475	\$4.2	\$6.7
1995	414,000	3,640	18,650	\$4.3	\$6.7
1996	417,000	4,035	18,875	\$4.9	\$7.4
1997	395,500	3,360	17,300	\$4.5	\$6.6
1998	369,500	3,220	16,800	\$4.3	\$6.3
1999	371,000	2,895	16,050	\$5.0	\$7.1
2000	368,000	3,420	16,975	\$5.5	\$7.6
2001	383,500	3,110	15,200	\$5.5	\$7.4
2002	389,000	2,670	13,650	\$5.9	\$7.8
2003	388,500	3,145	13,650	\$5.9 ³	\$7.6 ³
2004	395,500	3,190	13,700	\$5.8	\$7.3
2005	381,000	3,030	13,300	\$6.7	\$8.1
2006	396,000	2,580	12,500	\$6.8	\$8.0

The U.S. Home Structure Fire Problem (Continued)

Year	Fires	Civilian Deaths	Civilian Injuries	Direct Property Damage (in Billions)	
				As Reported Dollars	In 2015
2007	399,000	2,865	13,600	\$7.4 ⁴	\$8.5 ⁴
2008	386,500	2,755	13,160	\$8.2 ⁵	\$9.1 ⁵
2009	362,500	2,565	12,650	\$7.6	\$8.4
2010	369,500	2,640	13,350	\$6.9	\$7.5
2011	370,000	2,520	13,910	\$6.9	\$7.3
2012	365,000	2,380	12,875	\$7.0	\$7.3
2013	369,500	2,755	12,200	\$6.8	\$6.9
2014	367,000	2,745	11,825	\$6.8	\$6.8
2015	365,500	2,560	11,075	\$7.0 ⁶	\$7.0

¹Includes \$1.5 billion in damage caused by the Oakland Fire Storm, most of which was lost to homes but for which no detailed breakdown by property type was available.

²Includes \$809 million in damage caused by Southern California wildfires

³This does not include the Southern California wildfires with an estimated property damage of \$2 billion.

⁴Does not include the California Fire Storm 2007 with an estimated property damage of \$1.8 billion

⁵Does not include the California wildfires 2008 with an estimated property damage of \$1.4 billion.

⁶Does not include the California wildfires 2015 with an estimated property damage of \$2.0 billion.

"Homes" are dwellings, duplexes, manufactured homes (also called mobile homes), apartments, rowhouses, and townhouses. Other residential properties, such as hotels and motels, dormitories, barracks, rooming and boarding homes, and the like, are not included.

Direct property damage figures do not include indirect losses, like business interruption.

Inflation adjustment to 2015 dollars is done using the consumer price index.

Source: [Fire Loss in the United States 2015](#), Hylton J.G. Haynes, NFPA, September 2016 and previous reports in the series.

One- and Two-Family Home Structure Fires¹

Year	Fires	Civilian Deaths	Civilian Injuries	Direct Property Damage (in Billions)	
				As Reported	In 2015 Dollars
1977	678,000	4,835	17,465	\$2.3	\$9.0
1978	623,233	4,945	15,400	\$1.8	\$6.5
1979	550,500	4,320	14,650	\$2.0	\$6.5
1980	590,500	4,175	16,100	\$2.4	\$6.9
1981	574,000	4,430	14,875	\$2.7	\$7.0
1982	538,000	3,960	15,750	\$2.8	\$6.8
1983	523,500	3,825	16,450	\$2.8	\$6.7
1984	506,000	3,290	15,100	\$2.9	\$6.6
1985	501,500	4,020	15,250	\$3.2	\$7.0
1986	468,000	4,005	14,650	\$3.0	\$6.5
1987	433,000	3,780	15,200	\$3.1	\$6.5
1988	432,500	4,125	17,125	\$3.3	\$6.6
1989	402,500	3,545	15,225	\$3.3	\$6.3
1990	359,000	3,370	15,250	\$3.5	\$6.3
1991	363,000	2,905	15,600	\$3.4 ²	\$5.9 ²
1992	358,000	3,160	15,275	\$3.2	\$5.4
1993	358,000	3,035	15,700	\$4.1 ³	\$6.7 ³
1994	341,000	2,785	14,000	\$3.5	\$5.6
1995	320,000	3,035	13,450	\$3.6	\$5.6
1996	324,000	3,470	13,700	\$4.1	\$6.2
1997	302,500	2,700	12,300	\$3.7	\$5.5
1998	283,000	2,775	11,800	\$3.6	\$5.2
1999	282,500	2,375	11,550	\$4.1	\$5.8
2000	283,500	2,920	12,575	\$4.6	\$6.3
2001	295,500	2,650	11,400	\$4.7	\$6.3
2002	300,500	2,280	9,950	\$5.0	\$6.6
2003	297,000	2,735	10,000	\$5.1 ⁴	\$6.6 ⁴
2004	301,500	2,680	10,500	\$4.9	\$6.2
2005	287,000	2,570	10,300	\$5.8	\$7.0
2006	304,500	2,155	8,800	\$5.9	\$6.9
2007	300,500	2,350	9,650	\$6.2 ⁵	\$7.3 ⁵

One- and Two-Family Home Structure Fires¹ (Continued)

Year	Fires	Civilian Deaths	Civilian Injuries	Direct Property Damage (in Billions)	
				As Reported	In 2015 Dollars
2008	291,000	2,365	9,185	\$6.9 ⁶	\$7.6 ⁶
2009	272,500	2,100	9,300	\$6.4	\$7.0
2010	279,000	2,200	9,400	\$5.9	\$6.4
2011	274,500	2,105	9,485	\$5.7	\$6.0
2012	268,000	2,000	8,825	\$5.7	\$5.9
2013	271,500	2,430	8,300	\$5.6	\$5.6
2014	273,500	2,345	8,025	\$5.8	\$5.8
2015	270,500	2,155	8,050	\$5.8 ⁷	\$5.8

¹Includes manufactured homes.

²Does not include \$1.5 billion in damage caused by the Oakland Fire Storm most of which was lost to homes but for which not detailed breakdown by property type was available.

³Includes \$809 million in damage caused by Southern California wildfires.

⁴This does not include the Southern California Wildfires with an estimated property damage of \$2 billion.

⁵This does not include the California Fire Storm 2007 with an estimated property damage of \$1.8 billion.

⁶Does not include the California wildfires 2008 with an estimated property damage of \$1.4 billion.

⁷Does not include the California wildfires 2015 with an estimated property damage of \$2.0 billion.

Direct property damage figures do not include indirect losses, like business interruption.

Inflation adjustment to 2015 dollars is done using the consumer price index.

Source: [Fire Loss in the United States 2015](#), Hylton J.G. Haynes., NFPA, September 2015 and previous reports in the series.

U.S. Highway Vehicle Fire Problem, 1980-2015

Year	Fires	Civilian Deaths	Civilian Injuries	Direct Property Damage (in Billions)	
				As Reported	in 2015 Dollars
1980	456,000	650	2,850	\$0.5	\$1.4
1981	453,000	770	2,900	\$0.5	\$1.3
1982	433,000	575	3,250	\$0.5	\$1.2
1983	435,500	670	3,400	\$0.6	\$1.4
1984	437,000	530	3,250	\$0.6	\$1.4
1985	437,000	770	3,250	\$0.7	\$1.5
1986	438,000	665	2,850	\$0.7	\$1.5
1987	451,000	755	2,900	\$0.7	\$1.5
1988	459,000	800	2,750	\$0.8	\$1.6
1989	415,500	560	2,750	\$0.8	\$1.5
1990	415,000	645	3,025	\$0.8	\$1.5
1991	406,500	530	2,675	\$0.8	\$1.4
1992	385,500	665	2,750	\$0.8	\$1.4
1993	402,000	540	2,400	\$0.9	\$1.5
1994	402,000	555	2,325	\$1.0	\$1.6
1995	386,000	490	2,275	\$1.0	\$1.6
1996	395,000	550	2,075	\$1.1	\$1.7
1997	377,000	450	1,950	\$1.1	\$1.6
1998	358,500	545	2,050	\$1.1	\$1.6
1999	345,000	450	1,600	\$1.1	\$1.6
2000	325,000	450	1,325	\$1.2	\$1.6
2001	327,000	470	1,750	\$1.3	\$1.7
2002	307,000	540	1,700	\$1.2	\$1.6
2003	286,000	455	1,400	\$1.1	\$1.4
2004	266,500	520	1,300	\$1.0	\$1.3
2005	259,000	500	1,450	\$1.0	\$1.2
2006	250,000	445	1,075	\$1.0	\$1.2
2007	227,500	365	1,500	\$1.1	\$1.3
2008	207,000	350	850	\$1.2	\$1.3
2009	190,500	260	1,455	\$1.0	\$1.1

U.S. Highway Vehicle Fire Problem, 1980-2015 (Continued)

Year	Fires	Civilian Deaths	Civilian Injuries	Direct Property Damage (in Billions)	
				As Reported	in 2015 Dollars
2010	184,500	285	1,440	\$1.0	\$1.1
2011	187,500	270	1,020	\$1.0	\$1.1
2012	172,500	300	800	\$1.3	\$1.3
2013	164,000	300	925	\$1.1	\$1.1
2014	167,500	310	1,275	\$1.1	\$1.1
2015	174,000	445	1,550	\$1.2	\$1.2

Highway vehicles include any vehicle designed to operate normally on highways, such as automobiles, motorcycles, buses, trucks, and trailers, but not manufactured homes on foundations.

Direct property damage figures do not include indirect losses, like business interruption. Inflation adjustment to 2015 dollars is done using the consumer price index.

Source: [Fire Loss in the United States 2015](#), Hylton J.G. Haynes., NFPA, September 2016 and previous reports in the series.

2015 U.S. Fire Rates by Unit of Time

Property Class	Fire per Hour	Civilian Deaths per Day	Civilian Injuries per Day	Direct Dollar Damage per Hour
All Residential	44.3	7.1	31.7	\$ 823,000
Homes ¹	41.7	7	30.3	\$ 795,000
One- and -two family dwellings	30.9	5.9	22.1	\$ 662,000
Apartments	10.8	1.1	8.3	\$ 133,000
Other residential	2.6	0.1	1.4	\$ 29,000
Public Assembly	1.9			\$ 37,000
Educational	0.6			\$ 5,000
Institutional	0.7			\$ 6,000
Stores and Offices	1.9			\$ 72,000
Industry, Utilities, and Defense	1			\$ 105,000
Storage	3.5			\$ 118,000
Special Structures	3.3			\$ 7,000
All Non-Residential	13	0.2	3.9	\$ 350,000
All Structures	57.2	7.4	35.6	\$ 1,174,000
Vehicles	23.3	1.4	5.1	\$ 207,000
Outside and other (not Structure or Vehicle)	73	0.3	2.3	\$ 29,000
All Fires	153.6 (or 2.6 per minute, or one every 23 seconds)	9.0 (or one every 160 minutes)	43 (or every 33.5 minutes)	\$ 1,632,000 (or \$27,200 per minute, or \$453 per second)

¹Homes are dwellings, duplexes, manufactured homes, apartments, rowhouses, townhouses, and condominiums.

Direct property damage is expressed to the nearest thousand dollars.

Source: [Fire Loss in the United States 2015](#), Hylton J.G. Haynes., NFPA, Septemer 2016 and previous reports in the series.