

# **FIRE LOSS IN THE UNITED STATES DURING 2013**

**Michael J. Karter, Jr.**

**September 2014**



**National Fire Protection Association  
Fire Analysis and Research Division**

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## **Abstract**

U.S. fire departments responded to an estimated 1,240,000 fires. These fires resulted in 3,240 civilian fire fatalities, 15,925 civilian fire injuries and an estimated \$11.5 billion in direct property loss. There was a civilian fire death every 2 hours and 42 minutes and a civilian fire injury every 33 minutes in 2013. Home fires caused 2,755, or 85%, of the civilian fire deaths. Fires accounted for four percent of the 31,644,500 total calls. Seven percent of the calls were false alarms; sixty-eight percent of the calls were for aid such as EMS.

Keywords: fire fatalities, fire injuries, fire losses, fire statistics, intentional fires, region fire department calls, intentional fires.

## **Acknowledgements**

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## Overview of 2013 U.S. Fire Experience

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### Number of Fires

- 1,240,000 fires were responded to by public fire departments, a decrease of 9.8% from the year before
- 487,500 fires occurred in structures, a slight increase of 1.5%.
- 369,500 fires or 76% of all structure fires occurred in home structures (1-and 2-family homes and apartments), a slight increase of 1.2%.
- 164,000 fires occurred in highway vehicles, a decrease of 4.9% from the year before.
- 564,500 fires occurred in outside and other properties, a significant decrease of 19.3%.
- What do these fire frequencies above mean? Every 25 seconds, a fire department responds to a fire somewhere in the nation. A fire occurs in a structure at the rate of one every 65 seconds, and in particular a home fire occurs every 85 seconds. Fires occur in vehicles at the rate of 1 every 167 seconds, and there's a fire in an outside property every 56 seconds.

### Civilian Fire Deaths

- 3,240 civilian fire deaths occurred in 2013, an increase of 13.5%.
- 2,755 civilian fire deaths occurred in the home or 85% of all fire deaths, an increase of 15.7%.
- 300 civilians died in highway vehicle fires.
- Nationwide, there was a civilian fire death every 2 hours and 42 minutes, and a civilian death in home fires occurred every 3 hours and 12 minutes.

## **Civilian Fire Injuries**

- 15,925 civilian fire injuries occurred in 2013, a decrease of 3.5%. This estimate for civilian injuries is on the low side, because many civilian injuries are not reported to the fire service.
- 12,200 of all civilian injuries occurred in home fires.
- 925 civilians were injured in highway vehicle fires.
- Nationwide, there was a civilian fire injury every 33 minutes, and a civilian fire injury in home fires every 43 minutes.

## **Property Damage**

- An estimated \$11.5 billion in property damage occurred as a result of fire in 2013, a decrease of 7.3% from last year.
- \$9.5 billion of property damage occurred in structure fires.
- \$6.8 billion of property loss occurred in home fires.
- \$1.1 billion of property loss occurred in highway vehicle fires.

## **Intentionally Set Fires**

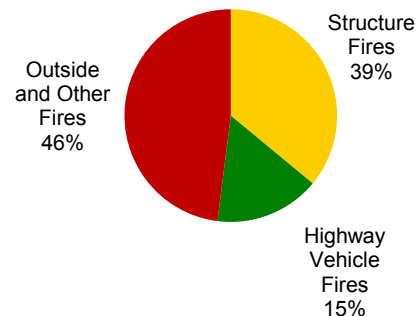
- An estimated 22,500 intentionally set (not including any allocation of fires with unknown cause), a decrease of 13.5%.
- Intentionally set fires in structures resulted in 150 civilian deaths, a decrease of 16.7%.
- Intentionally set structure fires also resulted in \$577,000,000 in property loss, a slight decrease of 0.7%.
- 10,500 intentionally set vehicle fires occurred, a decrease of 12.5% from a year ago, and caused \$86,000,000 in property damage, a significant decrease of 82.1% from a year ago. This decrease is mostly due to the intentionally set fire to the USS Miami (submarine) which was in for repairs and resulted in an estimated \$400,000,000 in property damage, that occurred in 2012.

## Fires in the United States During 2013 Fact Sheet

**1,240,000** fires were reported in the U.S. during 2013.

- A decrease of 9.8% from the year before
- **3,240** civilian fire deaths
- One civilian death occurred every two hours and 42 minutes
- **15,925** civilian fire injuries
- One civilian injury occurred every 33 minutes
- **\$11.5 billion** in property damage
- A fire department responded to a fire every 25 seconds

Fires in the United States During 2013



**487,500** structure fires occurred in the U.S. during 2013.

- A slight increase of 1.5% from 2012
- **2,855** civilian fire deaths
- **14,075** civilian fire injuries
- **\$9.5 billion** in property damage
- One structure fire was reported every 65 seconds



**164,000** highway vehicle fires occurred in the U.S. during 2013.



- A decrease of 4.9% from 2012
- **300** civilian fire deaths
- **925** civilian fire injuries
- **\$1.1 billion** in property damage
- One highway vehicle fire was reported every 192 seconds

**564,500** outside and other fires occurred in the U.S. during 2013.

- A significant decrease of 19.3% from 2012
- **65** civilian fire deaths
- **800** civilian fire injuries
- **\$607 million** in property damage
- One outside fire was reported every 56 seconds



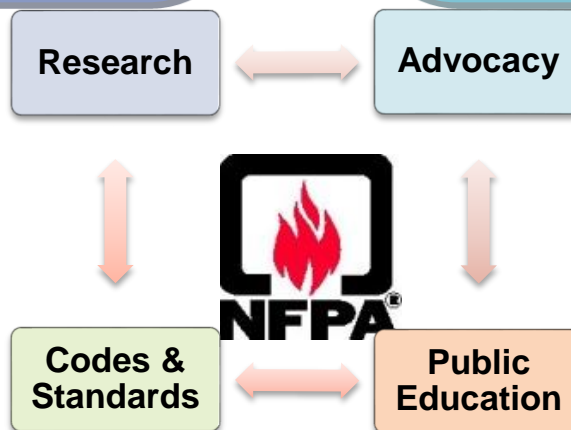


# NFPA's Fire Safety Resources

NFPA's wealth of fire-related research includes investigations of technically significant fire incidents, fire data analysis, and the Charles S. Morgan Technical Library, one of the most comprehensive fire literature collections in the world. In addition, NFPA's Fire Protection Research Foundation is a source of independent fire test data. Find out more at: [www.nfpa.org/research](http://www.nfpa.org/research)

Properly installed and maintained smoke alarms are necessary to provide a warning of any fire to all occupants. You can find out more information about smoke alarms here: [NFPA Smoke Alarm Information](#)

Home fire sprinkler systems provide even greater protection. These systems respond quickly to reduce the heat, flames, and smoke from a fire until help arrives. More information about home fire sprinklers may be found at [www.firesprinklerinitiative.org](http://www.firesprinklerinitiative.org)



NFPA also develops, publishes, and disseminates more than 300 consensus codes and standards intended to minimize the possibility and effects of fire and other risks. Among these are:

[NFPA1: Fire Code:](#)

[NFPA 101: Life Safety Code®:](#)

[NFPA 13R: Standard for the Installation of Sprinkler Systems in Residential Occupancies up to and Including Four Stories in Height:](#)

[For consumers:](#) NFPA has consumer safety information regarding causes, escape planning, fire & safety equipment, and many other topics.

[For Kids:](#) Sparky.org has important information for kids delivered via fun games, activities, and cartoons.

[For public educators:](#) Resources on fire safety education programs, educational messaging, grants & awards, and many other topics.

## Number of Fires

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In 2013, public fire departments responded to 1,240,000 fires in the United States, according to estimates based on data the NFPA received from fire departments responding to its 2013 National Fire Experience Survey (see [Tables 1 and 2](#)). (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.) This represents a very slight decrease of 9.8% from last year, and is the lowest since 1977-78 when the NFPA started using its current survey methodology.

There were an estimated 487,500 structure fires reported to fire departments in 2013, a slight increase of 1.5%, from a year ago. For the 1977-2013 period, the number of structure fires were at their peak in 1977 when 1,098,000 structure fires occurred (see [Figure 1](#)). The number of structure fires then decreased quite steadily particularly in the 1980s to 688,000 by the end of 1989 for an overall decrease of 37.3% from 1977. Since 1989, structure fires again decreased steadily for an overall decrease of 24.7% to 517,500 by the end of 1998. They stayed in the 505,000 to 530,500 area from 1999 to 2008, before the decrease to 480,500 in 2009, and stayed in that area for the 2010 to 2013 period.

Fire incident rates by community size were examined (see [Figure 2](#)). The smallest communities (populations less than 2,500) had the highest rate with 10.7, which was more than twice the average national rate.

Of the structure fires, 387,000 were residential fires, accounting for 79.4% of all structure fires, and a slight increase of 1.6% from a year ago. Of the residential structure fires, 271,500 occurred in one- and two-family homes, accounting for 55.7% of all structure fires. Another 98,000 occurred in apartments accounting for 20.1% of all structure fires.

There were 100,500 nonresidential structure fires in 2013, a slight increase of 1.0% from last year.

For the 1977-2013 period, the number of outside fires were at their high in 1977 when 1,658,500 outside fires occurred. The number of outside fires decreased steadily the next six years to 1,011,000 in 1983 for a considerable decrease of 39.0% from 1977. Outside fires changed little for the rest of the 1980s except for 1988 when 1,214,000 occurred. Outside fires dropped to 910,500 in 1993, and stayed near the 1,000,000 level

**Table 1**  
**Estimates of 2013 Fires, Civilian Deaths, Civilian Injuries**  
**and Property Loss in the United States**

	Estimate	Range <sup>1</sup>	Percent Change From 2012
Number of Fires	1,240,000	1,217,000 to 1,263,000	-9.8**
Number of Civilian Deaths	3,240	2,870 to 3,610	+13.5
Number of Civilian Injuries	15,925	15,025 to 16,825	-3.5
Property Loss <sup>2</sup>	\$11,525,000,000	\$11,165,000,000 to 11,885,000,000	-7.3**

The estimates are based on data reported to the NFPA by fire departments that responded to the 2013 National Fire Experience Survey.

<sup>1</sup> These are 95 percent confidence intervals.

<sup>2</sup> 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.

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

**Table 2**  
**Estimates of 2013 Fires and**  
**Property Loss by Property Use**

Type of Fire	Number of Fires		Property Loss <sup>1</sup>	
	Estimate	Percent Change from 2012	Estimate	Percent Change from 2012
Fires in Structures	487,500	+1.5	\$9,526,000,000	-2.6
Fires in Highway Vehicles	164,000	-4.9*	\$1,060,000,000	-3.1
Fires in Other Vehicles <sup>2</sup>	24,000	-20.0**	\$332,000,000	-55.4**
Fires Outside but no vehicle (outside-storage, Crops, Timber, etc.)	67,000	-19.3**	\$520,000,000	-28.5**
Fires in Brush, Grass Wildland (excluding crops and timber) with no value or loss involved	254,500	-27.3**	—	—
Fires in Rubbish Including dumpsters (outside of structures), with no value or loss involved	158,000	-11.7**	—	—
All Other Fires	85,000	+6.3	\$87,000,000	+1.2
<b>Total</b>	<b>1,240,000</b>	<b>-9.8**</b>	<b>\$11,525,000,000</b>	<b>-7.3**</b>

The estimates are based on data reported to the NFPA by fire departments that responded to the 2013 National Fire Experience Survey.

<sup>1</sup> 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.

<sup>2</sup> 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 3**  
**Estimates of 2013 Structure Fires and**  
**Property Loss by Property Use**

Property Use	Structure Fires		Property Loss <sup>1</sup>	
	Estimate	Percent Change from 2012	Estimate	Percent Change from 2012
Public Assembly	12,500	+4.2	\$369,000,000	+31.3*
Educational	5,500	+10.0	66,000,000	-3.1
Institutional	6,000	0	42,000,000	+20.0
Residential (Total)	387,000	+1.6	6,969,000,000	-3.2
One- and Two-Family Homes <sup>2</sup>	271,500	+1.3	5,626,000,000	-3.3
Apartments	98,000	+1.0	1,166,000,000	-2.2
Other Residential <sup>3</sup>	17,500	+9.4	177,000,000	-6.4
Stores and Offices	18,000	+2.9	611,000,000	-5.0
Industry, Utility, Defense <sup>4</sup>	8,500	-5.6	637,000,000	-5.8
Storage in Structures	26,000	-8.8*	692,000,000	-7.9
Special Structures	24,000	+11.6	140,000,000	+10.2
Total	487,500	+1.5	\$9,526,000,000	-2.6

The estimates are based on data reported to the NFPA by fire departments that responded to the 2013 National Fire Experience Survey.

<sup>1</sup> 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.

<sup>2</sup> This includes manufactured homes.

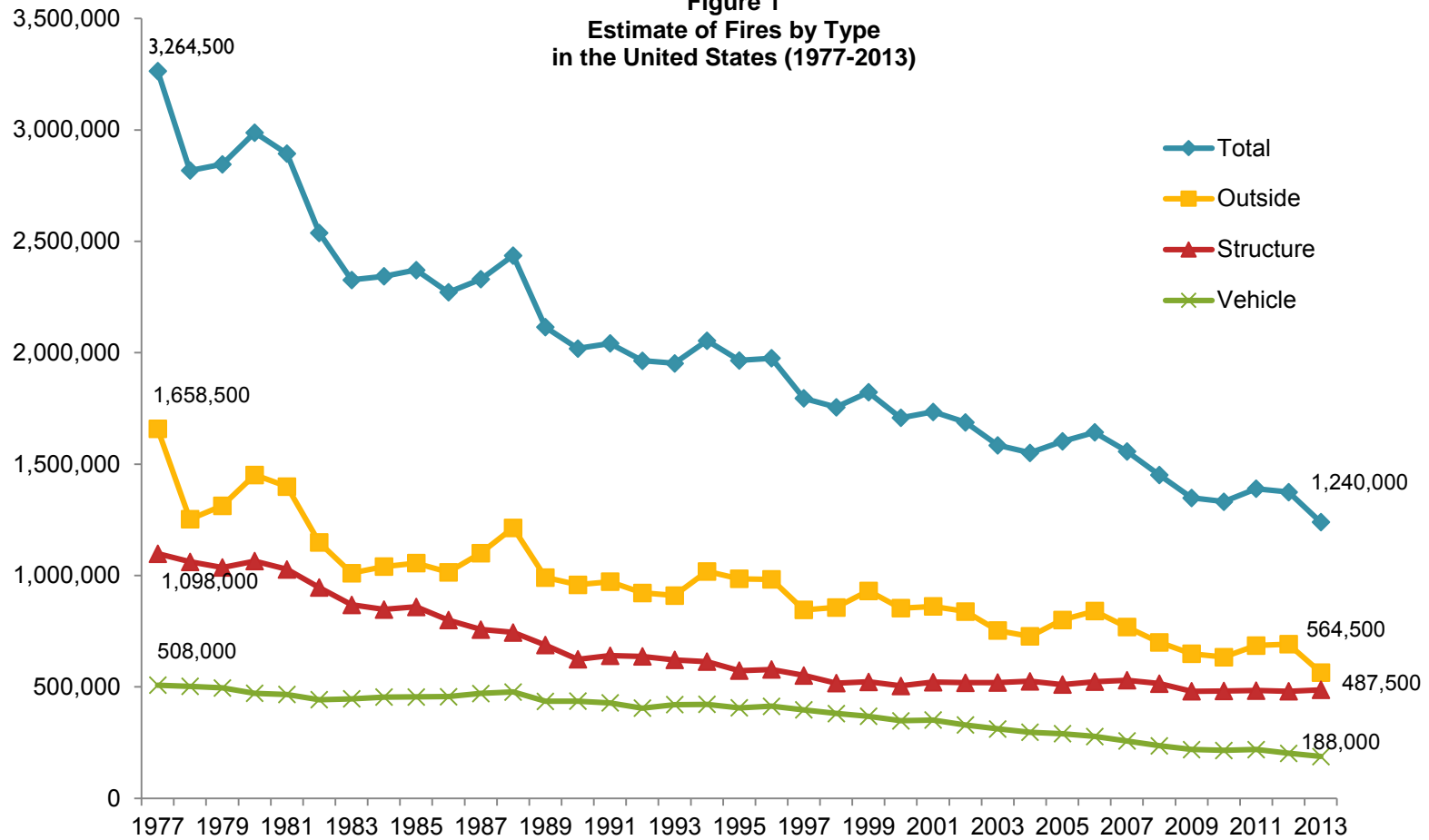
<sup>3</sup> Includes hotels and motels, college dormitories, boarding houses, etc.

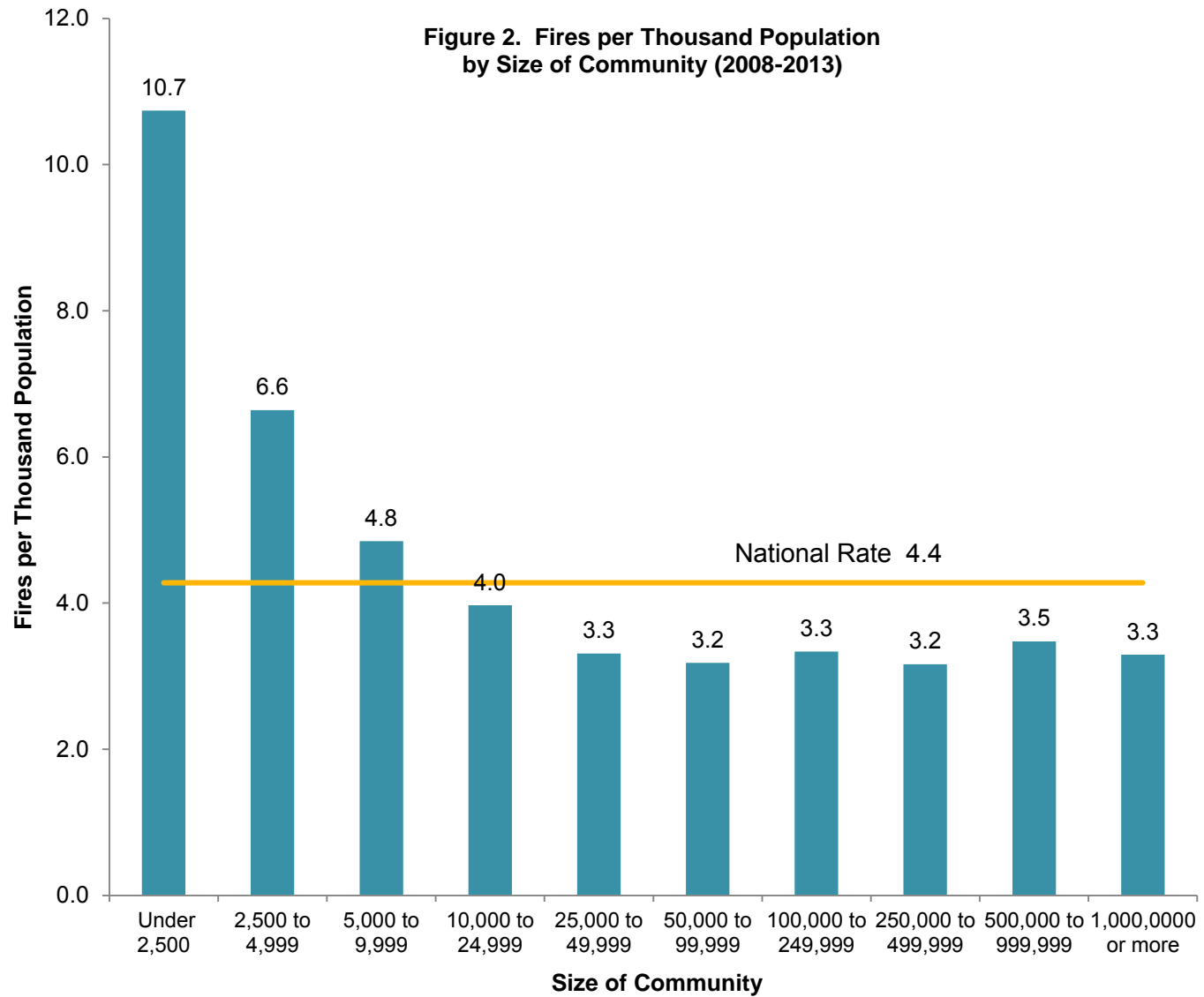
<sup>4</sup> Incidents handled only by private fire brigades or fixed suppression systems are not included in the figures shown here.

\*Change was statistically significant at the .05 level.

..

**Figure 1**  
**Estimate of Fires by Type**  
**in the United States (1977-2013)**





the next three years. From 1997 to 2002, the number of outside fires stayed in the 839,000 to 861,500 level except for 1999, then rose in 2005 and 2006, before declining during 2007-2010 to 634,000 at the end of 2010. Outside fire increased 9.1% over the next two years to 692,000 in 2012, before a significant decrease of 18.4% in 2013 to 564,500.

Of the outside fires in 2013, there were an estimated 254,500 brush, grass, and wildland fires, a significant decrease of 27.3%, while an estimated 67,000 fires outside of structure with valve involved occurred, a significant decrease of 19.3%.

There were also an estimated 164,000 highway vehicle fires in 2013, a decrease of 4.9%, and 24,000 in other vehicles, a decrease of 20.0%.



## Civilian Fire Deaths

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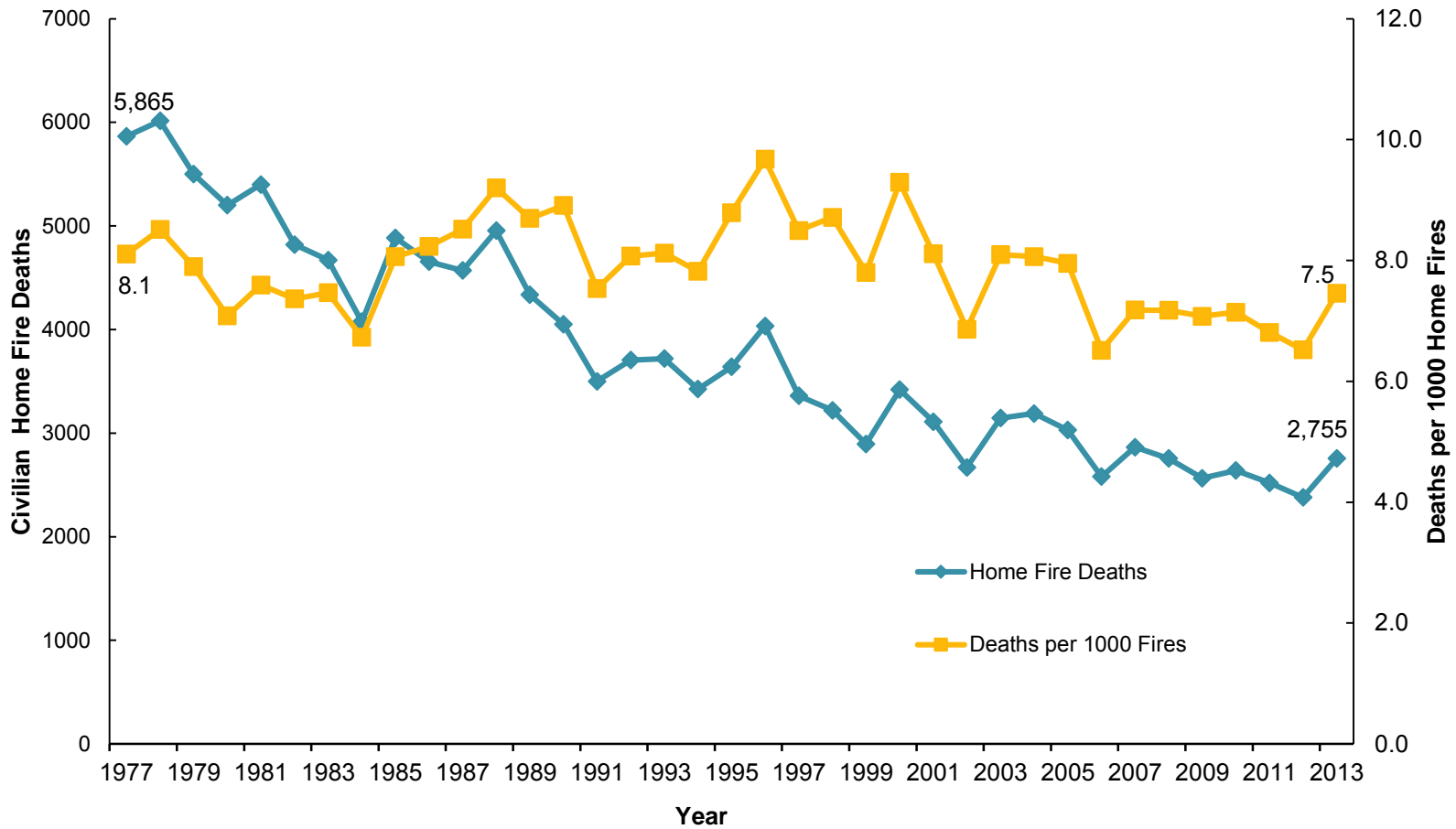
The 1,240,000 fires reported by fire departments resulted in an estimated 3,240 civilian deaths in 2013 based on data reported to the NFPA. This is an increase of 13.5% from a year ago, and the highest it's been since 2008 when there were 3,320 civilian fire deaths. The nature of the increase is better understood when results are examined by property type.

An estimated 2,785 civilians died in residential fires in 2013, an increase of 15.8%. Of these deaths, 325 occurred in apartment fires and the lowest since 1977-78 when the NFPA started using its current survey methodology. Another 2,430 died in one- and two- family homes, a significant increase of 21.5%, or 430 more deaths than last year. Most of this increase is due to an increase in fire death rates for communities less than 25,000 population and particularly for the smallest communities of less than 2,500 population. Fire death rates can vary considerably particularly for smaller communities from year to year and this suggests some caution when considering the 2013 increase.

In all, fires in the home (one- and two-family homes, including manufactured homes and apartments) resulted in 2,755 civilian deaths, an increase of 15.7% from a year ago. Looking at trends in civilian deaths since 1977-78<sup>1</sup>, several observations are worth noting. Home fire deaths were at their peak in 1978 when 6,015 fire deaths occurred. Home fire deaths then decreased steadily during the 1979-82 period except for 1981, and decreased a substantial 20% during the period to 4,820 by the end of 1982. From 1982 to 1988, the number of home fire deaths stayed quite level in the 4,650 to 4,950 area except for 1984 when 4,075 fire deaths occurred. From 1989 to 1996 home fire deaths continued to decline and stayed in the 3,420 to 4,340 area. From 1997 onward home fire deaths have generally continued to decline with the number of deaths staying in the 2,380 to 3,200 area since 2001.

Overall for the 1977-2013 period, the number of home fire deaths decreased from 5,865 in 1977 to 2,755 in 2012 for a decrease of 53%. The number of home fire incidents also declined steadily for an overall decrease of 49% for the same period. When the death rate per 1,000 home fire incidents is looked at (Figure 3), there is no steady decline, but rather the rate fluctuates considerably up and down<sup>2</sup>. In fact, the death rate per 1,000 home fires was 8.1 in 1977 and 7.5 in 2013 for a decrease of 7%. These results suggest that even though the number of home fires and home fire deaths declined similarly during the period, the death rate did not, and that given there is a home fire, the fire death rate risk has not changed much for the period.

**Figure 3. Civilian Home Fire Deaths and Rates per 1000 Fires, 1977-2013**



With home fire deaths still accounting for 2,755 fire deaths, or 85% of all civilian deaths, fire safety initiatives targeted at the home remain the key to any reductions in the overall fire death toll. Five major strategies are: First, more widespread public fire safety education is needed on how to prevent fires and how to avoid serious injury or death if fire occurs. Information on the common causes of fatal home fires should continue to be used in the design of fire safety education messages. Second, more people need to install and maintain smoke detectors and 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 more fire safe. The regulations requiring more child-resistant lighters are a good example, as are requirements for cigarettes, with reduced ignition strength (generally called “fire-safe” cigarettes). The wider use of upholstered furniture and mattresses that are more resistant to cigarette ignitions is an example of change that has already accomplished much and will continue to do more. Fifth, the special fire safety needs of high-risk groups, e.g., the young, older adults, the poor and people with disabilities need to be addressed.<sup>2,3</sup>

Also in 2013, 70 civilians died in nonresidential structure fires, an increase of 7.7%.

Of the 2,855 civilians that died in structure fires, 150 or 5.2%, died in fires that were intentionally set.

Civilian fire deaths per million people by community size was examined ([Figure 4](#)). The smallest communities (populations less than 2,500) had the highest rate with 21.0, which was almost twice the national average rate.

Also in 2013, an estimated 300 civilians died in highway vehicle fires, no change from last year. Over the 1977-2013 period, the number of highway vehicle deaths (mostly cars) has decreased 60%.

**Table 4**  
**Estimates of 2013 Civilian Fire Deaths and**  
**Injuries by Property Use**

Property Use	Estimate	Civilian Deaths		Civilian Injuries		
		Percent Change From 2012	Percent of all Civilian Deaths	Estimate	Percent Change From 2012	Percent of all Civilian Injuries
Residential (total)	2,785	+15.8	85.9	12,575	-4.6	79.0
One-and-Two-Family Homes <sup>1</sup>	2,430	+21.5*	75.0	8,300	-6.0	52.1
Apartments	325	-14.5	10.0	3,900	-3.7	24.5
Other Residential <sup>2</sup>	30	+20.0	0.9	375	+25.0	2.4
Non-residential Structures <sup>3</sup>	70	+7.7	2.2	1,500	-1.6	9.4
Highway Vehicles	300	0	9.3	925	+15.6	5.8
Other Vehicles <sup>4</sup>	20	-20.0	0.6	125	-28.6	0.8
All Other <sup>5</sup>	65	+8.3	2.0	800	-3.0	5.0
<b>Total</b>	<b>3,240</b>	<b>+13.5</b>		<b>15,925</b>	<b>-3.5</b>	

Estimates are based on data reported to the NFPA by fire departments that responded to the 2013 National Fire Experience Survey. Note that most changes were not statistically significant; considerable year-to-year fluctuation is to be expected for many of these totals because of their small size.

<sup>1</sup> This includes manufactured homes.

<sup>2</sup> Includes hotels and motels, college dormitories, boarding houses, etc.

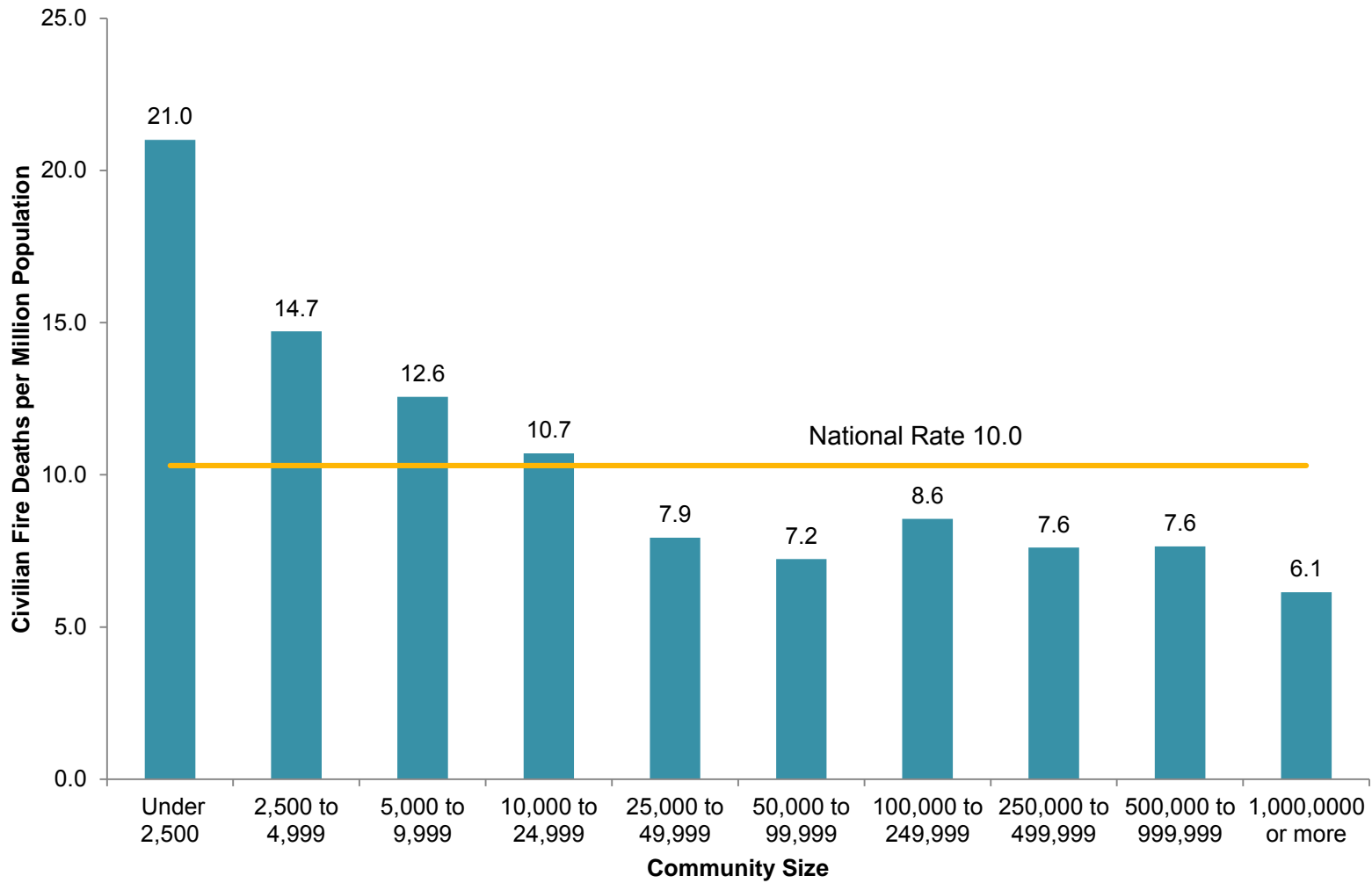
<sup>3</sup> This includes public assembly, educational, institutional, store and office, industry, utility, storage, and special structure properties.

<sup>4</sup> This includes trains, boats, ships, farm vehicles and construction vehicles.

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

\*Change was statistically significant at the .05 level.

**Figure 4. Civilian Fire Deaths per Million Population by Community Size (2008-2013)**



## Civilian Fire Injuries

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Results based on data reported to the NFPA indicate that in addition 3,240 civilian fire deaths, there were an estimated 15,925 civilian fire injuries in 2013. This represents a slight decrease of 3.5%, and is the lowest it's been since 1977-78 when the NFPA started using its current survey methodology.

Estimates of civilian fire injuries are on the low side, because many civilian injuries are not reported to the fire service. For example, many injuries occur at small fires that fire departments do not respond to, and sometime when departments do respond they may be unaware of injured persons that they did not transport to medical facilities.

The NFPA estimates that there were 12,575 civilians injured in residential properties, a decrease of 4.6%. Of these injuries 8,300 occurred in one- and two-family homes, and 3,900 occurred in apartments. There were also 1,500 civilians injured in nonresidential structures in 2013, a decrease of 1.6%.

For the 1977-2013 period, the number of civilian injuries has ranged from a high of 31,275 in 1983 to a low of 15,925 in 2013 for an overall decrease of 49%. There was no consistent pattern going up or down until 1995, when injuries fell roughly 5,000 in 1994-95 to 25,775. From 1996 to 2002, injuries declined 28% to 18,425 by the end of 2002. Since 2002, civilian injuries have been in the range of 16,400 to 18,425 until the new low of 15,925 this year.

## Property Loss

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The NFPA estimates that the 1,240,000 fires responded to by the fire service caused \$11,525,000,000 in property damage in 2013. This is a decrease of 7.3%.

Fires in structures resulted in \$9,526,000,000 in property damage a decrease of 2.6%. Average loss per structure fire was \$19, 541, a decrease of 4.0%.

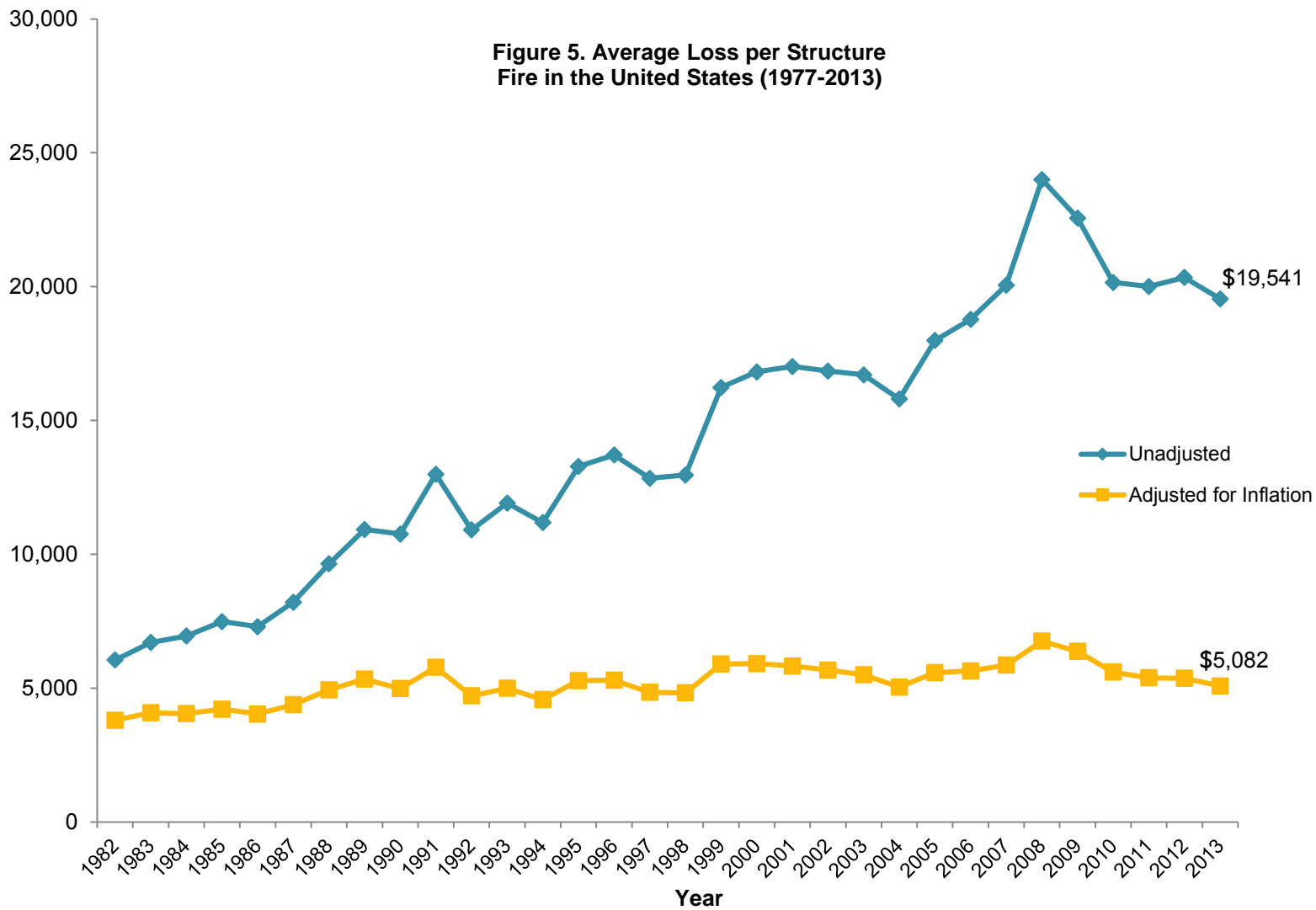
Over the 1977-2013 period, and excluding the events of 9/11/01, the average loss per structure fire was \$3,757 in 1977 and \$19,541 in 2013 for an overall increase of 420%. When property loss is adjusted for inflation, the increase in the average structure fire loss between 1977 and 2013 is 35%.

Of the property loss in structures, \$6,969,000,000 occurred in residential properties, a decrease of 3.2%. An estimated \$5,626,000,000 occurred in one- and two-family homes, a decrease of 3.3%. An estimated \$1,166,000,000 also occurred in apartments.

Other property damage figures worth noting for 2013 include: \$369,000,000 in public assembly properties, a significant increase of 31.3%; \$140,000,000 in special properties, and increase of 10.2%, \$332,000,000 in other vehicles, a significant decrease of 55.4% (the decrease reflects the \$400,000,000 property damage to the USS Miami (submarine), which was in for repairs that occurred in 2012).

It should be kept in mind that property loss totals can change dramatically from year to year because of the impact of occasional large loss fires. The NFPA provides an analysis of these large loss fires in the November/December issue of *NFPA Journal* every year.

**Figure 5. Average Loss per Structure Fire in the United States (1977-2013)**





## Intentionally Set Fires

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Based on data reported by fire departments in the survey, the NFPA estimates there were 22,500 intentionally set structure fires in 2013, a decrease of 13.5% from a year ago (see [Table 5](#)). Also, these estimates do not include any allocation of fires with cause unknown or unreported.<sup>5</sup>

These intentionally set structure fires resulted in an estimated 150 civilian deaths, a decrease of 16.7%. These set structure fires also resulted in \$577,000,000 in property loss, a slight decrease of 0.7%, or virtually no change from a year ago.

Also in 2013, there were an estimated 10,500 intentionally set vehicle fires, a decrease of 12.5% from a year ago. These set vehicle fires resulted in \$86,000,000 in property loss, a very significant decrease of 82.1% from a year ago. (This decrease is mostly due to the intentionally set fire to the USS Miami (submarine) which was in for repairs and resulted in an estimated \$400,000,000 in property damage that occurred in 2012.)

**Table 5**  
**Estimate of 2013 Losses in**  
**Intentionally Set Structure Fires**

<b>Intentionally<sup>1</sup> Set Structure Fires</b>	<b>Estimate</b>	<b>Percent change from 2012</b>
Number of Structure Fires	22,500	-13.5
Civilian Deaths	150	-16.7
Property Loss <sup>1</sup>	\$577,000,000	-0.7

The estimates are based on data reported to the NFPA by fire departments that responded to the 2013 National Fire Experience Survey.

<sup>1</sup> 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.

## Region

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Fire loss rates nationwide and by region<sup>5</sup> can be seen in Table 6. The Midwest (4.4), and the Northeast (4.4) had the highest fire incident rate per thousand people. The Midwest with 13.4 had the highest civilian death rate per million people.

The Northeast with (70.2) had the highest civilian injury rate per million people, while the Midwest with \$42.1 had the highest property loss per capita rate.

Fire incident rates by region and community size can be seen in [Table 7](#). The Northeast had the highest rates for communities of 25,000 to 249,999, the Midwest had the highest rate for communities of 250,000 or more, and the South had the highest rates for communities of 5,000 to 24,999 and the smaller communities (less than 5,000 to 24,999, and the smaller communities (less than 5,000 population).

Civilian fire deaths per million population by region and community size are shown in Table 8. The Northeast had the highest rate for communities of 500,000 or more and communities of 50,000 to 99,999, the Midwest had the highest rates for communities of 100,000 to 499,999, the West had the highest rates for communities of 2,500 to 24,999, and the South had the highest rates for communities of 25,000 to 49,999, and the smallest communities (population of less than 2,500).

Civilian fire injuries per million population by region and community size are shown in [Table 9](#). The Northeast had the highest rates for communities of 500,000 or more, communities of 25,000 to 249,999, the Midwest had the highest rates for communities of 250,000 to 499,999 and for communities of 5,000 to 9,999, the South had the highest rate for communities of 10,000 to 24,999, and the West had the highest rate for the smaller communities (population of less than 5,000).

Property loss per capita by region and community size are shown in [Table 10](#). The Midwest had the highest rates for communities of 500,000 or more and communities of 10,000 to 24,999, the South had the highest rates for communities of 100,000 to 249,999, and smaller communities (population of less than 10,000), the West had the highest rates for communities of 250,000 to 49,999, and the Northeast had the highest rate for communities of 50,000 to 99,999.

**Table 6**  
**Fire Loss Rates Nationwide and by Region, 2013**

<b>Region</b>	<b>Number of Fires per Thousand Population</b>	<b>Civilian Deaths per Million Population</b>	<b>Civilian Injuries per Million Population</b>	<b>Property Loss per Capita</b>
Nationwide	3.9	10.3	50.4	\$36.5
Northeast	4.4	9.5	70.2	\$33.9
Midwest	4.4	13.4	56.6	\$42.1
South	4.0	10.8	44.9	\$35.8
West	3.0	7.1	38.5	\$34.4

Source: NFPA's; Survey of Fire Departments for 2013 U.S. Fire Experience.

**Table 7  
2013 Fires per Thousand Population**

<b>Population of Community</b>	<b>All Regions</b>	<b>Northeast</b>	<b>Midwest</b>	<b>South</b>	<b>West</b>
500,000 or more	3.2	*	4.1	2.7	2.4
250,000 to 499,999	3.1	4.2	4.9	2.7	2.5
100,000 to 249,999	3.1	6.9	3.1	3.4	2.2
50,000 to 99,999	2.8	4.3	2.3	3.3	2.4
25,000 to 49,999	3.1	4.0	2.4	3.7	2.9
10,000 to 24,999	3.7	3.6	3.0	4.5	4.1
5,000 to 9,999	4.4	4.1	3.9	5.4	4.9
2,500 to 4,999	6.0	5.0	5.3	8.3	7.7
under 2,500	9.4	8.7	7.5	13.5	11.1

Source: NFPA's Survey of Fire Departments for 2013 U.S. Fire Experience.

\*Insufficient data

**Table 8**  
**2013 Civilian Fire Deaths per Million Population**  
**by Region and Size of Community**

<b>Population of Community</b>	<b>All Regions</b>	<b>Northeast</b>	<b>Midwest</b>	<b>South</b>	<b>West</b>
500,000 or more	6.0	8.9	6.3	6.3	3.3
250,000 to 499,999	8.4	2.4	17.9	9.2	4.1
100,000 to 249,999	7.0	4.9	12.9	6.6	5.2
50,000 to 99,999	8.3	10.8	8.0	7.8	8.5
25,000 to 49,999	8.2	8.0	7.4	10.7	5.8
10,000 to 24,999	11.3	10.9	10.7	11.5	13.0
5,000 to 9,999	16.2	6.1	13.7	24.5	25.1
2,500 to 4,999	12.3	14.7	11.4	5.6	25.9
under 2,500	30.8	21.5	24.3	51.3	32.3

Source: NFPA's Survey of Fire Departments for 2013 U.S. Fire Experience

**Table 9**  
**2013 Civilian Fire Injuries per Million Population**  
**by Region and Size of Community**

<b>Population of Community</b>	<b>All Regions</b>	<b>Northeast</b>	<b>Midwest</b>	<b>South</b>	<b>West</b>
500,000 or more	56.4	114.5	*	33.7	48.7
250,000 to 499,999	43.4	14.7	82.4	55.1	13.9
100,000 to 249,999	66.6	211.1	78.8	69.5	41.8
50,000 to 99,999	56.7	94.6	54.7	61.4	35.1
25,000 to 49,999	59.7	73.9	60.3	63.6	33.1
10,000 to 24,999	52.0	41.7	55.7	56.6	41.3
5,000 to 9,999	46.5	45.0	52.0	46.0	31.2
2,500 to 4,999	16.6	9.8	20.4	11.2	25.9
under 2,500	49.6	66.1	40.6	46.4	68.7

Source: NFPA's Survey of Fire Departments for 2013 U.S. Fire Experience.

\*Insufficient data

**Table 10**  
**2013 Property Loss per Person**  
**by Region and Size of Community**

Population of Community	All Regions	Northeast	Midwest	South	West
500,000 or more	\$25.7	*	\$27.5	\$24.3	\$25.4
250,000 to 499,999	27.8	*	22.6	25.3	34.1
100,000 to 249,999	29.8	*	31.7	33.6	21.4
50,000 to 99,999	29.3	36.3	24.9	28.8	33.6
25,000 to 49,999	38.8	30.3	36.0	43.0	44.7
10,000 to 24,999	44.8	41.7	48.6	39.7	45.6
5,000 to 9,999	59.0	41.7	55.1	77.1	63.9
2,500 to 4,999	64.0	33.2	67.7	93.8	36.7
under 2,500	118.0	110.0	111.3	133.9	130.5

Source: NFPA's Survey of Fire Departments for 2013 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 11 and 12.

**Table 11**  
Average 2013 Fire Experience by Size of Community

Population of Community	Total Fires	Structure Fires	Civilian Deaths	Civilian Injuries	Property Loss
1,000,000 or more	4,706	1,887	10.00	110.00	\$46,366,400
500,000 to 999,999	2,355	1,071	4.30	22.19	20,398,100
250,000 to 499,999	1,054	455	2.88	14.94	9,557,400
100,000 to 249,999	468	190	1.06	10.12	4,540,600
50,000 to 99,999	194	83	0.56	3.85	1,971,400
25,000 to 49,999	106	44	0.28	2.03	1,348,200
10,000 to 24,999	58	24	0.18	0.82	717,000
5,000 to 9,999	32	12	0.12	0.33	684,500
2,500 to 4,999	21	7	0.04	0.06	300,300
under 2,500	10	3	0.03	0.05	155,600

**Table 12**  
Average 2013 Residential Fire Experience by Size of Community

Population of Community	Number of Fires	Civilian Deaths	Civilian Injuries	Property Loss
1,000,000 or more	1,345	6.89	66.88	\$26,771,800
500,000 to 999,999	860	3.11	17.46	12,020,500
250,000 to 499,999	372	2.62	12.53	6,627,500
100,000 to 249,999	149	0.83	8.22	2,699,300
50,000 to 99,999	68	0.46	3.16	1,290,300
25,000 to 49,999	36	0.25	1.71	891,300
10,000 to 24,999	19	0.15	0.67	356,700
5,000 to 9,999	10	0.11	0.29	421,200
2,500 to 4,999	6	0.04	0.03	132,000
under 2,500	2	0.02	0.03	58,200

Source: NFPA's Survey of Fire Departments for 2013 U.S. Fire Experience

**Table 13**  
**Fire Department Responses by Type of Call, 2013**

	<b>Number</b>	<b>Percent Change From 2012</b>
Fire Incidents	1,240,000	-9.8
Medical Aid Responses (Ambulance, EMS, Rescue)	21,372,000	-1.5
False Alarms	2,343,000	+4.7
Mutual Aid or Assistance Calls	1,298,000	-2.1
Hazardous Material Responses (Spills, Leaks, etc.)	366,500	+1.8
Other Hazardous Responses (arcing wires, bomb removal etc.)	678,000	-2.3
All Other Responses (smoke scares, lock-outs, etc.)	4,347,000	+4.6
<b>Total Incidents</b>	<b>31,644,500</b>	<b>-0.5</b>

The percent of fires and nonfire incidents by community size is shown in [Table 14](#).

A further breakdown on false responses was collected on the 2013 surveys and the results can be seen in [Table 15](#).

**Table 14**  
**Number of Fires and Nonfire Incidents by Community size, 2012-2013 Average-**

<b>Community Size</b>										
	<b>1,000,000 or more</b>	<b>500,000 to 999,999</b>	<b>250,000 to 499,999</b>	<b>100,000 to 249,999</b>	<b>50,000 to 99,999</b>	<b>25,000 to 49,999</b>	<b>10,000 to 24,999</b>	<b>5,000 to 9,999</b>	<b>2500 to 4,999</b>	<b>under 2,500</b>
Fires	4,307	2,410	1,074	487	207	110	62	33	23	11
Rescue, EMS etc.,	144,349	82,089	23,891	11,892	4,870	1,924	933	328	131	41
False alarm responses	15,403	5,532	2,165	1,171	546	286	124	52	17	6
Mutual aid responses	1,634	928	621	343	199	130	85	54	30	11
Hazardous materials	1,706	827	308	177	84	49	24	10	3	1
Other hazardous	1,995	1,158	657	292	147	78	39	20	9	3
All other responses	58,073	11,811	7,030	2,568	1,086	450	199	83	25	7
<b>Total for all incidents</b>	<b>227,466</b>	<b>104,757</b>	<b>35,746</b>	<b>16,930</b>	<b>7,138</b>	<b>3,027</b>	<b>1,466</b>	<b>579</b>	<b>238</b>	<b>78</b>
	<b>1,000,000 or more</b>	<b>500,000 to 999,999</b>	<b>250,000 to 499,999</b>	<b>100,000 to 249,999</b>	<b>50,000 to 99,999</b>	<b>25,000 to 49,999</b>	<b>10,000 to 24,999</b>	<b>5,000 to 9,999</b>	<b>2500 to 4,999</b>	<b>under 2,500</b>
Fires	1.9%	2.3%	3.0%	2.9%	2.9%	3.6%	4.2%	5.8%	9.5%	14.1%
Rescue, EMS etc.,	63.5%	78.4%	66.8%	70.2%	68.2%	63.6%	63.7%	56.6%	55.3%	51.9%
False alarm responses	6.8%	5.3%	6.1%	6.9%	7.6%	9.5%	8.4%	8.9%	7.1%	7.3%
Mutual aid responses	0.7%	0.9%	1.7%	2.0%	2.8%	4.3%	5.8%	9.3%	12.6%	14.0%
Hazardous materials	0.7%	0.8%	0.9%	1.0%	1.2%	1.6%	1.7%	1.8%	1.3%	1.0%
Other hazardous	0.9%	1.1%	1.8%	1.7%	2.1%	2.6%	2.7%	3.4%	3.8%	3.3%
All other responses	25.5%	11.3%	19.7%	15.2%	15.2%	14.9%	13.6%	14.3%	10.3%	8.5%
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

Source: NFPA's Survey of Fire Departments for U.S. Fire Experience (2012, 2013)

**Table 15**  
**Estimates of False Alarms by Type, 2013**

	<b>Estimate</b>	<b>Percent Change From 2012</b>	<b>Percent of All False Alarms</b>
Malicious, Mischievous False Call	165,000	-1.6	7.0
System Malfunction	757,000	+6.2	32.3
Unintentional Call	1,080,000	+3.4	46.1
Other False Alarms (Bomb Scares, etc.)	341,000	+8.8	14.6
<b>Total</b>	<b>2,343,000</b>	<b>+4.7</b>	

Source: NFPA's Survey of Fire Departments for 2013 U.S. Fire Experience

## Survey Methodology

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Each year, based on a sample survey of fire departments across the country, the NFPA estimates the national fire problem as measured by the number of fires that public fire departments attend, and the resulting deaths, injuries and property losses that occur. This report summarizes key findings based on the NFPA Survey for 2013 Fire Experience. This section explains the major steps in conducting the 2013 survey.

### Sample Selection

The NFPA currently has 30,100 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 determined that 3,000 fire departments were a reasonable number for the 2013 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:

- 1,000,000 and up
- 500,000 to 999,999
- 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

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 50,000 people or more were included. These 836 departments in the five highest strata protect 154,336,000.

For the remaining five population strata, assuming response rates similar to the past two years for the five highest strata, a total sample of 2,589 was indicated. Sample sizes for individual strata were calculated using a methodology that assured optimum sample allocations<sup>6</sup>. Based on the average variation in civilian deaths in one- and two-family dwellings by stratum for the last five years and on the estimated number of fire departments, appropriate relative sample weights were determined. Then the corresponding sample sizes by stratum were calculated. The sample size by stratum was then adjusted based on the response rates from the last two years' returns. A sample size of 20,935 was found to be necessary to obtain the desired total response

of 3,000 fire departments. For all strata, where a sample was necessary, departments were randomly selected.

### **Data Collection**

The fire departments selected for the survey were sent the 2013 NFPA Fire Experience Questionnaire during the 2nd week of January 2014. A second mailing was sent in mid-March to fire departments that had not responded to the first mailing. A total of 2,637 departments responded to the questionnaire 1,913 to the first mailing and 724 to the second. Six hundred and forty-two or 24% responded by using the online version of the survey form.

Table 16 shows the number of departments that responded by region and size of community. The overall response rate was 13%, although response rates were considerably higher for departments protecting larger communities than they were for departments protecting smaller communities. The overall response rate was 45% for departments protecting communities of 50,000 population or more, 22% for departments protecting communities of 10,000 to 49,999, and 9% for departments protecting communities less than 10,000 population, which are comprised of mostly volunteers. The 2,637 departments that did respond protect 111,548,000 people or 35% 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.

### **Estimation Methodology**

The estimation method used for the survey was ratio estimation<sup>6</sup> 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, 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 (2.0%), number of civilian deaths (11.4%), number of civilian injuries (5.7%), and property loss (3.2%).

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 2013, for instance, property damage in institutional properties was estimated to be \$42,000,000. This represented an increase 20.0% from the year before, but was found not to be statistically significant.

**Table 16**  
**Number of Fire Departments Responding to 2013 NFPA Survey**  
**by Region and Community Size**

Population of Community	All Regions	Northeast	Midwest	South	West
1,000,000 or more	10	2	1	4	3
500,000 to 999,999	28	1	2	15	10
250,000 to 499,999	35	3	7	15	10
100,000 to 249,999	114	4	18	60	32
50,000 to 99,999	189	19	68	64	38
25,000 to 49,999	277	42	120	77	38
10,000 to 24,999	574	91	238	169	76
5,000 to 9,999	424	95	174	107	48
2,500 to 4,999	264	59	130	53	22
Under 2,500	722	111	357	149	105
<b>Total</b>	<b>2,637</b>	<b>427</b>	<b>1,115</b>	<b>713</b>	<b>382</b>



In addition to sampling errors, there are nonsampling errors. These include biases of the survey methodology, incomplete or inaccurate reporting of data to the NFPA, differences in data collection methods by the fire departments responding. As an example of a nonsampling 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.

## Fire Experience of Nonrespondents

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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 nonrespondents selected was proportional by state and population of community to the original sample selected for the survey. As a result of these efforts, 82 fire departments were successfully contacted and answered some of the questions about their fire experience.

**Table 17** compares fire loss rates for both respondents and nonrespondents. For communities of 100,000 to 249,999, the nonrespondent rate was 45% for fires and 21% higher for property loss, while the rates were fairly similar for civilian death. (The result for fires was statistically significant).

For communities of 50,000 to 99,999, the respondent rate was 34% higher for civilian deaths and 17% higher for property loss, while the nonrespondent rate was 14% higher for fires. (None of these results was statistically significant).

For communities of 25,000 to 49,999, the nonrespondent rate was 23% higher for fires and 35% higher for civilian deaths, while the respondent rate was 85% higher for property loss. (The result for property loss was statistically significant.).

For communities of 10,000 to 24,999, the respondent rate was 16% for fires, and the rates were similar for deaths.

For communities of 5,000 to 9,999, the nonrespondent rate was 73% higher for fires, and the data was not sufficient for nonrespondents for civilian deaths and property loss to do an analysis.

**Table 17**  
**A Comparison of Respondents and Nonrespondents\***  
**to the 2013 NFPA Survey by Community Size**

Population of Community	Number of Fires (Per Thousand Population)				Civilian Deaths (Per Million Population)				Property Loss (Per Capita)			
	Respondents		Nonrespondents		Respondents		Nonrespondents		Respondents		Nonrespondents	
	n	Rate	n	Rate	n	Rate	n	Rate	n	Rate	n	Rate
100,000 to 249,999	110	3.1	15	4.5	114	7.0	14	7.5	91	29.8	8	36.2
50,000 to 99,999	182	2.8	23	3.2	188	8.3	23	6.2	131	29.3	21	25.0
25,000 to 49,999	267	3.1	19	3.8	274	8.2	19	11.1	177	38.8	13	21.0
10,000 to 24,999	539	3.7	13	4.3	572	11.3	13	11.4	334	44.8	ns	-
5,000 to 9,999	409	4.4	12	7.6	421	16.2	ns	ns	258	94.6	ns	-

\*Some departments did not return the questionnaire. A sample of these nonrespondents was contacted by telephone and questioned about their 2013 fire experience.

Note: “n” refers to the number of departments reporting the statistic.

ns – Data not sufficient.

## Definition of Terms

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**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

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1. Note that the NFPA changed its survey methodology in 1977-78, and meaningful comparisons cannot be made with fire statistics estimated before 1977.
2. Jennifer D. Flynn., Characteristics of Home Fire Victims, July 2010, Quincy: National Fire Protection Association, Fire Analysis and Research Division.
3. Rita F. Fahy and Alison L. Miller, “How Being Poor Affects Fire Risk”, *Fire Journal*, Vol. 83, No. 1 (January 1989), p. 28.
4. Ben Evarts, *Intentional Fires*, Quincy: National Fire protection Association, January 2012.
5. 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.
6. William G. Cochran, *Sampling Techniques*, John Wiley, New York, NY, 1977, pp. 150-161.

Appendix A.  
Fire Loss in the United States Trend Tables, 1977-2012 and U.S. Fire  
Rates by Unit of Time

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## The U.S. Fire Problem

Year	Fires	Civilian Deaths	Civilian Injuries	Firefighter Deaths	Firefighter Injuries	Direct Property Damage (in Billions)	
						As Reported	In 2013 Dollars
1977	3,264,500	7,395	31,190	157	112,540	\$4.7	\$18.1
1978	2,817,500	7,710	29,825	174	101,100	\$4.5	\$16.1
1979	2,845,500	7,575	31,325	126	95,780	\$5.8	\$18.5
1980	2,988,000	6,505	30,200	138	98,070	\$6.3	\$17.7
1981	2,893,500	6,700	30,450	136	103,340	\$6.7	\$17.1
1982	2,538,000	6,020	30,525	128	98,150	\$6.4	\$15.5
1983	2,326,500	5,920	31,275	113	103,150	\$6.6	\$15.4
1984	2,343,000	5,240	28,125	119	102,300	\$6.7	\$15.0
1985	2,371,000	6,185	28,425	128	100,900	\$7.3	\$15.8
1986	2,271,500	5,850	26,825	119	96,450	\$6.7	\$14.3
1987	2,330,000	5,810	28,215	132	102,600	\$7.2	\$14.7
1988	2,436,500	6,215	30,800	136	102,900	\$8.4	\$16.5
1989	2,115,000	5,410	28,250	118	100,700	\$8.7	\$16.3
1990	2,019,000	5,195	28,600	108	100,300	\$7.8	\$14.0
1991	2,041,500	4,465	29,375	108	103,300	\$9.5 <sup>1</sup>	\$16.2 <sup>1</sup>
1992	1,964,500	4,730	28,700	75	97,700	\$8.3	\$13.8
1993	1,952,500	4,635	30,475	79	101,500	\$8.5 <sup>2</sup>	\$13.8 <sup>2</sup>
1994	2,054,500	4,275	27,250	106	95,400	\$8.2	\$12.8
1995	1,965,500	4,585	25,775	98	94,500	\$8.9	\$13.6
1996	1,975,000	4,990	25,550	96	87,150	\$9.4	\$14.0
1997	1,795,000	4,050	23,750	99	85,400	\$8.5	\$12.4
1998	1,755,500	4,035	23,100	91	87,500	\$8.6	\$12.4
1999	1,823,000	3,570	21,875	112	88,500	\$10.0	\$14.0
2000	1,708,000	4,045	22,350	103	84,550	\$11.2	\$15.2
2001	1,734,500	6,196 <sup>3</sup>	21,100 <sup>4</sup>	443 <sup>5</sup>	82,250	\$44.0 <sup>6</sup>	\$58.0 <sup>7</sup>
2002	1,687,500	3,380	18,425	98	80,800	\$10.3	\$13.4
2003	1,584,500	3,925	18,125	106	78,750	\$12.3 <sup>7</sup>	\$15.6 <sup>7</sup>
2004	1,550,500	3,900	17,875	104	75,840	\$9.8	\$12.1
2005	1,602,000	3,675	17,925	87	80,100	\$10.7	\$12.7
2006	1,642,500	3,245	16,400	89	83,400	\$11.3	\$13.1

2007	1,557,500	3,430	17,675	106	80,100	\$14.6 <sup>8</sup>	\$16.4 <sup>8</sup>
2008	1,451,500	3,320	16,705	105	79,700	\$15.5 <sup>9</sup>	\$16.8 <sup>9</sup>
2009	1,348,500	3,010	17,050	82	78,150	\$12.5	\$13.6
2010	1,331,500	3,120	17,720	73	71,875	\$11.6	\$12.4
2011	1,389,500	3,005	17,500	61	70,090	\$11.7	\$12.1
2012	1,375,000	2,855	16,500	64	69,400	\$12.4	\$12.6
2013	1,240,000	3,240	15,925	97		\$11.5	\$11.5

<sup>1</sup>This 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.

<sup>2</sup>This includes \$809 million in damage caused by Southern California wildfires.

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

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

<sup>5</sup>This includes 340 firefighters at the World Trade Center, September 11, 2001.

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

<sup>7</sup>This 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.

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

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

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

Inflation adjustment to 2013 dollars is done using the consumer price index.

Source: [Fire Loss in the United States 2013](#), Michael J. Karter, Jr., NFPA, September 2014 and previous reports in the series; [Firefighter Fatalities in the United States](#), Rita F. Fahy, Paul R. LeBlanc, Joseph L. Molis, NFPA, June 2014 and previous reports in the series; [U.S. Firefighter Injuries](#), Michael J. Karter, Jr., Joseph L. Molis, NFPA, October 2013 and previous reports in the series.



## The U.S. Structure Fire Problem

Year	Fires	Civilian Deaths	Civilian Injuries	Direct Property Damage (in Billions) <sup>1</sup>	
				As Reported	In 2013 Dollars
1977	1,098,000	6,505	26,310	\$4.1	\$15.9
1978	1,062,000	6,350	24,985	\$4.0	\$14.4
1979	1,036,500	5,970	24,850	\$5.0	\$16.0
1980	1,065,000	5,675	24,725	\$5.5	\$15.4
1981	1,027,500	5,760	25,700	\$6.0	\$15.3
1982	946,500	5,200	25,575	\$5.7	\$13.8
1983	868,500	5,090	26,150	\$5.8	\$13.6
1984	848,000	4,525	23,025	\$5.9	\$13.2
1985	859,500	5,265	23,350	\$6.4	\$13.9
1986	800,000	4,985	22,750	\$5.8	\$12.4
1987	758,000	4,880	23,815	\$6.2	\$12.8
1988	745,000	5,280	26,275	\$7.2 <sup>2</sup>	\$14.2 <sup>2</sup>
1989	688,000	4,655	24,025	\$7.5 <sup>3</sup>	\$14.1 <sup>3</sup>
1990	624,000	4,400	24,075	\$6.7	\$12.0
1991	640,500	3,765	24,975	\$8.3 <sup>4</sup>	\$14.2 <sup>4</sup>
1992	637,500	3,940	24,325	\$7.0 <sup>5</sup>	\$11.6 <sup>5</sup>
1993	621,500	3,980	26,550	\$7.4 <sup>6</sup>	\$11.9 <sup>6</sup>
1994	614,000	3,590	23,125	\$6.9	\$10.8
1995	573,500	3,985 <sup>7</sup>	21,725	\$7.6	\$11.7
1996	578,500	4,220	21,875	\$7.9	\$11.8
1997	552,000	3,510	20,375	\$7.1	\$10.3
1998	517,500	3,420	19,425	\$6.7	\$9.6
1999	523,000	3,040	18,525	\$8.5	\$11.9
2000	505,500	3,535	19,600	\$8.5	\$11.5
2001 <sup>8</sup>	521,500	3,220	17,225	\$8.9	\$11.7
2002	519,000	2,775	15,600	\$8.7	\$11.3
2003	519,500	3,385 <sup>9</sup>	15,600	\$8.7 <sup>10</sup>	\$11.0 <sup>10</sup>
2004	526,000	3,305	15,525	\$8.3	\$10.3
2005	511,000	3,105	15,325	\$9.2	\$11.0
2006	524,000	2,705	14,350	\$9.6	\$11.1

2007	530,500	3,000	15,350	\$10.6 <sup>11</sup>	\$12.0 <sup>11</sup>
2008	515,000	2,900	14,960	\$12.4 <sup>12</sup>	\$13.4 <sup>12</sup>
2009	480,500	2,695	14,740	\$10.8	\$11.8
2010	482,000	2,755	15,420	\$9.7	\$10.4
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	\$9.5

<sup>1</sup>This 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.

<sup>2</sup>This includes \$809 million in damage caused by Southern California wildfires.

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

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

<sup>5</sup>This includes 340 firefighters at the World Trade Center, September 11, 2001.

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

<sup>7</sup>This 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.

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

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

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

Inflation adjustment to 2013 dollars is done using the consumer price index.

Source: *Fire Loss in the United States 2013*, Michael J. Karter, Jr., NFPA, September 2014 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 2013 Dollars
1977	723,500	5,865	21,640	\$2.7	\$10.5
1978	706,500	6,015	20,400	\$2.1	\$7.4
1979	696,500	5,500	18,825	\$2.4	\$7.6
1980	734,000	5,200	19,700	\$2.8	\$8.1
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	\$7.5
1984	605,500	4,075	18,750	\$3.4	\$7.5
1985	606,000	4,885	19,175	\$3.7	\$8.0
1986	565,500	4,655	18,575	\$3.5	\$7.4
1987	536,500	4,570	19,965	\$3.6	\$7.4
1988	538,500	4,955	22,075	\$3.9	\$7.7
1989	498,500	4,335	20,275	\$3.9	\$7.3
1990	454,500	4,050	20,225	\$4.2	\$7.4
1991	464,500	3,500	21,275	\$5.5 <sup>1</sup>	\$9.3 <sup>1</sup>
1992	459,000	3,705	21,100	\$3.8	\$6.3
1993	458,000	3,720	22,000	\$4.8 <sup>2</sup>	\$7.7 <sup>2</sup>
1994	438,000	3,425	19,475	\$4.2	\$6.6
1995	414,000	3,640	18,650	\$4.3	\$6.5
1996	417,000	4,035	18,875	\$4.9	\$7.2
1997	395,500	3,360	17,300	\$4.5	\$6.5
1998	369,500	3,220	16,800	\$4.3	\$6.1
1999	371,000	2,895	16,050	\$5.0	\$6.9
2000	368,000	3,420	16,975	\$5.5	\$7.5
2001	383,500	3,110	15,200	\$5.5	\$7.3
2002	389,000	2,670	13,650	\$5.9	\$7.7
2003	388,500	3,145	13,650	\$5.9 <sup>3</sup>	\$7.5 <sup>3</sup>
2004	395,500	3,190	13,700	\$5.8	\$7.2
2005	381,000	3,030	13,300	\$6.7	\$8.0
2006	396,000	2,580	12,500	\$6.8	\$7.9
2007	399,000	2,865	13,600	\$7.4 <sup>4</sup>	\$8.3 <sup>4</sup>

2008	386,500	2,755	13,160	\$8.2 <sup>5</sup>	\$8.9 <sup>5</sup>
2009	362,500	2,565	12,650	\$7.6	\$8.3
2010	369,500	2,640	13,350	\$6.9	\$7.4
2011	370,000	2,520	13,910	\$6.9	\$7.2
2012	365,000	2,380	12,875	\$5.7	\$7.1
2013	369,500	2,755	12,200	\$6.8	\$6.8

<sup>1</sup>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.

<sup>2</sup>Includes \$809 million in damage caused by Southern California wildfires

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

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

<sup>5</sup>Does not include the California wildfires 2008 with an estimated property damage of \$1.4 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 2013 dollars is done using the consumer price index.

Source: [Fire Loss in the United States 2013](#), Michael J. Karter, Jr., NFPA, September 2014 and previous reports in the series.

## One- and Two-Family Home Structure Fires<sup>1</sup>

Year	Fires	Civilian Deaths	Civilian Injuries	Direct Property Damage (in Billions)	
				As Reported	In 2012 Dollars
1977	678,000	4,835	17,465	\$2.3	\$9.0
1978	623,233	4,945	15,400	\$1.8	\$6.4
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	\$6.9
1982	538,000	3,960	15,750	\$2.8	\$6.7
1983	523,500	3,825	16,450	\$2.8	\$6.5
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	\$6.4
1987	433,000	3,780	15,200	\$3.1	\$6.3
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 <sup>2</sup>	\$5.7 <sup>2</sup>
1992	358,000	3,160	15,275	\$3.2	\$5.3
1993	358,000	3,035	15,700	\$4.1 <sup>3</sup>	\$6.6 <sup>3</sup>
1994	341,000	2,785	14,000	\$3.5	\$5.6
1995	320,000	3,035	13,450	\$3.6	\$5.5
1996	324,000	3,470	13,700	\$4.1	\$6.1
1997	302,500	2,700	12,300	\$3.7	\$5.4
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	\$6.1
2002	300,500	2,280	9,950	\$5.0	\$6.5
2003	297,000	2,735	10,000	\$5.1 <sup>4</sup>	\$6.4 <sup>4</sup>
2004	301,500	2,680	10,500	\$4.9	\$6.1
2005	287,000	2,570	10,300	\$5.8	\$6.9
2006	304,500	2,155	8,800	\$5.9	\$6.9
2007	300,500	2,350	9,650	\$6.2 <sup>5</sup>	\$7.0 <sup>5</sup>

2008	291,000	2,365	9,185	\$6.9 <sup>6</sup>	\$7.5 <sup>6</sup>
2009	272,500	2,100	9,300	\$6.4	\$6.9
2010	279,000	2,200	9,400	\$5.9	\$6.3
2011	274,500	2,105	9,485	\$5.7	\$6.0
2012	268,000	2000	8,825	\$5.7	\$5.9
2013	271,500	2,430	8,300	\$5.6	\$5.6

<sup>1</sup>Includes manufactured homes.

<sup>2</sup>Does 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.

<sup>3</sup>Includes \$809 million in damage caused by Southern California wildfires.

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

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

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

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

Inflation adjustment to 2013 dollars is done using the consumer price index.

Source: [Fire Loss in the United States 2013](#), Michael J. Karter, Jr., NFPA, September 2014 and previous reports in the series.

## U.S. Highway Vehicle Fire Problem

Year	Fires	Civilian Deaths	Civilian Injuries	Direct Property Damage (in Billions)	
				As Reported	In 2013 Dollars
1980	456,000	650	2,850	\$0.5	\$1.3
1981	453,000	770	2,900	\$0.5	\$1.3
1982	433,000	575	3,250	\$0.5	\$1.3
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	\$1.4
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	\$1.4
1994	402,000	555	2,325	\$1.0	\$1.5
1995	386,000	490	2,275	\$1.0	\$1.5
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	\$1.5
2003	286,000	455	1,400	\$1.1	\$1.4
2004	266,500	520	1,300	\$1.0	\$1.2
2005	259,000	500	1,450	\$1.0	\$1.3
2006	250,000	445	1,075	\$1.0	\$1.1
2007	227,500	365	1,500	\$1.1	\$1.2
2008	207,000	350	850	\$1.2	\$1.3
2009	190,500	260	1,455	\$1.0	\$1.1
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	\$1.1
2013	164,000	300	925	\$1.1	\$1.1

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 2013 dollars is done using the consumer price index.

Source: [Fire Loss in the United States 2013](#), Michael J. Karter, Jr., NFPA, September 2014 and previous reports in the series.

## 2013 U.S. Fire Rates by Unit of Time

Property Class	Fires per Hour	Civilian Deaths per Day	Civilian Injuries per Day	Direct Dollar Damage per Hour
All residential	44.2	7.6	34.5	\$796,000
Homes <sup>1</sup>	42.2	7.5	33.4	\$775,000
One- and -two family dwellings	31.0	6.7	22.7	\$642,000
Apartments	11.2	0.9	10.7	\$133,000
Other residential	2.0	0.1	1.0	\$20,000
Public Assembly	1.4			\$42,000
Educational	0.6			\$8,000
Institutional	0.7			\$5,000
Stores and offices	2.1			\$70,000
Industry, utilities, and defense	1.0			\$73,000
Storage	3.0			\$79,000
Special structure	2.7			\$16,000
All non residential	11.5	0.2	4.1	\$292,000
All structures	55.7	7.8	38.6	\$1,087,000
Vehicles	21.5	0.9	2.9	\$159,000
Out and other (not structure or vehicle)	64.4	0.2	2.2	\$69,000
All fires	141.6 (or 2.4 per minute, or one every 25 seconds)	8.9 (or one every 162 minutes)	43.6 (or every 33 minutes)	\$1,316,000 (or \$22,000 per minute, or 365 per second)

<sup>1</sup>Homes 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 2013*, Michael J. Karter, Jr., NFPA, September 2014.