



# RESEARCH



# Fire Loss in the United States During 2019

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September 2020

## Key Findings

In 2019, local fire departments responded to an estimated 1.3 million fires. These fires caused roughly 3,700 civilian fire deaths and 16,600 reported civilian fire injuries. Property damage was estimated at \$14.8 billion.

On average, a fire department responded to a fire somewhere in the US every 24 seconds in 2019. A home structure fire was reported every 93 seconds, a home fire death occurred every three hours and 10 minutes, and a home fire injury occurred every 43 minutes.

Fire departments protecting populations under 2,500 had the highest rate of fires.

More than one-third of the fires (481,500 or 37 percent) occurred in or on structures. Most fire losses were caused by these fires, including 2,980 civilian fire deaths (80 percent); 13,900 civilian fire injuries (84 percent); and \$12.3 billion in direct property damage (83 percent).

Only one-quarter of the fires (26 percent) occurred in home properties, including one- or two-family homes and apartments or other multi-family housing, yet these fires caused three-quarters of the civilian fire deaths (75 percent) and injuries (73 percent.).

One of every five fires occurred in one- or two-family homes, yet these fires caused nearly two-thirds of the civilian fire deaths (65 percent) and more than half of the civilian fire injuries (53 percent). The 6 percent of fires in apartments caused 10 percent of the civilian fire deaths and 20 percent of the injuries.

Vehicle fires accounted for 17 percent of the fires and civilian deaths and 12 percent of civilian injuries.

Neither structures nor vehicles were involved in 45 percent of the fires. These fires included brush, grass, or wildland fires — excluding crops, timber, and other properties of value (19 percent); outside rubbish fires (14 percent); outside fires involving property of value (5 percent); and other fires (7 percent).

The 2019 estimates of the number of fires were 48–66 percent lower than in 1980 for most of the major incident type categories. Property loss, adjusted for inflation, was 24 percent lower in 2019 than in 1980. For structure fire deaths, the 2019 estimates were 43 percent lower in one- or two-family homes and 63 percent lower in apartments than in 1980.

Because the population has grown, population-based rates have dropped even more.

Less progress has been made in preventing deaths and injuries associated with reported fires. For overall home fires, the death rate per 1,000 fires was 15 percent higher in 2019 than in 1980, while the comparable civilian injury rate was 34 percent higher than in 1980.

The casualty rate trends go in opposite directions for one- or two-family homes vs. apartments. The death rate per 1,000 one- or two-family home fires was 28 percent higher in 2019, while the comparable injury rate was 22 percent higher. For apartments, the death rate per 1,000 fires was 29 percent lower than in 1980, while the injury rate was 81 percent higher. While these rates fluctuate, the death rate per 1,000 fires was consistently lower for apartments, while the injury rate was generally higher.

Overall, it seems that most of the reduction in reported fires and fire losses occurred more than a decade ago. That progress was impressive. However, more must be done, particularly regarding home fires.

## Fire in 2019: Now and Then

In 2019, local fire departments, including departments protecting towns, townships, cities, and counties, responded to an estimated 1,291,500 fires in the US. These fires caused an estimated 3,704 civilian deaths; 16,600 civilian injuries; and \$14.8 billion in direct property damage.

[Firefighter fatalities and injuries](#) are discussed in separate NFPA reports and are not included here.

The fire and fire loss estimates in this analysis are derived from NFPA’s 2019 fire department experience survey. Only fires reported to local fire departments are included. For more information on how these estimates are calculated, see [Methodology Used in Calculating National Estimates from NFPA’s Fire Experience Survey](#) by Ben Evarts.

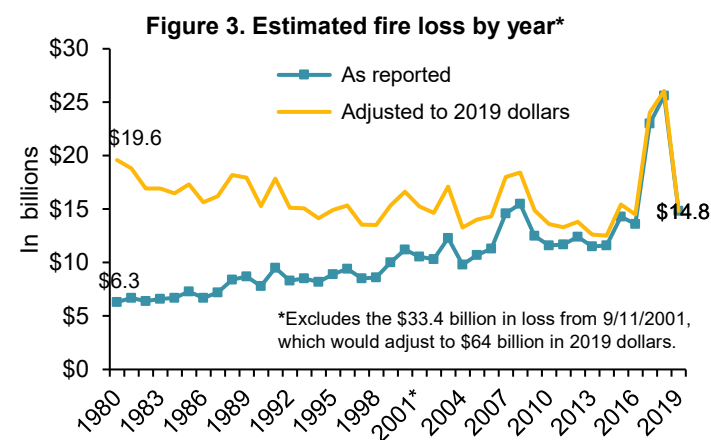
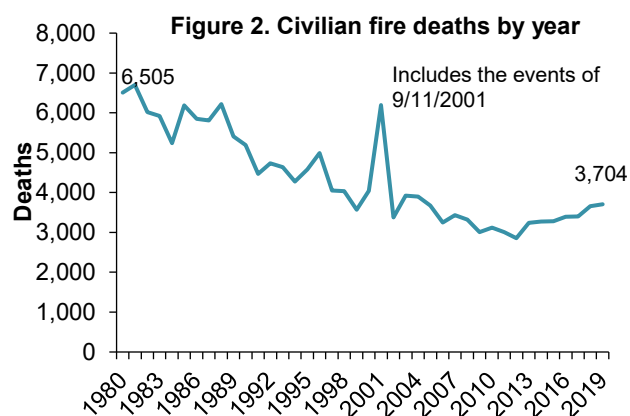
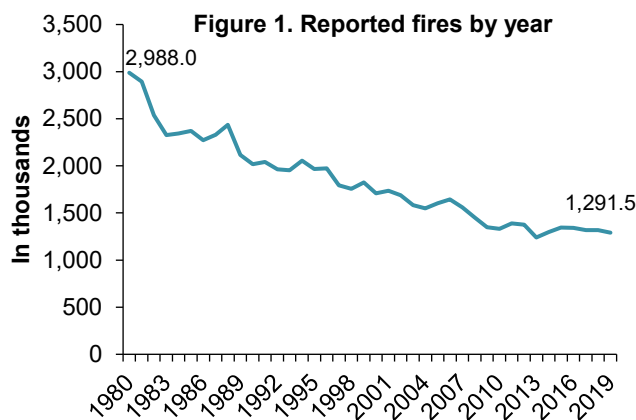
On average, a fire department responded to a fire somewhere in the US every 24 seconds in 2019. A civilian was fatally injured in a fire every two hours and 22 minutes. Every 32 minutes, a civilian suffered a non-fatal fire injury.

From 2018 to 2019, total fires fell 2 percent, civilian deaths rose 1 percent, civilian injuries increased by 9 percent, and fire property

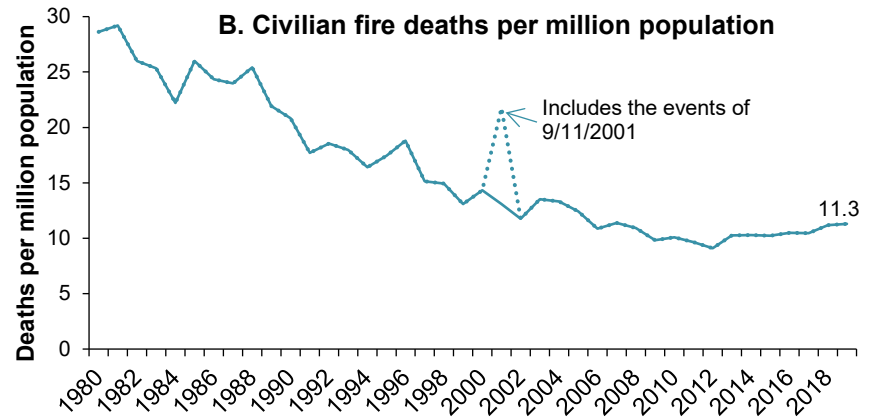
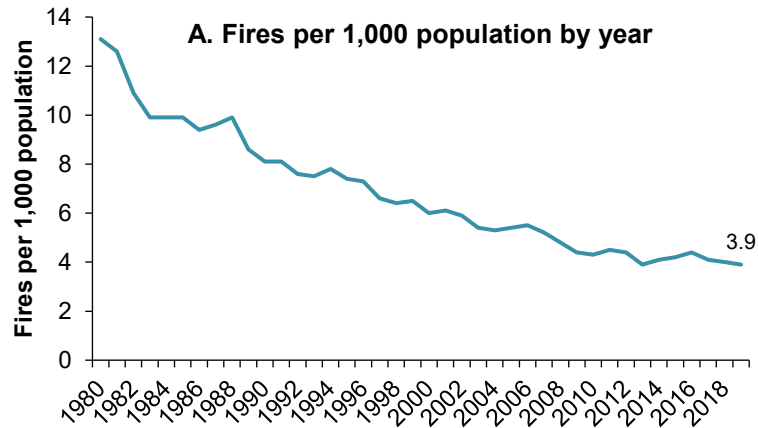
damage fell 42 percent. The 2018 fire property damage included \$12.4 billion in direct property damage caused by the 2018 California fires in the Wildland Urban Interface (WUI). These WUI fires included a wide variety of incidents and property types; these could not be broken down further.

The estimate of total fires was 57 percent lower in 2019 than in 1980, while fire death and injury estimates were 43 percent and 45 percent lower, respectively, over the same period. Property loss, adjusted for inflation, was 24 percent lower than in 1980. See Figures 1–3.

Although US Census data shows that the resident population of the US grew 44 percent from 1980 to 2019, the 3.9 fires per 1,000 population in 2019 was 70 percent lower than the 13.1 rate in 1980 and 3 percent lower than the 2018 rate. The 11.3 civilian fire deaths per million population in 2019 was 61 percent lower than the 28.6 rate in 1980 and 1 percent higher than in 2018. (See Figures 4 and 5.)



**Figure 4. Population-based fire and civilian fire death rates: 1980–2019**



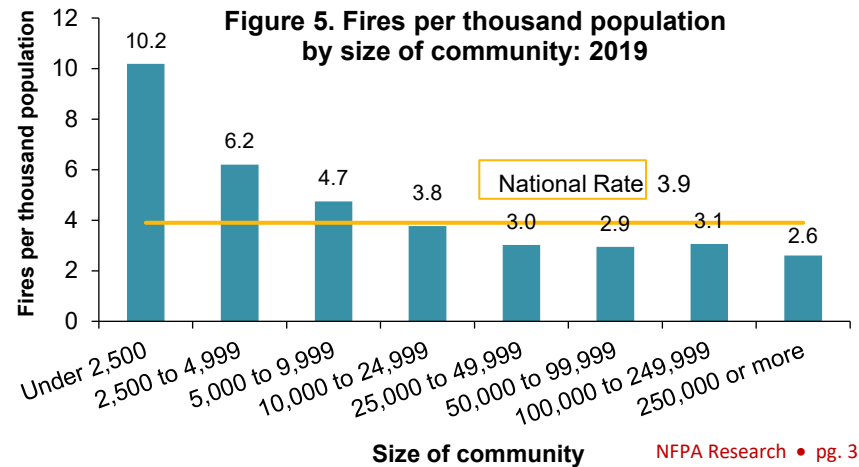
While very small communities have a small number of fires compared to larger jurisdictions; the 10.2 fires per 1,000 population for fire departments protecting communities with fewer than 2,500 people is 2.6 times the overall national rate. Figure 5 shows that the rate of fires generally decreases as the population protected increases, with the lowest population-based rate of fires found in departments protecting populations of at least one-quarter million.

The data above only tells part of the story. To really understand the country’s fire problem, the progress we are making, and the challenges that remain, we need to know more about where fires occur, the types of fires that cause the most losses, the causes of these fires, and whether these fires and casualties are increasing or decreasing in actual number and in population-based rates.

Table 1 provides a summary of fires, civilian casualties, and direct property loss by type of fire for 2019. Sums may not equal totals due to rounding errors. Non-residential structure fires include a \$1.1 billion

dollar loss at a Texas chemical plant. The US Chemical Safety and Hazard Investigation Board is still investigating that fire. Other vehicle fire deaths include 34 fatalities in a dive boat fire. The National Transportation Safety Board is still investigating that fire.

Property damage data was not collected for brush fires, grass fires, no-value wildland fires, or outside rubbish fires.



**Table 1. Reported Fires in 2019 by Incident Type**

Incident Type	Fires		Civilian Deaths		Civilian Injuries		Property Loss (in Millions) <sup>1</sup>	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)
<b>Structure Fire</b>	<b>481,500</b>	<b>(37%)</b>	<b>2,980</b>	<b>(80%)</b>	<b>13,900</b>	<b>(84%)</b>	<b>\$12,287</b>	<b>(83%)</b>
<b>Residential structure fire</b>	<b>361,500</b>	<b>(28%)</b>	<b>2,870</b>	<b>(77%)</b>	<b>12,700</b>	<b>(77%)</b>	<b>\$7,976</b>	<b>(54%)</b>
Home structure fire	339,500	(26%)	2,770	(75%)	12,200	(73%)	\$7,767	(52%)
<i>One- and two-family homes, including manufactured homes</i>	264,500	(20%)	2,390	(65%)	8,800	(53%)	\$6,428	(43%)
<i>Apartments</i>	75,000	(6%)	380	(10%)	3,400	(20%)	\$1,339	(9%)
Other residential structure fire	22,000	(2%)	100	(3%)	500	(3%)	\$209	(1%)
<b>Non-residential structure fire</b>	<b>120,000</b>	<b>(9%)</b>	<b>110</b>	<b>(3%)</b>	<b>1,200</b>	<b>(7%)</b>	<b>\$4,311</b>	<b>(29%)</b>
<b>Vehicle Fire</b>	<b>223,000</b>	<b>(17%)</b>	<b>644</b>	<b>(17%)</b>	<b>2,000</b>	<b>(12%)</b>	<b>\$2,229</b>	<b>(15%)</b>
Highway vehicle fire	189,500	(15%)	550	(15%)	1,700	(10%)	\$1,645	(11%)
Other vehicle fire	33,500	(3%)	94	(3%)	300	(2%)	\$584	(4%)
<b>Outside and Other Fire</b>	<b>587,000</b>	<b>(45%)</b>	<b>80</b>	<b>(2%)</b>	<b>700</b>	<b>(4%)</b>	<b>\$304</b>	<b>(2%)</b>
Fire outside but no vehicle (outside-storage, crops, timber, etc.)	70,500	(5%)	NA	NA	NA	NA	\$206	(1%)
Fires in brush, grass, wildland (excluding crops and timber) with no value or loss involved	244,500	(19%)	NA	NA	NA	NA	NA	NA
Outside rubbish fire	177,500	(14%)	NA	NA	NA	NA	NA	NA
All other fire	94,500	(7%)	NA	NA	NA	NA	\$98	(1%)
<b>Total</b>	<b>1,291,500</b>	<b>(100%)</b>	<b>3,704</b>	<b>(100%)</b>	<b>16,600</b>	<b>(100%)</b>	<b>\$14,820</b>	<b>(100%)</b>

Source: NFPA's 2019 Survey of Fire Departments for US Fire Experience.

## Structure Fires

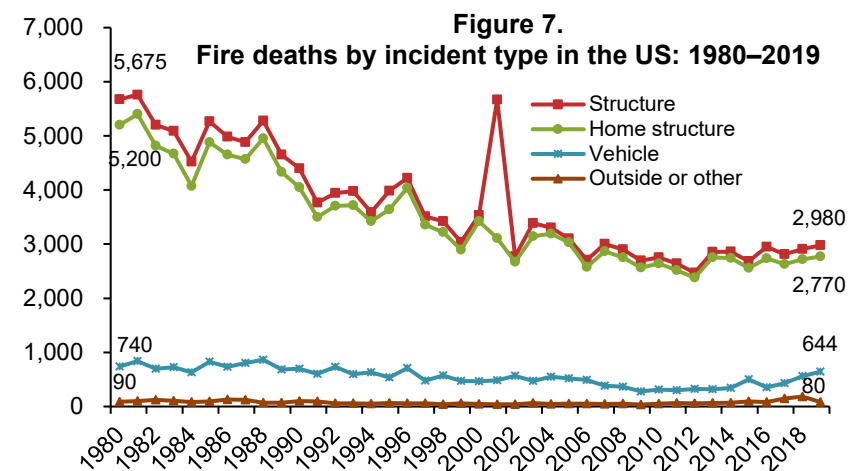
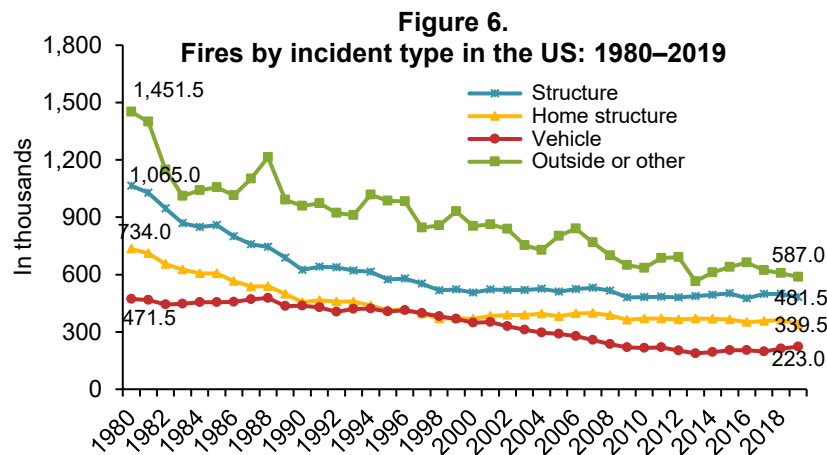
In 2019, the estimated 481,500 structure fires (37 percent of all fires) caused 2,980 civilian fire deaths (80 percent of all civilian fire deaths); 13,900 civilian injuries (84 percent); and \$12.3 billion in direct property damage (83 percent). In general, any fire in or on a structure is considered a structure fire, even if the structure itself is not damaged. On average, fire departments responded to a structure fire every 65 seconds, a structure fire death occurred every two hours and 56 minutes, and a structure fire injury occurred every 38 minutes.

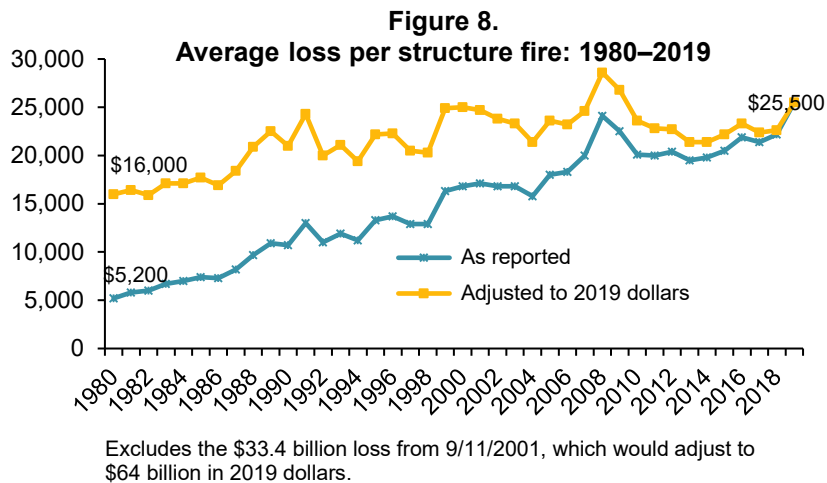
From 2018 to 2019, structure fires overall fell 4 percent, civilian deaths rose 2 percent, civilian injuries rose 9 percent, and structure fire property damage rose 11 percent. The total structure fire estimate was 55 percent lower in 2019 than in 1980, while structure fire death and injury estimates were 47 percent and 44 percent lower, respectively, over the same period. In most years, structure fires caused 80-90 percent of

civilian fire deaths and injuries, with the events of September 11, 2001, contributing to a high of 92 percent in 2001. See Figures 6 and 7.

The average loss per structure fire, adjusted for inflation, was 59 percent higher in 2019 than in 1980. See Figure 8.

In NFPA's statistical analyses, the term *home* encompasses two broad categories: 1) one- or two-family homes, including manufactured housing, and 2) apartments or other multi-family housing. Other residential properties include hotels and motels, dormitories, rooming houses, residential board and care properties, or unclassified residential properties. (Detached residential garages and storage sheds are grouped with storage properties in the non-residential category.) Homes are less stringently regulated than these other residential properties and most non-residential properties. Non-residential properties include those used for assembly, education, institutional/health care, stores and offices, storage, and special structures.





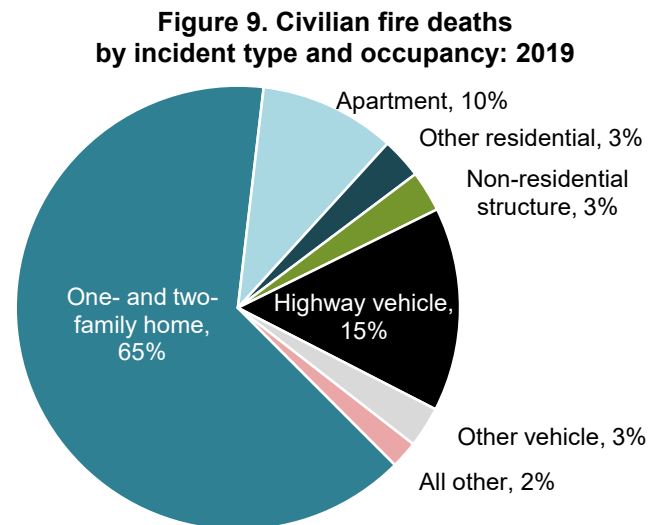
In 2019, the estimated 361,500 total residential structure fires (28 percent) caused 2,870 civilian deaths (77 percent); 12,700 civilian injuries (77 percent); and \$8 billion in direct property damage (54 percent). From 2018 to 2019, residential structure fires fell 7 percent, civilian deaths rose 2 percent, civilian injuries rose 10 percent, and residential fire property damage fell 4 percent. The decrease in these fires was statistically significant. The residential structure fire estimate was 52 percent lower in 2019 than in 1980, while residential structure fire death and injury estimates were 47 percent and 40 percent lower, respectively, over the same period. See Figure 9 for a breakdown of fire deaths by type of fire.

### Home Structure Fires

The 339,500 home structure fires in 2019 (26 percent) caused 2,770 civilian fire deaths (75 percent); 12,200 civilian injuries (73 percent), and \$7.8 billion in direct property damage (52 percent). On average, a home structure fire was reported every 93 seconds, a home fire death occurred every three hours and 10 minutes, and a home fire injury occurred every 43 minutes.

From 2018 to 2019, home structure fires fell 6 percent, civilian deaths rose 2 percent, civilian injuries rose 9 percent, and home fire property damage fell 3 percent. With homes accounting for 94 percent of residential structure fires, it is not surprising that the pattern for home fires resembles that of residential structure fires. The home structure fire estimate was 54 percent lower in 2019 than in 1980, while estimates for home fire deaths and injuries were 47 percent and 38 percent lower, respectively. The population-based decreases over that period were even greater. The 1.0 home structure fires per thousand population in 2019 was 70 percent lower than the rate of 3.2 such fires in 1980. The 8.4 civilian home fire deaths per million population was 63 percent lower than the rate of 23.0 40 years earlier. The trend line for reduction in home fire death rate and total fire death rate is very similar.

For information on causes and circumstances of home fires, see NFPA’s report, *Home Structure Fires*. For information about deaths and injuries caused by home fires, see NFPA’s 2018 report, *Home Fire Victims by Age and Gender*.



In 2019, the 264,500 one- or two-family home structure fires (20 percent) caused 2,390 civilian fire deaths (65 percent); 8,800 civilian fire injuries (53 percent); and \$6.4 billion in direct property damage (43 percent). From 2018 to 2019, fires in one- or two-family homes fell 6 percent, while deaths rose 1 percent, injuries jumped 13 percent, and property damage was down 1 percent. The estimate of structure fires in one- or two-family homes was 55 percent lower in 2019 than in 1980.

Less progress has been made in reducing fire deaths in one- or two-family homes than in other structures. The estimate of deaths caused by one- or two-family home fires was only 43 percent lower in 2019 than in 1980. The injury estimate was 45 percent lower.

The 75,000 apartment or other multi-family housing fires (6 percent) caused 380 civilian fire deaths (10 percent); 3,400 civilian fire injuries (20 percent), and \$1.3 billion in direct property damage (9 percent). From 2018 to 2019, apartment fires fell 13 percent while apartment fire deaths rose 6 percent, injuries remained basically unchanged, and property damage fell 12 percent. The decrease in apartment fires was statistically significant.

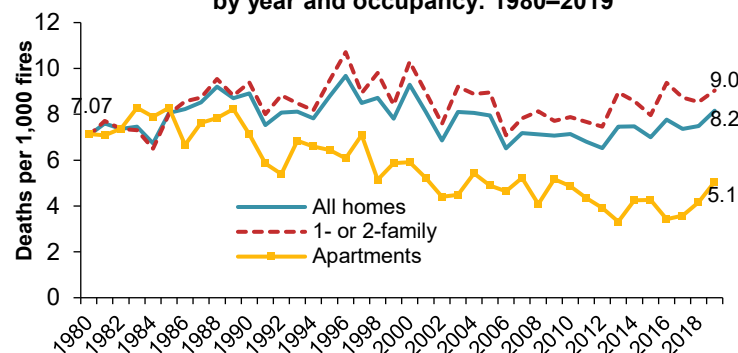
The estimate of apartment structure fires was 48 percent lower in 2019 than in 1980, while apartment fire deaths and apartment fire injuries were 63 percent and 6 percent lower, respectively. Only 15 percent of structure fire injuries occurred in apartments in 1980. This was the lowest percentage seen over the past four decades. In recent years, roughly one-quarter of structure fire injuries have occurred in apartments.

Less progress has been made in reducing deaths and injuries in reported home fires. In 1980, there were 7.1 deaths per 1,000 reported home fires overall. This was also true for one- or two-family homes and apartments. Forty years later, the death rate per 1,000 fires fell 29 percent to 5.1 for apartment fires, but increased 15 percent to 8.2 in overall home fires, and climbed even more to 9.0 deaths per 1,000 fires in one- or two-family

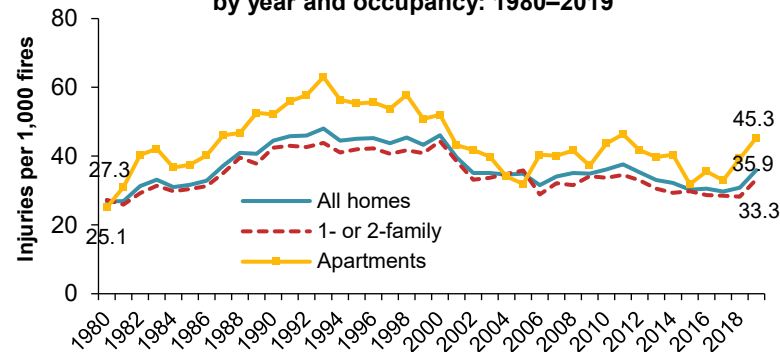
homes. While rates fluctuated, there was only one year in which the death rate per 1,000 one- or two-family home fires was lower than it was in 1980. Apartment fire death rates have had a fairly consistent downward trend. In most years, the death rate for overall homes was higher than in 1980 due to the larger share of one- or two-family homes. See Figure 10.

The 2019 rate of 45.3 civilian injuries per 1,000 apartment fires was 81 percent higher than the 1980 rate of 25.1. For one- or two-family home fires, the 2019 rate of 33.3 injuries per 1,000 fires was 22 percent higher than the 1980 rate of 27.3. The 35.9 injuries per 1,000 home fires overall in 2019 was 34 percent higher than the 26.8 rate in 1980. See Figure 11.

**Figure 10. Deaths per 1,000 reported home fires by year and occupancy: 1980–2019**



**Figure 11. Injuries per 1,000 reported home fires by year and occupancy: 1980–2019**





## Non-Home Structure Fires

Non-home occupancies, including other residential properties, such as dormitories, hotels and motels, rooming houses and residential board and care occupancies, and non-residential properties, such as public assembly, educational, institutional, retail, office, manufacturing, and industrial or utility occupancies, are more regulated than home properties.

In 2019, the estimated 22,000 structure fires in other residential properties (2 percent) — including unclassified residential structures — caused 100 civilian fire deaths (3 percent), 500 civilian fire injuries (3 percent), and \$209 million in direct property damage (1 percent). From 2018 to 2019, non-home residential structure fires fell 8 percent, deaths remained basically unchanged, and injuries jumped 25 percent. Direct property damage fell 21 percent. The 2019 estimate of other residential structure fires was 6 percent lower than in 1980 and estimates of civilian fire deaths and injuries were 59 and 64 percent lower, respectively.

In 2019, the 120,000 non-residential structure fires (9 percent) caused 110 civilian fire deaths (3 percent); 1,200 civilian injuries (7 percent); and \$4.3 billion in direct property damage (29 percent). From 2018 to 2019, non-residential structure fires rose 7 percent, deaths climbed 22 percent, injuries were up 9 percent, and direct property damage was up 55 percent. The 2019 estimate of non-residential structure fires was 61 percent lower than the 1980 estimate, while the estimates for civilian deaths and injuries were 52 percent and 67 percent lower, respectively.

NFPA has reports on the causes and circumstances of fires in many of these occupancies. For the latest (currently 2014–2018) annual averages of fires, civilian casualties, and property damage by occupancy or property use, see [Fires by Occupancy or Property Type](https://www.nfpa.org/News-and-Research/Data-research-and-tools/US-Fire-Problem/Fires-by-occupancy-or-property-type) at [nfpa.org/News-and-Research/Data-research-and-tools/US-Fire-Problem/Fires-by-occupancy-or-property-type](https://www.nfpa.org/News-and-Research/Data-research-and-tools/US-Fire-Problem/Fires-by-occupancy-or-property-type)

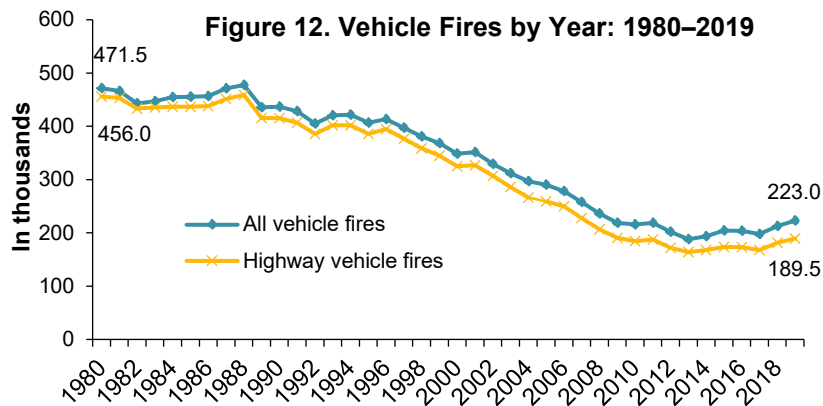
## Vehicle Fires in 2019

Vehicle fires are an often-overlooked part of the fire problem, yet in 2019, an estimated 223,000 vehicle fires (17 percent) caused 644 civilian fire deaths (17 percent); 2,000 civilian fire injuries (12 percent); and \$2.2 billion in direct property damage (15 percent). Eighty-five percent of these fires and associated casualties involved highway vehicles, such as cars, trucks, motorcycles, recreational vehicles in transit, buses, and other vehicles intended for use on roadways. From 2018 to 2019, vehicle fires overall increased 5 percent, while vehicle fire deaths increased 15 percent, vehicle fire injuries jumped 33 percent, and property damage rose 19 percent. The vehicle fire estimate was 53 percent lower in 2019 than in 1980 and estimates of deaths and injuries were 13 percent and 51 percent lower, respectively. Vehicle fire death estimates in 2018 and 2019 were the highest in this decade.

The 189,500 highway vehicle fires (15 percent of total fires) caused 550 civilian fire deaths (15 percent); 1,700 civilian fire injuries (10 percent); and \$1.6 billion in direct property damage (11 percent).

Fire departments responded to an average of one highway vehicle fire every 2 minutes and 46 seconds. From 2018 to 2019, highway vehicle fires rose 4 percent while deaths rose 12 percent, injuries jumped 31 percent, and property damage rose 17 percent. The 2019 estimate of highway vehicle fires was 58 percent lower than the 1980 estimate, while the associated fire death estimate was only 15 percent lower. The 2019 injury estimate was 40 percent lower than four decades earlier.

For more information on the causes and circumstances of these fires, see NFPA's 2020 [Vehicle Fires](#) report. Vehicles that burn inside a garage or other structure but do not damage the structure or spread to other contents are counted as vehicle fires and are the exception to the structure fire definition discussed earlier.



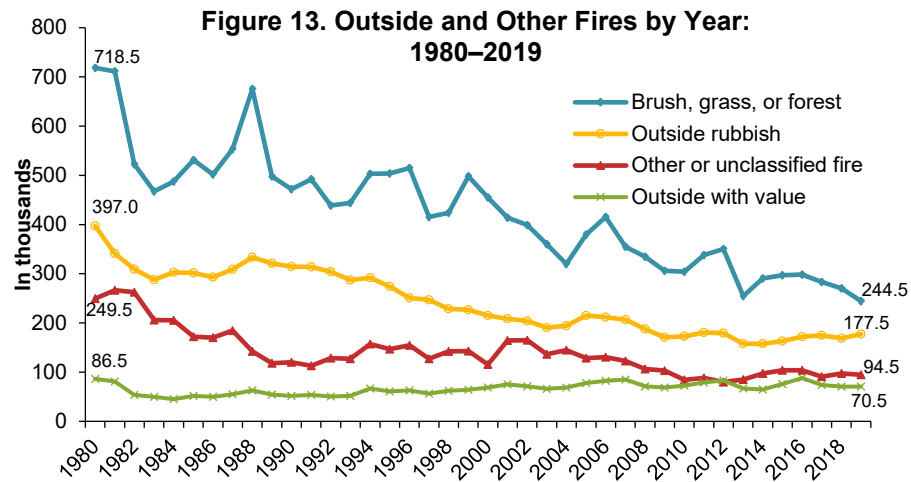
Other non-highway vehicles, such as boats or ships; aircraft; trains; and agricultural, garden, or industrial vehicles, were involved in an estimated 33,500 vehicle fires (3 percent) in 2019. These fires caused 94 civilian deaths (3 percent), 300 civilian injuries (2 percent), and \$584 million in direct property damage (4 percent). From 2018 to 2019, other vehicle fires rose 8 percent, while deaths jumped 34 percent, injuries jumped 50 percent, and property damage increased by 23 percent. The 2019 estimate of other non-highway vehicle fires was more than twice the 1980 estimate. It is possible that more such vehicles, including boats, planes, construction, and garden vehicles, are in use today. Despite this large increase in fires, the estimate of deaths was only 4 percent higher and the injury estimate was 76 percent lower.

## Outside and Unclassified Fires in 2019

The 587,000 outside or unclassified non-structural, non-vehicle fires (45 percent) caused 80 civilian fire deaths (2 percent), 700 civilian fire injuries (4 percent), and \$304 million in direct property damage (2 percent). Casualties are grouped together in this broad category and not subdivided further. A fire in an outside or unclassified property was reported every 54 seconds.

The 70,500 outside fires involving property of value (5 percent), such as outside storage, crops, timber, etc., caused \$206 million in direct property damage (1 percent). Outside and unclassified fires also included 244,500 brush, grass, and wildland fires (19 percent), excluding crops and timber, and 177,500 outside rubbish fires (14 percent). Property damage information was not collected for these two incident types in NFPA’s survey. The remaining 94,500 other non-structural, non-vehicle fires (7 percent) caused \$98 million in direct property damage (1 percent). From 2018 to 2019, outside and other fires of all types combined fell 3 percent, while associated deaths fell 20 percent, injuries fell 30 percent, and direct property damage fell 3 percent (excluding the major WUI fires in 2018.) The decrease in injuries was statistically significant. Casualty estimates were not broken out for the specific outside fire incident types. The estimate of outside fires involving property of value, such as outside storage, crops, or timber — but not structures or vehicles — was stable, while property damage from these incidents fell 44 percent. Brush, grass, or wildland fires with no value or loss involved fell 9 percent. This was statistically significant. Outside rubbish fires rose 5 percent. Other fires fell 3 percent. Direct property damage from these other fires fell 44 percent.

The estimate of outside and other non-structural, non-vehicular fires was 60 percent lower in 2019 than in 1980. The death estimate from these fires was only 11 percent lower, while estimated injuries were only half as numerous. The estimate of outside fires involving property of value was 18 percent lower in 2019 than in 1980. The biggest decrease was in estimates of brush, grass, or wildland fires with no value or loss (66 percent), other fires (62 percent), and outside rubbish fires (55 percent).



## Acknowledgements

NFPA is grateful to the many fire departments that responded to the *2019 National Fire Experience Survey* for their continuing efforts to provide the data necessary to make national projections. The authors would also like to thank the members of the NFPA staff who worked on this year’s survey, including Steve Belski, Frank Deely, and Jay Petrillo, for editing the survey forms and making follow-up calls to fire departments.

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NFPA No. FLX10