FIRE LOSS IN THE UNITED STATES DURING 2010

Michael J. Karter, Jr.

September 2011

National Fire Protection Association
Fire Analysis and Research Division

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Abstract
U.S. fire departments responded to an estimated 1,331,500 fires. These fires resulted in 3,120 civilian fire fatalities, 17,720 civilian fire injuries and an estimated $11,593,000,000 in direct property loss. There was a civilian fire death every 169 minutes and a civilian fire injury every 30 minutes in 2010. Home fires caused 2,640, or 85%, of the civilian fire deaths. Fires accounted for five percent of the 28,205,000 total calls. Eight percent of the calls were false alarms; sixty-six 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
The NFPA gratefully thanks the many fire departments that responded to the 2010 National Fire Experience Survey for their continuing efforts for providing us in a timely manner the data so necessary to make national projections.

The survey project manager and author of the report gratefully thanks the many members of NFPA staff who worked on this year's survey including Frank Deely, John Baldi, and John Conlon for editing the survey forms and their follow-up calls to fire departments; and Norma Candeloro for handling the processing of survey forms and typing this report.

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Overview of 2010 U.S. Fire Experience

Number of Fires

- 1,331,500 fires were attended by public fire departments, a slight decrease of 1.3% from the year before.
- 482,000 fires occurred in structures, a very slight increase of 0.3%.
- 384,000 fires or 80% of all structure fires occurred in residential properties.
- 215,500 fires occurred in vehicles, a decrease of 1.6% from the year before.
- 634,000 fires occurred in outside properties, a decrease of 2.3%.
- What do these fire frequencies above mean? Every 24 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 residential fire occurs every 82 seconds. Fires occur in vehicles at the rate of 1 every 146 seconds, and there's a fire in an outside property every 50 seconds.

Civilian Fire Deaths

- 3,120 civilian fire deaths occurred in 2010, an increase of 3.7%.
- About 85% of all fire deaths occurred in the home.
- 2,640 civilian fire deaths occurred in the home (1-and-2 family dwelling homes and apartments), an increase of 2.9%.
- 285 civilians died in highway vehicle fires.
- 90 civilians died in nonresidential structure fires.
- Nationwide, there was a civilian fire death every 169 minutes.

Civilian Fire Injuries

- 17,720 civilian fire injuries occurred in 2010, an increase of 3.9%. This estimate for civilian injuries is on the low side, because many civilian injuries are not reported to the fire service.
- 13,800 of all civilian injuries occurred in residential properties, while 1,620 occurred in nonresidential structure fires.
- Nationwide, there was a civilian fire injury every 30 minutes.

Property Damage

- An estimated $11.6 billion in property damage occurred as a result of fire in 2010, a decrease of 7.5% from last year.
- $9.7 billion of property damage occurred in structure fires.
- $7.1 billion of property loss occurred in residential properties.

Intentionally Set Fires

- An estimated 27,500 intentionally set structure fires occurred in 2010, an increase of 3.8%.
- Intentionally set fires in structures resulted in 200 civilian deaths, an increase of 17.7%.
- Intentionally set structure fires also resulted in $585,000,000 in property loss, a decrease of 14.5%.
- 14,000 intentionally set vehicle fires occurred, a decrease of 6.7% from a year ago, and caused $89,000,000 in property damage, a decrease of 17.6% from a year ago.

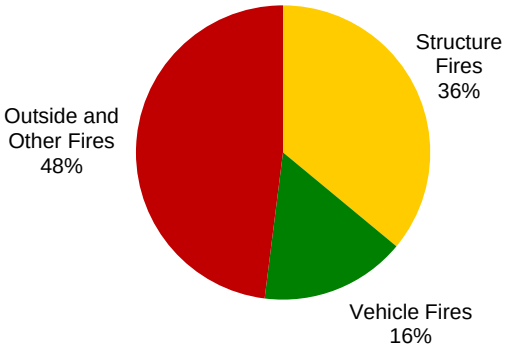
List of Tables and Figures

Fires in the United States During 2010

1,331,500 fires were reported in the U.S. during 2010.

- down **1%** from 2009
- **3,120** civilian fire deaths
- On civilian death occurred every two hours and 49 minutes
- **17,720** civilian fire injuries
- One civilian injury occurred every 30 minutes
- **$11.6 billion** in property damage
- A fire department responded to a fire every 24 seconds

Fires in the United States During 2010



482,000 structure fires occurred in the U.S. during 2010.

- Less than 1% increase from 2009
- **2,755** civilian fire deaths
- **15,420** civilian fire injuries
- **$9.7 billion** in property damage
- One structure fire was reported every 65 seconds

215,500 vehicle fires occurred in the U.S. during 2010.

- down **1%** from 2009
- **310** civilian fire deaths
- **1,590** civilian fire injuries
- **$1.4 billion** in property damage
- One vehicle fire was reported every 146 seconds

634,000 outside and other fires occurred in the U.S. during 2010.

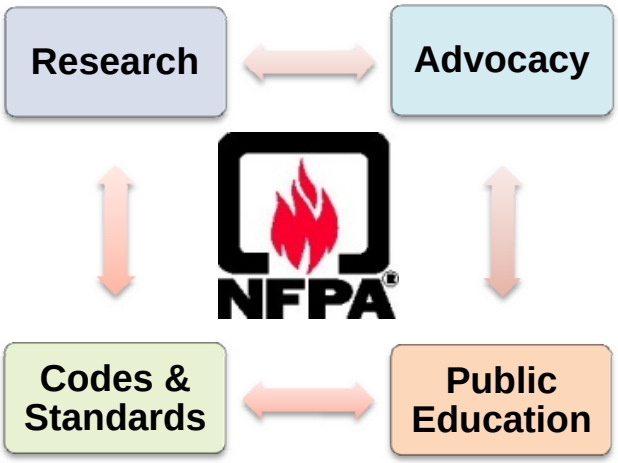
- down **2%** from 2009
- **55** civilian fire deaths
- **710** civilian fire injuries
- **$501 million** in property damage
- One outside fire was reported every 50 seconds

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

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



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

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

In 2010, public fire departments responded to 1,331,500 fires in the United States, according to estimates based on data the NFPA received from fire departments responding to its 2010 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 slight decrease of 1.3% from last year, and is the lowest since the NFPA started using its current survey methodology in 1977-78[1].

There was an estimated 482,000 structure fires reported to fire departments in 2010, a very slight increase of 0.3%, or virtually no change from a year ago. For the 1977-2010 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 the slight increase in 2010.

Fire incident rates by community size were examined for the 2006-2010 period (see Figure 2). The smallest communities (populations less than 2,500) had the highest rate with 11.7 which was more than twice the average national rate.

Of the structure fires, 384,000 were residential fires, accounting for 79.7% of all structure fires, and a slight increase of 1.9% from a year ago. Of the residential structure fires, 279,000 occurred in one- and two-family homes, accounting for 57.9% of all structure fires. Another 90,500 occurred in apartments accounting for 18.8% of all structure fires.

For nonresidential structure fires, some property types showed notable changes: a decrease of 17.2% to 12,000 in public assembly properties, an increase of 9.1% to 18,000 in stores and offices, and a decrease of 11.1% to 20,000 in special structure properties.

There were an estimated 184,500 highway vehicle fires in 2010, a decrease of 3.2% and 31,000 other vehicle fires, an increase of 8.8%.

For the 1977-2009 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 2010 Fires, Civilian Deaths, Civilian Injuries and Property Loss in the United States

	Estimate	Range[1]	Percent Change From 2009
Number of Fires	1,331,500	1,311,500 to 1,351,500	-1.3
Number of Civilian Deaths	3,120	2,810 to 3,430	+3.7
Number of Civilian Injuries	17,720	16,820 to 18,620	+3.9
Property Loss[2]	$11,593,000,000	$11,283,000,000 to 11,903,000,000	-7.5**

The estimates are based on data reported to the NFPA by fire departments that responded to the 2010 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.

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

Table 2
Estimates of 2010 Fires and
Property Loss by Property Use

Type of Fire	Number of Fires: Estimate	Number of Fires: Percent Change from 2009	Property Loss[1]: Estimate	Property Loss[1]: Percent Change from 2009
Fires in Structures	482,000	+0.3	$9,716,000,000	-10.4**
Fires in Highway Vehicles	184,500	-3.2	987,000,000	-6.4
Fires in Other Vehicles[2]	31,000	+8.8	389,000,000	+26.7*
Fires Outside of structures with value involved but no vehicle (outside storage, crops, timber, etc.)	72,500	+5.1	413,000,000	+62.6**
Fires in Brush, Grass Wildland (excluding crops and timber) with no value or loss involved	304,000	-0.7	—	—
Fires in Rubbish including dumpsters (outside of structures), with no value or loss involved	173,000	+1.2	—	—
All Other Fires	84,500	-18.0**	88,000,000	+18.9
Total	1,331,500	-1.3	$11,593,000,000	-7.5**

The estimates are based on data reported to the NFPA by fire departments that responded to the 2010 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 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 2010 Structure Fires and
Property Loss by Property Use

Property Use	Structure Fires		Property Loss[1]	
	Estimate	Percent Change from 2009	Estimate	Percent Change from 2009
Public Assembly	12,000	-17.2**	$421,000,000	-44.4**
Educational	5,500	0	76,000,000	-8.4
Institutional	5,500	0	37,000,000	+15.6
Residential (Total)	384,000	+1.9	7,079,000,000	-9.2**
One- and Two-Family Homes[2]	279,000	+2.4	5,895,000,000	-7
Apartments	90,500	+0.6	1,033,000,000	-15
Other Residential[3]	14,500	0	151,000,000	-16
Stores and Offices	18,000	+9.1	730,000,000	+2.4
Industry, Utility, Defense[4]	9,000	-5.3	515,000,000	-10.0
Storage in Structures	28,000	-5.1	756,000,000	-4.4
Special Structures	20,000	-11.1	102,000,000	+4.1
Total	482,000	+0.3	$9,716,000,000	-10.4**

The estimates are based on data reported to the NFPA by fire departments that responded to the 2010 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.

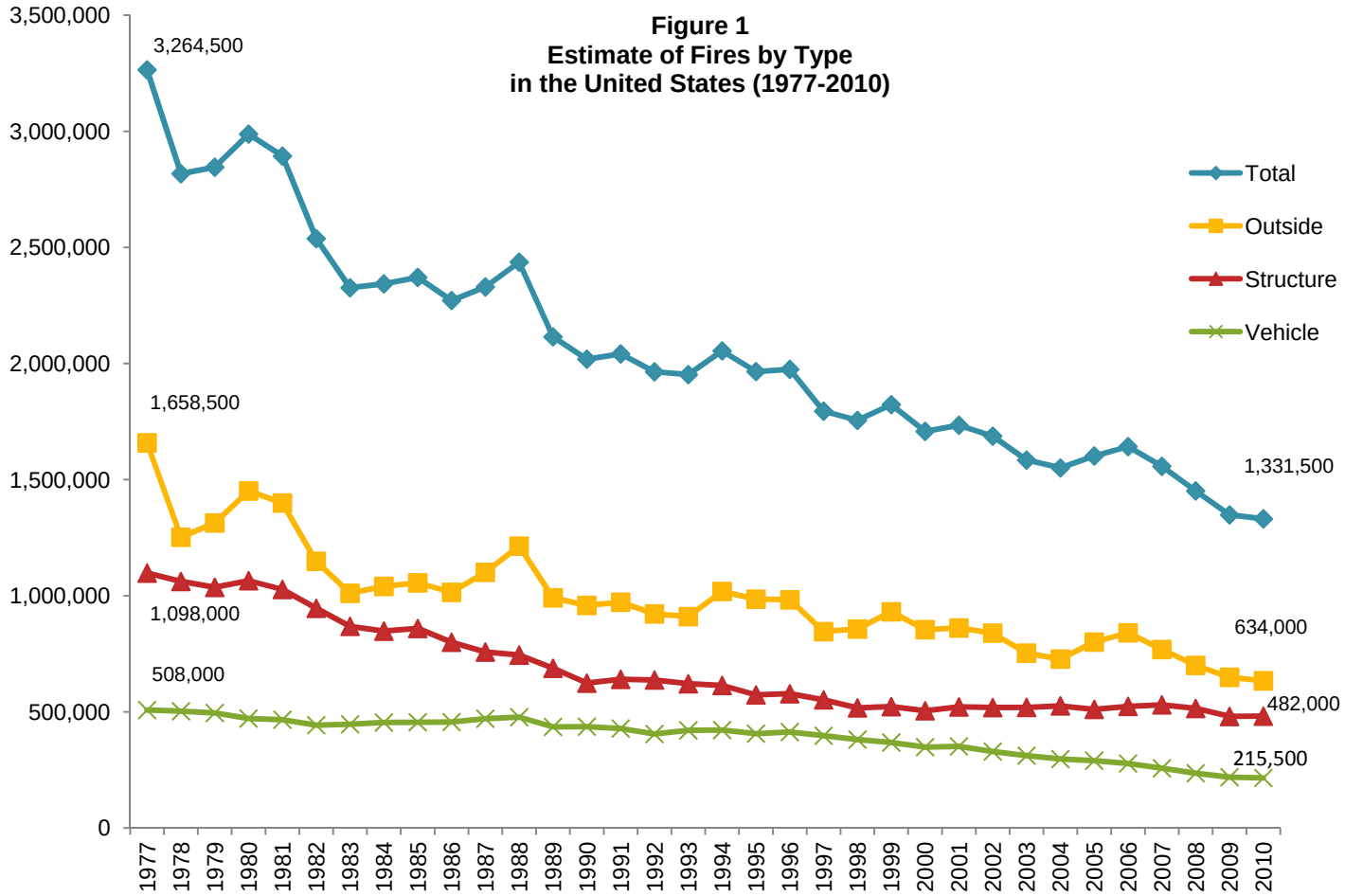
[2] This includes manufactured homes.

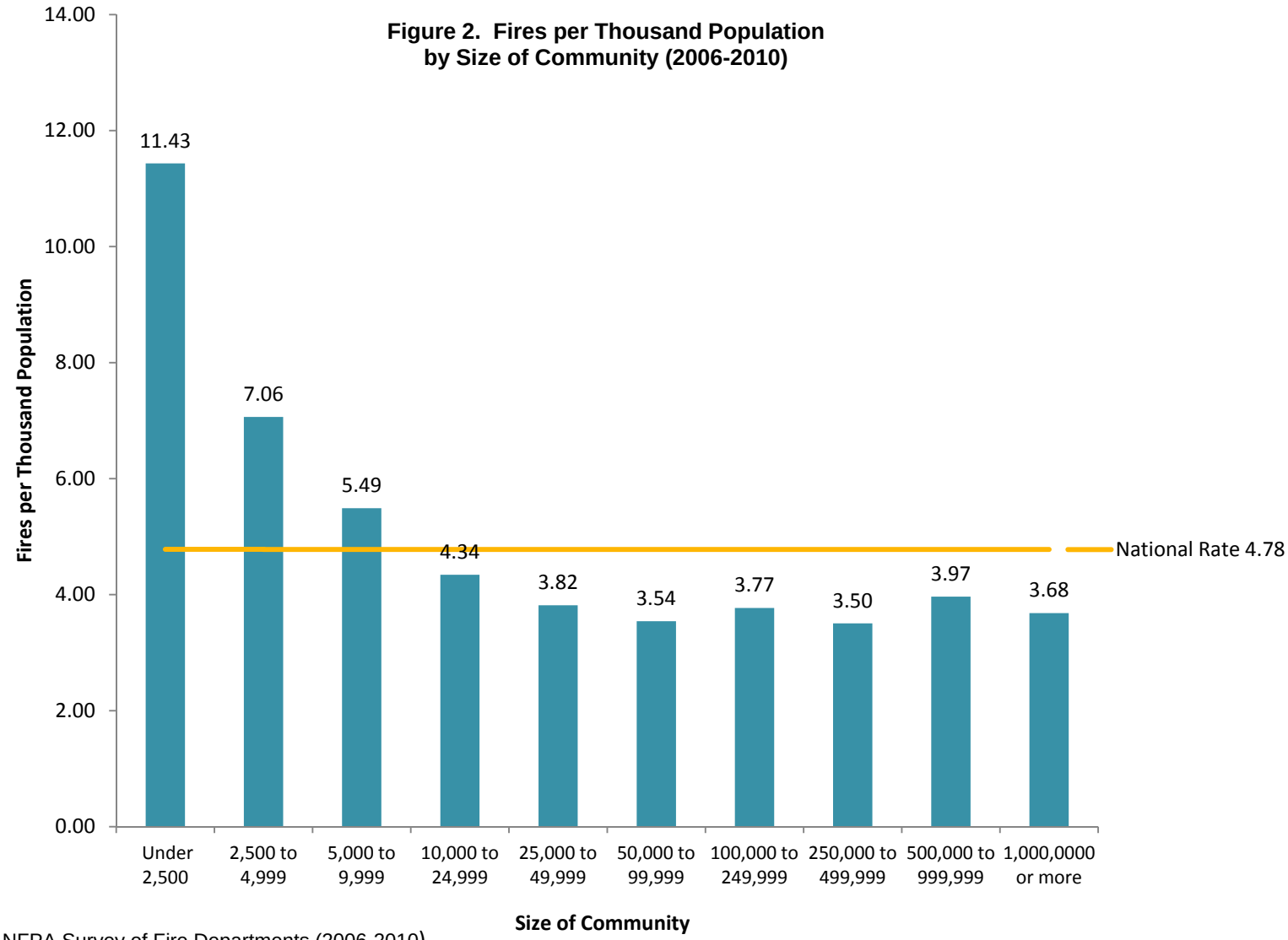
[3] Includes hotels and motels, college dormitories, boarding houses, etc.

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

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

Figure 1
Estimate of Fires by Type
in the United States (1977-2010)





Source: NFPA Survey of Fire Departments (2006-2010)

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.

Of the outside fires, there were an estimated 304,000 brush, grass and wildland fires in 2010, a very slight decrease of 0.7%, while an estimated 173,000 rubbish fires occurred, a very slight increase of 1.2%, or virtually no change from a year ago.

Civilian Fire Deaths

The 1,331,500 fires reported by fire departments in the U.S. in 2010, resulted in an estimated 3,120 civilian deaths based on data reported to the NFPA. This is an increase of 3.7% from a year ago. The nature of the increase is better understood when results are examined by property type.

An estimated 2,665 civilians died in residential fires in 2010, an increase of 2.9%. Of these deaths, 440 occurred in apartment fires. Another 2,200 died in one- and two-family homes, an increase of 4.8%.

In all, fires in the home (one- and two-family homes including manufactured homes and apartments) resulted in 2,640 civilian deaths, an increase of 2.9% from a year ago. Looking at trends in civilian deaths since 1977-78[1], several observations are worth noting (see Figure 3). 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 2,550 to 3,200 area since 2001.

Overall for the 1977-2010 period, the number of home fire deaths decreased from 5,865 in 1977 to 2,640 in 2010 for a decrease of 55%. 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[2]. In fact, the death rate per 1,000 home fires was 8.1 in 1977 and 7.1 in 2010 for a decrease of 12%. 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.

With home fire deaths still accounting for 2,640 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 must use 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, and the poor need to be addressed.[3,4]

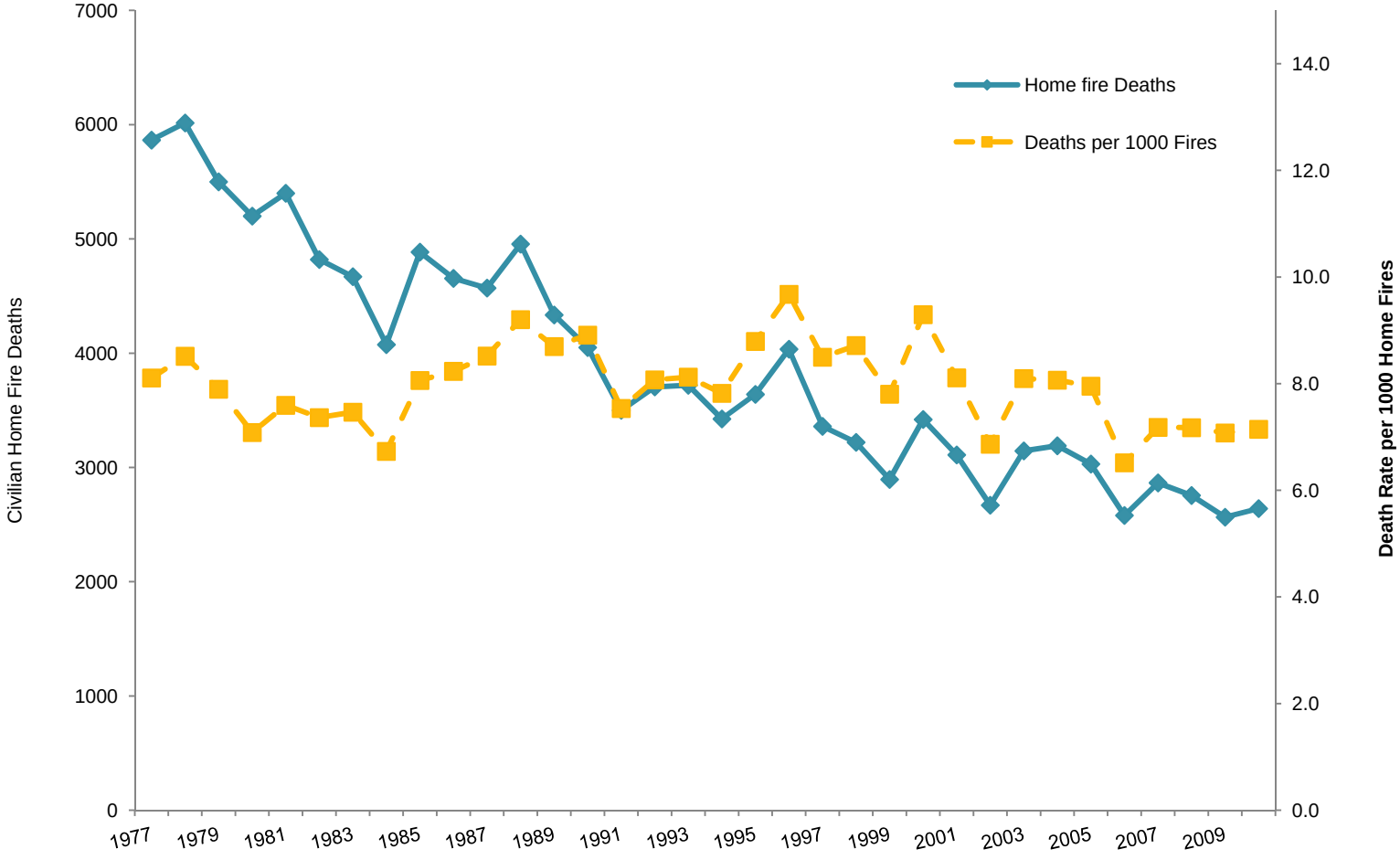
Also in 2010, 90 civilians that died in nonresidential structure fires, a decrease of 14.3%.

Civilian fire death rates per million people by community size were examined (Figure 4). The smallest communities (populations less than 2,500) had the highest rate with 10.8, which was almost twice the national average rate.

Of the 2,755 civilians that died in structure fires, 200 or 7.3% died in fires that were intentionally set.

Also in 2010, an estimated 285 civilians died in highway vehicle fires, an increase of 9.6%.

Figure 3. Civilian Home Fire Deaths and Rates per 1000 Fires, 1977-2010



Source: NFPA Surve of Fire Departments (1977-2010)

Table 4
Estimates of 2010 Civilian Fire Deaths and Injuries by Property Use

	Civilian Deaths			Civilian Injuries		
Property Use	**Estimate**	**Percent Change From 2009**	**Percent of all Civilian Deaths**	**Estimate**	**Percent Change From 2009**	**Percent of all Civilian Injuries**
Residential (total)	2,665	+2.9	85.4	13,800	+5.8	77.9
One-and-Two-Family Homes[1]	2,200	+4.8	70.5	9,400	+1.1	53.1
Apartments	440	-5.4	14.1	3,950	+17.9*	22.3
Other Residential[2]	25	0	0.8	450	+12.5	2.5
Non-residential Structures[3]	90	-14.3	2.9	1,620	-4.1	9.1
Highway Vehicles	285	+9.6	9.1	1,440	-1.0	8.1
Other Vehicles[4]	25	+25.0	0.8	150	-3.2	0.9
All Other[5]	55	+57.1	1.8	710	+1.4	4.0
Total	3,120	+3.7		17,720	+3.9	

Estimates are based on data reported to the NFPA by fire departments that responded to the 2010 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.

[1] This includes manufactured homes.

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

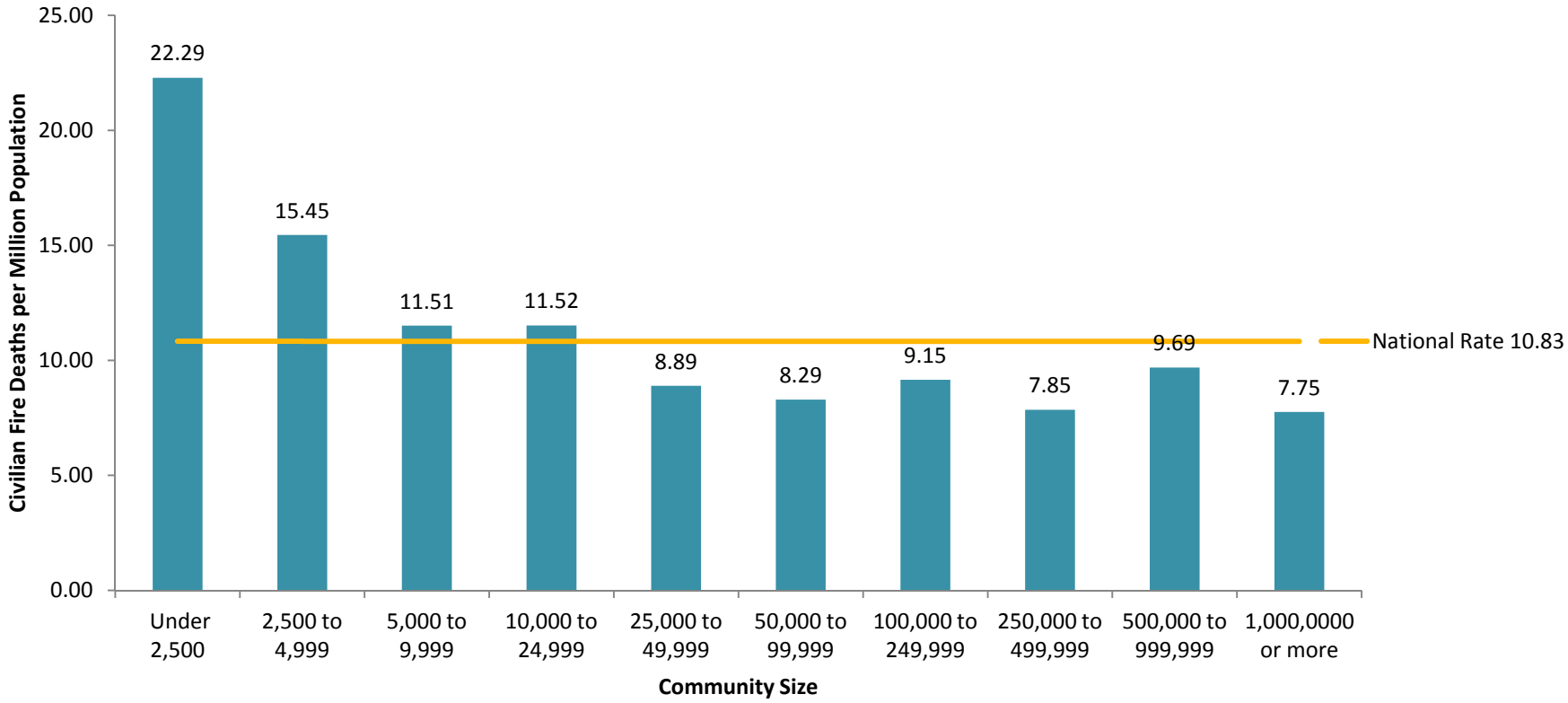
[3] This includes public assembly, educational, institutional, store and office, industry, utility, storage, and special structure properties.

[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 at the .05 level.

Figure 4. Civilian Fire Deaths per Million Population by Community Size (2006-2010)



Source: NFPA Survey of Fire Departments (2006-2010)

Civilian Fire Injuries

Results based on data reported to the NFPA indicate that in addition to 3,120 civilian fire deaths, there were an estimated 17,720 civilian fire injuries in 2010. This represents an increase of 3.9% from a year ago, and is the highest since 2005 when 17,925 injuries occurred.

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 13,800 civilians injured in residential properties, an increase of 5.8%. Of these injuries 9,400 occurred in one- and two-family homes, and 3,950 occurred in apartments. There were also 1,620 civilians injured in nonresidential structures in 2010.

For the 1977-2010 period, the number of civilian injuries has ranged from a high of 31, 275 in 1983 to a low of 16,400 in 2006 for an overall decrease of 48%. There was no consistent pattern going up or down until 1995, when injuries fell roughtly 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.

Property Loss

The NFPA estimates that the 1,331,500 fires responded to by the fire service caused $11,593,000,000 in property damage in 2010. This is a highly significant decrease of 7.5%.

Fires in structures resulted in $9,716,000,000, in property damage, a significant decrease of 10.4%. Average loss per structure fire was $20,158, a significant decrease of 10.6%.

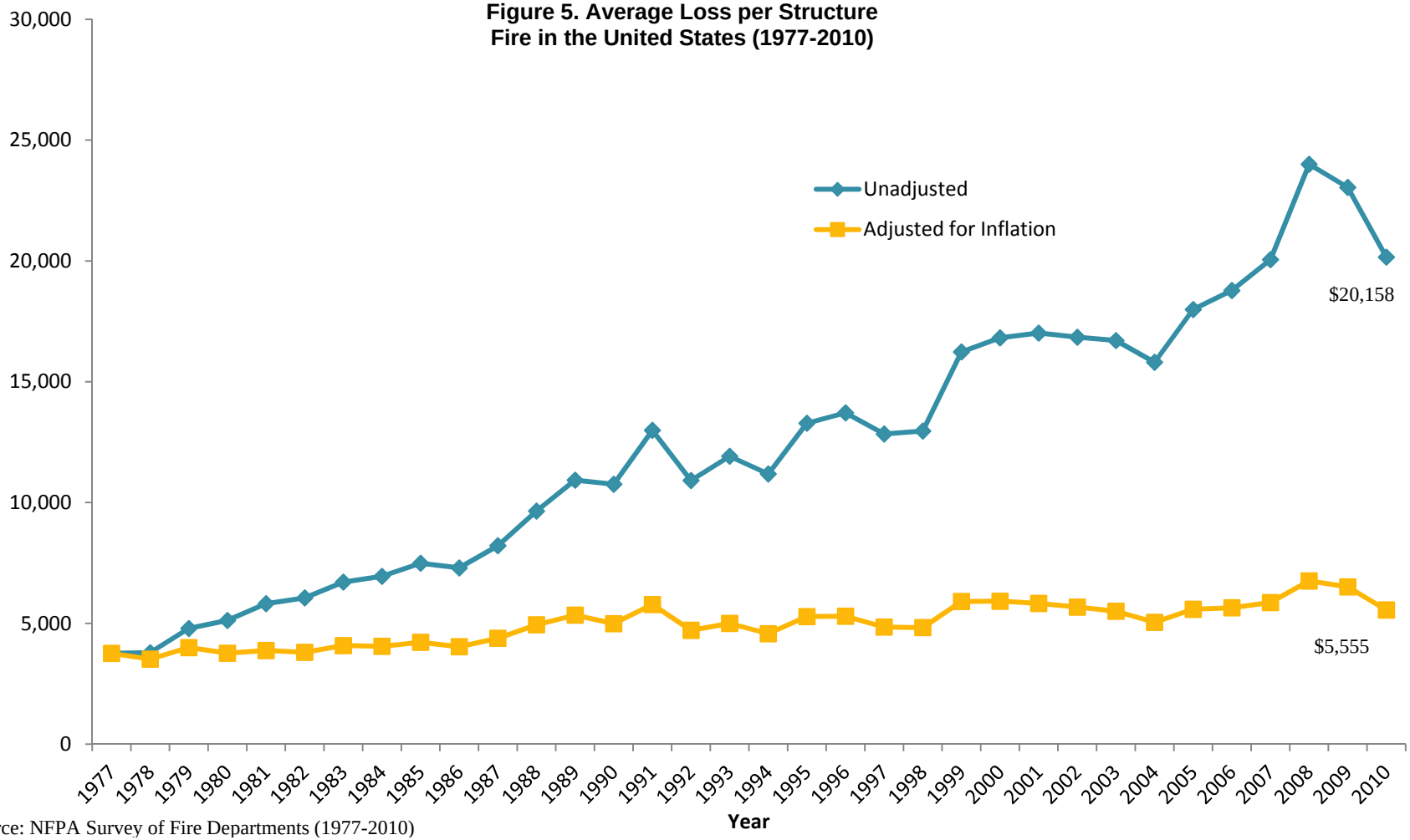
Over the 1977-2010 period, and excluding the events of 9/11/01, the average loss per structure fire was $3,757 in 1977 and $20,158 in 2010 for an overall increase of 436%. When property loss is adjusted for inflation, the increase in the average structure fire loss between 1977 and 2010 is 48%.

Of the property loss in structures, $7,079,000,000 occurred in residential properties, a decrease of 9.2%. An estimated $5,895,000,000 occurred in one- and two-family homes, a decrease of 7.8%. An estimated $1,033,000,000 also occurred in apartments.

Other property damage figures worth noting for 2010 include: $421,000,000 in public assembly properties, a significant decrease of 44.4% (this decrease reflects a s009 casino fire that resulted in $340,000,000 in property loss); $515,000,000 in industrial properties, a decrease of 10.0%; $389,000,000 in fires outside of a structure with value involved, a significant increase of 27.6% (this increase reflects the Fourmile Canyon Wildfire in Colorado with an estimated property loss of $217,000,000).

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 (1977-2010)



Source: NFPA Survey of Fire Departments (1977-2010)

Intentionally Set Fires

Based on data reported by fire departments in the survey, the NFPA estimates there were 27,500 intentionally set structure fires in 2010, an increase of 3.8% from a year ago (see Table 5). (Note 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.)

These intentionally set structure fires resulted in an estimated 200 civilian deaths, an increase of 17.7%. These set structure fires also resulted in $585,000,000 in property loss, a decrease of 14.5%.

Also in 2010, there were an estimated 14,000 intentionally set vehicle fires, a decrease of 6.7% from a year ago. These set vehicle fires resulted in $89,000,000 in property loss, a decrease of 17.6% from a year ago.

Table 5
Estimate of 2010 Losses in
Intentionally Set Structure Fires

Intentionally[2] Set Structure Fires	Estimate	Percent change from 2008
Number of Structure Fires	27,500	+3.8
Civilian Deaths	200	+17.7
Property Loss[1]	$585,000,000	-14.5

The estimates are based on data reported to the NFPA by fire departments that responded to the 2010 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]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.

Region

Fire loss rates nationwide and by region can be seen in Table 6. The Midwest and the South with 4.9 fires per thousand people had the highest fire incident rates..

The South (13.0) and the Midwest (12.6) had the highest civilian death rate per million population. In recent years, the Midwest and the South have had the highest fire incident and civilian death rates.

The Northeast (76.6) and the Midwest (71.1) had the highest civilian injury rates per million population.

The Midwest with $46.0 property loss per capita had the highest property loss rate.

Fire incident rates by region and community size are shown in Table 8. The Northeast had the highest rate for communities of 500,000 or more, the Midwest had the highest rate for communities of 250,000 to 499,999, and the South had the highest rates for communities of 10,000 to 99,999, and smaller communities (population of less than 10,000)..

Civilian fire deaths per million population by region and community size are shown in Table 9. The Midwest had the highest rate for communities of 100,000 to 499,999 and the smallest communities (population of less then 5,000 population), the West had the highest rate for communities of 5,000 to 9,999, and the South had the highest rates for communities of 10,000 to 99,999.

Civilian fire injuries per million population by region and community size are shown in Table 9. The West had the highest rates for communities of 500,000 or more (though only the South and the West had sufficient data for this community size), and the South had the highest rate for communities of 100,000 to 249,999. The Midwest had the highest rates for communities of 250,000 to 499,999, communities of 10,000 to 24,999, and communities less than 2,500 population, and the Northeast had the highest rates for communities of 25,000 to 99,999, and communities of 2,500 to 9,999.

Property loss per capita by region and community size are shown in Table 10. The South had the highest rates for most community sizes, and the West had the highest rate for communities of 25,000 to 49,999.

Table 6
Fire Loss Rates Nationwide and by Region, 2010

Region	Number of Fires per Thousand Population	Civilian Deaths per Million Population	Civilian Injuries per Million Population	Property Loss per Capita
Nationwide	4.3	10.1	57.3	$37.5
Northeast	4.4	6.8	76.6	31.2
Midwest	4.9	12.6	71.1	46.0
South	4.9	13.0	51.6	38.7
West	2.7	5.7	38.8	32.5

Source: NFPA's; Survey of Fire Departments for 2010 U.S. Fire Experience.

Table 7
2010 Fires per Thousand Population

Population of Community	All Regions	Northeast	Midwest	South	West
500,000 or more	3.4	5.4	*	3.4	2.2
250,000 to 499,999	3.1	*	4.3	3.2	2.0
100,000 to 249,999	3.4	5.4	3.6	4.1	2.1
50,000 to 99,999	3.3	3.8	2.8	4.3	2.3
25,000 to 49,999	3.4	3.9	2.8	4.4	3.0
10,000 to 24,999	4.0	3.7	3.4	5.8	3.2
5,000 to 9,999	5.0	4.3	4.3	7.0	4.6
2,500 to 4,999	6.6	5.6	5.8	9.5	5.8
under 2,500	10.3	7.6	8.9	15.6	9.8

Source: NFPA's Survey of Fire Departments for 2010 U.S. Fire Experience.

*Insufficient data

Table 8
2010 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	8.1	8.8	*	10.5	4.3
250,000 to 499,999	5.8	*	13.3	4.4	2.8
100,000 to 249,999	8.5	5.7	14.7	9.5	4.4
50,000 to 99,999	7.2	5.9	8.1	9.9	2.8
25,000 to 49,999	7.9	8.2	8.5	11.5	7.7
10,000 to 24,999	10.8	8.3	9.7	17.3	4.4
5,000 to 9,999	9.4	11.1	4.5	13.9	14.5
2,500 to 4,999	13.5	5.2	17.9	11.9	9.5
under 2,500	14.6	*	18.4	17.4	12.8

Source: NFPA's Survey of Fire Departments for 2010 U.S. Fire Experience

*Insufficient data

Table 9
2010 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	51.5	*	*	40.6	44.8
250,000 to 499,999	46.2	*	82.7	46.6	31.2
100,000 to 249,999	63.5	*	72.0	81.6	34.3
50,000 to 99,999	64.1	119.8	62.2	69.9	37.7
25,000 to 49,999	65.0	78.1	65.1	70.5	43.8
10,000 to 24,999	61.7	57.9	65.5	59.9	55.0
5,000 to 9,999	36.9	43.0	39.0	31.8	29.1
2,500 to 4,999	40.5	57.6	34.4	34.6	56.7
under 2,500	52.1	25.0	76.5	40.8	*

Source: NFPA's Survey of Fire Departments for 2010 U.S. Fire Experience.

*Insufficient data

Table 10
2010 Property Loss per Person
by Region and Size of Community

Population of Community	All Regions	Northeast	Midwest	South	West
500,000 or more	$25.9	*	*	$29.6	$21.6
250,000 to 499,999	29.6	*	$26.5	34.1	24.8
100,000 to 249,999	30.0	*	29.3	34.2	24.8
50,000 to 99,999	28.0	24.4	26.3	31.4	26.2
25,000 to 49,999	33.0	28.0	31.5	34.7	37.5
10,000 to 24,999	42.4	43.3	38.2	51.2	38.6
5,000 to 9,999	51.7	41.7	50.5	63.5	48.4
2,500 to 4,999	70.4	69.7	71.5	75.9	53.4
under 2,500	100.0	86.1	107.6	114.6	73.8

Source: NFPA's Survey of Fire Departments for 2010 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 2010 Fire Experience by Size of Community

Population of Community	Total Fires	Structure Fires	Civilian Deaths	Civilian Injuries	Property Loss
1,000,000 or more	4,585	1,657	13.71	128.43	$41,168,300
500,000 to 999,999	2,579	1,121	6.83	33.21	22,627,200
250,000 to 499,999	1,053	395	1.97	15.90	12,097,100
100,000 to 249,999	503	192	1.26	9.81	4,600,000
50,000 to 99,999	222	85	0.49	4.34	1,922,500
25,000 to 49,999	119	46	0.28	2.26	1,160,700
10,000 to 24,999	63	24	0.17	0.96	662,000
5,000 to 9,999	36	13	0.09	0.27	396,500
2,500 to 4,999	22	7	0.06	0.14	285,000
under 2,500	11	3	0.02	0.07	108,400

Source: NFPA's Survey of Fire Departments for 2010 U.S. Fire Experience

Table 12
Average 2010 Residential Fire Experience by Size of Community

Population of Community	Number of Fires	Civilian Deaths	Civilian Injuries	Property Loss
1,000,000 or more	1,257	10.57	90.71	$22,788,600
500,000 to 999,999	890	5.23	26.52	14,221,400
250,000 to 499,999	320	1.67	13.24	6,460,800
100,000 to 249,999	158	1.11	7.94	2,903,100
50,000 to 99,999	69	0.41	3.45	1,159,500
25,000 to 49,999	38	0.26	1.90	686,200
10,000 to 24,999	19	0.15	0.80	394,800
5,000 to 9,999	11	0.08	0.23	239,100
2,500 to 4,999	5	0.05	0.08	142,400
under 2,500	2	0.02	0.04	54,200

Source: NFPA's Survey of Fire Departments for 2010 U.S. Fire Experience

Table 13
Fire Department Responses by Type of Call, 2010

	Number	Percent Change From 2009
Fire Incidents	1,331,500	-1.3
Medical Aid Responses (Ambulance, EMS, Rescue)	18,522,000	+8.3
False Alarms	2,187,000	+0.5
Mutual Aid or Assistance Calls	1,189,500	-8.2
Hazardous Material Responses (Spills, Leaks, etc.)	402,000	+1.3
Other Hazardous Responses (arcing wires, bomb removal etc.)	660,000	+5.5
All Other Responses (smoke scares, lock-outs, (etc.)	3,913,000	+9.1
Total Incidents	28,205,000	+6.3

The percent of fires and non-fire incidents by community size is shown in Table 14.

A further breakdown on false responses was collected on the 2010 surveys and the results can be seen in Table 15.

Table 14
Percent of Fires and Non-fire Incidents by Community size, 2009-2010

	Community Size									
	1,000,000 or more	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	less than 2,500
Fire Incidents	2.4%	3.1%	3.1%	3.3%	3.5%	4.0%	5.0%	7.0%	10.7%	15.5%
Medical Aid Responses	73.8%	70.4%	70.1%	67.7%	67.7%	64.0%	61.1%	55.6%	54.2%	52.6%
False Alarms	9.9%	6.7%	6.8%	7.4%	8.5%	9.6%	9.1%	9.6%	6.6%	7.1%
Mutual Aid Responses	1.0%	1.7%	2.1%	2.3%	2.2%	4.1%	6.3%	10.4%	13.3%	13.9%
Hazardous Material Responses	0.5%	0.9%	1.0%	1.2%	1.4%	1.8%	1.9%	2.0%	1.3%	1.0%
Other Hazardous Responses	1.1%	1.4%	2.1%	1.8%	2.3%	2.6%	3.0%	3.2%	3.3%	2.8%
All Other Responses	11.1%	15.6%	16.4%	16.4%	15.0%	13.6%	13.1%	12.7%	9.6%	7.3%
	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, 2009-2010.

Table 15
Estimates of False Alarms by Type, 2010

	Estimate	Percent Change From 2009	Percent of All False Alarms
Malicious, Mischievous False Call	163,000	-10.9	7.5
System Malfunction	708,500	+1.5	32.4
Unintentional Call	992,000	+1.3	45.3
Other False Alarms (Bomb Scares, etc.)	323,500	+2.2	14.8
Total	2,187,000	+0.4	

Source: NFPA's Survey of Fire Departments for 2010 U.S. Fire Experience

SURVEY METHODOLOGY

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 2010 Fire Experience. This section explains the major steps in conducting the 2010 survey.

Sample Selection

The NFPA currently has 30,170 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 2010 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, 0000 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 800 departments in the five highest strata protect 147,989,000.

For the remaining five population strata, assuming response rates similar to the past two years for the five highest strata, a total sample of 2,640 was indicated. Sample sizes for individual strata were calculated using a methodology that assured optimum sample allocations[6]. Based on the average variation in civilian deaths in one- and two-family dwellings by stratum for the last two 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 18,861 was found to be necessary to obtain the desired total response of 3,000 fire departments. For all strata, were a sample was necessary, departments were randomly selected.

Data Collection

The fire departments selected for the survey were sent the 2010 NFPA Fire Experience Questionnaire during the 2nd week of January 2011. A second mailing was sent in mid-March to fire departments that had not responded to the first mailing. A total of 2,650 departments responded to the questionnaire 2,182 to the first mailing and 468 to the second.

Table 14 shows the number of departments that responded by region and size of community. The overall response rate was 14%, although response rates were considerably higher for departments protecting larger communities than they were for departments protecting smaller communities. The 2,650 departments that did respond protect 112,153,200 people or 36% 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[7], 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 were 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

Table 16
Number of Fire Departments Responding to 2010 NFPA Survey, by Region and Community Size

Population of Community	All Regions	Northeast	Midwest	South	West
1,000,000 or more	9	2	0	4	3
500,000 to 999,999	30	1	2	15	12
250,000 to 499,999	35	1	6	18	10
100,000 to 249,999	111	4	19	54	34
50,000 to 99,999	203	19	67	68	49
25,000 49,999	305	38	133	88	46
10,000 to 24,999	534	90	256	128	60
5,000 to 9,999	361	76	153	94	38
2,500 to 4,999	335	57	170	76	32
Under 2,500	727	99	369	154	105
Total	2,650	387	1,175	699	389

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[6]. 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 (1.5%), number of civilian deaths (10.0%), number of civilian injuries (5.1%), and property loss (2.7%).

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 2010, for instance, property damage in industrial properties was estimated to be $515,000,000. This represented a decrease of 10.0% from the year before, but was found not to be statistically significant.

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

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, 157 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 rates were similar for fires, the respondent rate was 49% higher for civilian deaths, and the nonrespondent rate was 37% higher for property loss (None of these results were statistically significant).

For communities of 50,000 to 99,999, the respondent rate was 10% higher for fires, while the nonrespondent rate was 18% higher for civilian deaths, and 34% higher for property loss. (None of these results were statistically significant).

For communities of 25,000 to 49,999, the nonrespondent rate was 21% higher for fires, and 58% higher for civilian deaths while the respondent rate was 22% higher for property loss. (None of these results were statistically significant).

For communities of 10,000 to 24,999, the nonrespondent rate was 19% higher for fires, while the respondent rate was 122% higher for civilian deaths, and 10% higher for property loss. (Only the civilian death result was statistically significant).

For communities of 5,000 to 9,999, the nonrespondent rate was 26% higher for fires, 48% higher for civilian deaths, and 9% higher for property loss. (None of these results were statistically significant).

Table 17
A Comparison of Respondents and Nonrespondents*
to the 2010 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	109	3.4	18	3.6	109	8.5	18	5.7	81	30.0	16	41.2
50,000 to 99,999	195	3.3	29	3.0	197	7.2	28	8.5	124	28.0	20	37.5
25,000 to 49,999	281	3.4	40	4.1	300	7.9	40	12.5	165	33.0	29	26.9
10,000 to 24,999	503	4.0	39	4.8	531	10.8	35	4.9	272	42.4	29	38.6
5,000 to 9,999	343	5.0	18	6.3	359	12.0	16	17.7	168	51.7	8	56.5

*Some departments did not return the questionnaire. A sample of these nonrespondents was contacted by telephone and questioned about their 2010 fire experience.

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

ns – Data not sufficient.

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. Note that the NFPA changed its survey methodology in 1977-78, and meaningful comparisons cannot be made with fire statistics estimated before 1977.

2. The downward trend of home fire deaths for the period was examined by a Spearman's rho correlation coefficient and was found to be statistically significant at the .001 level, while for the death rate per 1,000 home fires, there was no statistically significant trend found.

3. John R. Hall, Jr., Characteristics of Home Fire Victims Including Age and Sex, July 2005, 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.

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. Steve K. Thompson, *Sampling*, John Wiley, New York, NY, 1992, pp. 107-111.

7. William G. Cochran, *Sampling Techniques*, John Wiley, New York, NY, 1977, pp. 150-161.

Appendix A. Fire Loss in the United States Trend Tables, 1977-2010

The U.S. Fire Problem, 1977-2010

Year	Fires	Civilian Deaths	Civilian Injuries	Direct Property Damage (in Billions) As Reported	Direct Property Damage (in Billions) In 2010 Dollars
1977	3,264,000	7,395	31,190	$4.7	$16.9
1978	2,817,500	7,710	29,825	$4.5	$15.0
1979	2,845,500	7,575	31,325	$5.8	$17.3
1980	2,988,000	6,505	30,200	$6.3	$16.6
1981	2,893,500	6,700	30,450	$6.7	$16.0
1982	2,538,000	6,020	30,525	$6.4	$14.5
1983	2,326,500	5,920	31,275	$6.6	$14.4
1984	2,343,000	5,240	28,125	$6.7	$14.0
1985	2,371,000	6,185	28,425	$7.3	$14.8
1986	2,271,500	5,850	26,825	$6.7	$13.3
1987	2,330,000	5,810	28,215	$7.2	$13.7
1988	2,436,500	6,215	30,800	$8.4	$15.4
1989	2,115,000	5,410	28,250	$8.7	$15.2
1990	2,019,000	5,195	28,600	$7.8	$13.0
1991	2,041,500	4,465	29,375	$9.5[1]	$15.1[1]
1992	1,964,500	4,730	28,700	$8.3	$12.9
1993	1,952,500	4,635	30,475	$8.5[2]	$12.9[2]
1994	2,054,500	4,275	27,250	$8.2	$12.0
1995	1,965,500	4,585	25,775	$8.9	$12.7
1996	1,975,000	4,990	25,550	$9.4	$13.1
1997	1,795,000	4,050	23,750	$8.5	$11.6
1998	1,755,500	4,035	23,100	$8.6	$11.5
1999	1,823,000	3,570	21,875	$10.0	$13.1
2000	1,708,000	4,045	22,350	$11.2	$14.2
2001	1,734,500	6,196[3]	21,100[4]	$44.0[6]	$54.2[6]
2002	1,687,500	3,380	18,425	$10.3	$12.5
2003	1,584,500	3,925	18,125	$12.3[7]	$14.6[7]
2004	1,550,500	3,900	17,875	$9.8	$11.3
2005	1,602,000	3,675	17,925	$10.7	$11.9
2006	1,642,500	3,245	16,400	$11.3	$12.2
2007	1,557,500	3,430	17,675	$14.6[8]	$15.4[8]
2008	1,451,500	3,320	16,705	$15.5[9]	$15.7[9]
2009	1,348,500	3,010	17,050	$12.5	$12.7
2010	1,331,500	3120	17,720	$11.6	$11.6

[1]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.

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

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

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

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

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

[7]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.

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

[9]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 2010 dollars is done using the consumer price index.

Source: *Fire Loss in the United States 2010,* Michael J. Karter, Jr., NFPA, August 2011 and previous reports in the series.

The U.S. Structure Fire Problem, 1977-2010

Year	Fires	Civilian Deaths	Civilian Injuries	Direct Property Damage (in Billions)[1] As Reported	In 2010 Dollars
1977	1,098,000	6,505	26,310	$4.1	$14.8
1978	1,062,000	6,350	24,985	$4.0	$13.4
1979	1,036,500	5,970	24,850	$5.0	$14.9
1980	1,065,000	5,675	24,725	$5.5	$14.4
1981	1,027,500	5,760	25,700	$6.0	$14.3
1982	946,500	5,200	25,575	$5.7	$12.9
1983	868,500	5,090	26,150	$5.8	$12.7
1984	848,000	4,525	23,025	$5.9	$12.3
1985	859,500	5,265	23,350	$6.4	$13.0
1986	800,000	4,985	22,750	$5.8	$11.6
1987	758,000	4,880	23,815	$6.2	$11.9
1988	745,000	5,280	26,275	$7.2[2]	$13.2[2]
1989	688,000	4,655	24,025	$7.5[3]	$13.2[3]
1990	624,000	4,400	24,075	$6.7	$11.2
1991	640,500	3,765	24,975	$8.3[4]	$13.3[4]
1992	637,500	3,940	24,325	$7.0[5]	$10.8[5]
1993	621,500	3,980	26,550	$7.4[6]	$11.2[6]
1994	614,000	3,590	23,125	$6.9	$10.1
1995	573,500	3,985[7]	21,725	$7.6	$10.9
1996	578,500	4,220	21,875	$7.9	$11.0
1997	552,000	3,510	20,375	$7.1	$9.6
1998	517,500	3,420	19,425	$6.7	$9.0
1999	523,000	3,040	18,525	$8.5	$11.1
2000	505,500	3,535	19,600	$8.5	$10.8
2001[8]	521,500	3,220	17,225	$8.9	$10.9
2002	519,000	2,775	15,600	$8.7	$10.6
2003	519,500	3,385[9]	15,600	$8.7[10]	$10.3[10]
2004	526,000	3,305	15,525	$8.3	$9.6
2005	511,000	3,105	15,325	$9.2	$10.3
2006	524,000	2,705	14,350	$9.6	$10.4
2007	530,500	3,000	15,350	$10.6[11]	$11.2[11]
2008	515,000	2,900	14,960	$12.4[12]	$12.5[12]
2009	480,500	2,695	14,740	$10.8	$11.0
2010	482,000	2,755	15,420	$9.7	$9.7

[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 tow nursing home fires in Connecticut and Tennessee.

[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 million.

[12] 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 2010 dollars is done using the consumer price index.

Source: *Fire Loss in the United States 2010,* Michael J. Karter, Jr., NFPA, August 2011 and previous reports in the series.

The U.S. Home Structure Fire Problem, 1977-2010

Year	Fires	Civilian Deaths	Civilian Injuries	Direct Property Damage (in Billions) As Reported	Direct Property Damage (in Billions) In 2010 Dollars
1977	723,500	5,865	21,640	$2.7	$9.8
1978	706,500	6,015	20,400	$2.1	$6.9
1979	696,500	5,500	18,825	$2.4	$7.1
1980	734,000	5,200	19,700	$2.8	$7.5
1981	711,000	5,400	19,125	$3.1	$7.5
1982	654,500	4,820	20,450	$3.1	$7.1
1983	625,500	4,670	20,750	$3.2	$7.0
1984	605,500	4,075	18,750	$3.4	$7.0
1985	606,000	4,885	19,175	$3.7	$7.5
1986	565,500	4,655	18,575	$3.5	$6.9
1987	536,500	4,570	19,965	$3.6	$6.9
1988	538,500	4,955	22,075	$3.9	$7.2
1989	498,500	4,335	20,275	$3.9	$6.8
1990	454,500	4,050	20,225	$4.2	$6.9
1991	464,500	3,500	21,275	$5.5[1]	$8.7[1]
1992	459,000	3,705	21,100	$3.8	$5.9
1993	458,000	3,720	22,000	$4.8[2]	$7.2[2]
1994	438,000	3,425	19,475	$4.2	$6.2
1995	414,000	3,640	18,650	$4.3	$6.1
1996	417,000	4,035	18,875	$4.9	$6.8
1997	395,500	3,360	17,300	$4.5	$6.0
1998	369,500	3,220	16,800	$4.3	$5.7
1999	371,000	2,895	16,050	$5.0	$6.5
2000	368,000	3,420	16,975	$5.5	$7.0
2001	383,500	3,110	15,200	$5.5	$6.8
2002	389,000	2,670	13,650	$5.9	$7.2
2003	388,500	3,145	13,650	$5.9[3]	$7.1[3]
2004	395,500	3,190	13,700	$5.8	$6.7
2005	381,000	3,030	13,300	$6.7	$7.5
2006	396,000	2,580	12,500	$6.8	$7.4
2007	399,000	2,865	13,600	$7.4[4]	$7.8[4]
2008	386,500	2,755	13,160	$8.2[5]	$8.4[5]
2009	362,500	2,565	12,650	$7.6	$7.7
2010	369,500	2,640	13,350	$6.9	$6.9

[1]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.

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

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

[4]Does 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.

"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 2010 dollars is done using the consumer price index.

Source: *Fire Loss in the United States 2010*, Michael J. Karter, Jr., NFPA, August 2011 and previous reports in the series.

One– and Two-Family Home Structure Fires [1]

Year	Fires	Civilian Deaths	Civilian Injuries	Direct Property Damage (in Billions) As Reported	Direct Property Damage (in Billions) In 2010 Dollars
1977	678,000	4,835	17,465	$2.3	$8.4
1978	623,233	4,945	15,400	$1.8	$5.9
1979	550,500	4,320	14,650	$2.0	$6.1
1980	590,500	4,175	16,100	$2.4	$6.5
1981	574,000	4,430	14,875	$2.7	$6.5
1982	538,000	3,960	15,750	$2.8	$6.3
1983	523,500	3,825	16,450	$2.8	$6.1
1984	506,000	3,290	15,100	$2.9	$6.2
1985	501,500	4,020	15,250	$3.2	$6.5
1986	468,000	4,005	14,650	$3.0	$6.0
1987	433,000	3,780	15,200	$3.1	$5.9
1988	432,500	4,125	17,125	$3.3	$6.2
1989	402,500	3,545	15,225	$3.3	$5.9
1990	359,000	3,370	15,250	$3.5	$5.9
1991	363,000	2,905	15,600	$3.4[2]	$5.4[2]
1992	358,000	3,160	15,275	$3.2	$4.9
1993	358,000	3,035	15,700	$4.1[3]	$6.2[3]
1994	341,000	2,785	14,000	$3.5	$5.2
1995	320,000	3,035	13,450	$3.6	$5.2
1996	324,000	3,470	13,700	$4.1	$5.7
1997	302,500	2,700	12,300	$3.7	$5.1
1998	283,000	2,775	11,800	$3.6	$4.9
1999	282,500	2,375	11,550	$4.1	$5.4
2000	283,500	2,920	12,575	$4.6	$5.9
2001	295,500	2,650	11,400	$4.7	$5.7
2002	300,500	2,280	9,950	$5.0	$6.1
2003	297,000	2,735	10,000	$5.1[4]	$6.0[4]
2004	301,500	2,680	10,500	$4.9	$5.7
2005	287,000	2,570	10,300	$5.8	$6.4
2006	304,500	2,155	8,800	$5.9	$6.4
2007	300,500	2,350	9,650	$6.2[5]	$6.5[5]
2008	291,000	2,365	9,185	$6.9[6]	$7.0[6]
2009	272,500	2,100	9,300	$6.4	$6.5
2010	279,000	2,200	9,400	$5.9	$5.9

[1]Includes manufactured homes.

[2]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.

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

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

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

[6]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 2010 dollars is done using the consumer price index.

Source: *Fire Loss in the United States 2010,* Michael J. Karter, Jr., NFPA, August 2011 and previous reports in the series.

U.S. Highway Vehicle Fire Problem, 1977-2010

Year	Fires	Civilian Deaths	Civilian Injuries	Direct Property Damage (in Billions) As Reported	Direct Property Damage (in Billions) In 2010 Dollars
1980	456,000	650	2,850	$0.5	$1.2
1981	453,000	770	2,900	$0.5	$1.2
1982	433,000	575	3,250	$0.5	$1.2
1983	435,500	670	3,400	$0.6	$1.3
1984	437,000	530	3,250	$0.6	$1.3
1985	437,000	770	3,250	$0.7	$1.4
1986	438,000	665	2,850	$0.7	$1.3
1987	451,000	755	2,900	$0.7	$1.4
1988	459,000	800	2,750	$0.8	$1.5
1989	415,500	560	2,750	$0.8	$1.4
1990	415,000	645	3,025	$0.8	$1.4
1991	406,500	530	2,675	$0.8	$1.3
1992	385,500	665	2,750	$0.8	$1.3
1993	402,000	540	2,400	$0.9	$1.3
1994	402,000	555	2,325	$1.0	$1.4
1995	386,000	490	2,275	$1.0	$1.4
1996	395,000	550	2,075	$1.1	$1.6
1997	377,000	450	1,950	$1.1	$1.5
1998	358,500	545	2,050	$1.1	$1.5
1999	345,000	450	1,600	$1.1	$1.5
2000	325,000	450	1,325	$1.2	$1.5
2001	327,000	470	1,750	$1.3	$1.6
2002	307,000	540	1,700	$1.2	$1.4
2003	286,000	455	1,400	$1.1	$1.3
2004	266,500	520	1,300	$1.0	$1.1
2005	259,000	500	1,450	$1.0	$1.2
2006	250,000	445	1,075	$1.0	$1.1
2007	227,500	365	1,500	$1.1	$1.1
2008	207,000	350	850	$1.2	$1.2
2009	190,500	260	1,455	$1.0	$1.1
2010	184,500	285	1,440	$1.0	$1.0

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 2010 dollars is done using the consumer price index.

Source: *Fire Loss in the United States 2010,* Michael J. Karter, Jr., NFPA, August 2011 and previous reports in the series.