

THE MASSACHUSETTS FIRE PROBLEM

Massachusetts Fire Incident Reporting System

2014 Annual Report



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Lieutenant Governor

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and Security

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State Fire Marshal



Department of Fire Services
Division of Fire Safety • Fire Data and Public Education Unit

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ABOUT THE COVERS

The drawings on the front and back covers of this report are the 2015, 1st and 2nd place winners of the 33rd annual statewide **Arson Watch Reward Program Poster Contest**.

The contest is sponsored by the Massachusetts Property Insurance Underwriting Association (MPIUA) on behalf of all property and casualty insurance companies of Massachusetts. The poster theme was **Fire Prevention – Everyone/Everyday**.

A countywide poster contest was held for all students in grade 6-8. Thirteen out of 14 counties participated and about 1,200 posters were submitted. Posters were judged by an impartial panel. First and 2nd place county winners were chosen at MPIUA. All 1st place county winners were entered into the Massachusetts statewide contest. An award ceremony was held in honor of all county winners at the Sheraton Framingham Hotel on May 28, 2015, and the three state winners were announced and presented with their awards.

The front cover drawing is by Abby Gould, a student at the Plymouth South Middle School, Plymouth, Massachusetts. Abby's poster was the 1st place winner in the Plymouth County poster contest, and was automatically entered into the statewide contest, along with 12 other county winners, where it was chosen as the 1st place state winner.

The back cover drawing is by Gati Aher, a student at the Marshall Simonds Middle School, Burlington, Massachusetts. Gati's poster was the 1st place winner in the Middlesex County poster contest and was also automatically entered into the statewide contest where it was chosen as the 2nd place state winner.

MPIUA generously sponsored the printing of the *2014 Annual Report of the Massachusetts Fire Incident Reporting System (MFIRS)* and provided the cover posters. MPIUA has provided this sponsorship of the report and the poster contest for 32 years.

DEPARTMENT OF FIRE SERVICES MISSION

The mission of the Department of Fire Services is, through coordinated training, education, prevention, investigation, and emergency response, to provide the citizens of Massachusetts with the ability to create safer communities; to assist and support the fire service community in the protection of life and property; to promote and enhance firefighter safety; and to provide a fire service leadership presence in the Executive Office of Public Safety and Security in order to direct policy and legislation on all fire related matters.

EXECUTIVE SUMMARY

This is the 2014 Annual Report of the Massachusetts Fire Incident Reporting System (MFIRS), which summarizes the Massachusetts fire experience for 2014. It is based on the 28,999 individual fire reports submitted by members of 366 fire departments and fire districts. It is this effort that makes it possible to look at the total fire experience, to identify our fire problems and to develop strategies to address these issues. One of the goals of the Division of Fire Safety is to provide the fire service and the public with accurate and complete information about the fire experience in Massachusetts. To see a more detailed report with additional data, visit www.mass.gov/dfs and search for MFIRS Reports.

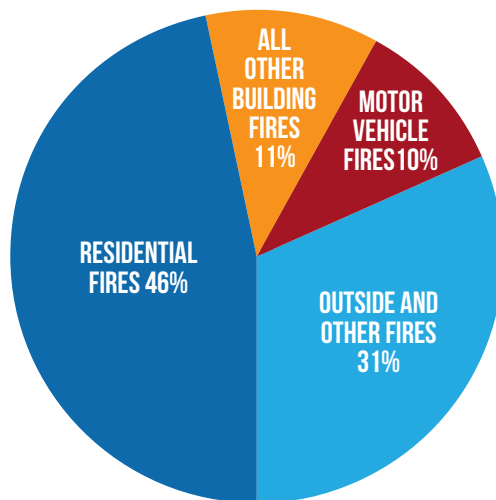
FIRES BY INCIDENT TYPE

17,403 Structure, 2,496 Vehicle, 9,100 Outside and Other Fires

There were 28,999 fire and explosion incidents reported by fire departments to the Massachusetts Fire Incident Reporting System (MFIRS) in 2014. The 17,403 structure fires, 2,496 motor vehicle fires, and 9,100 outside and other fires caused 54 civilian deaths, two fire service deaths, 310 civilian injuries, 450 fire service injuries, one death from an explosion with no ensuing fire, and an estimated dollar loss of \$241.8 million in property damages. In 2014, there were 1.86 civilian deaths for every 1,000 fires. See Figure 1.

Figure 1

FIRES BY INCIDENT TYPE



CIVILIAN FIRE DEATHS

54 Civilians Died in Massachusetts Fires

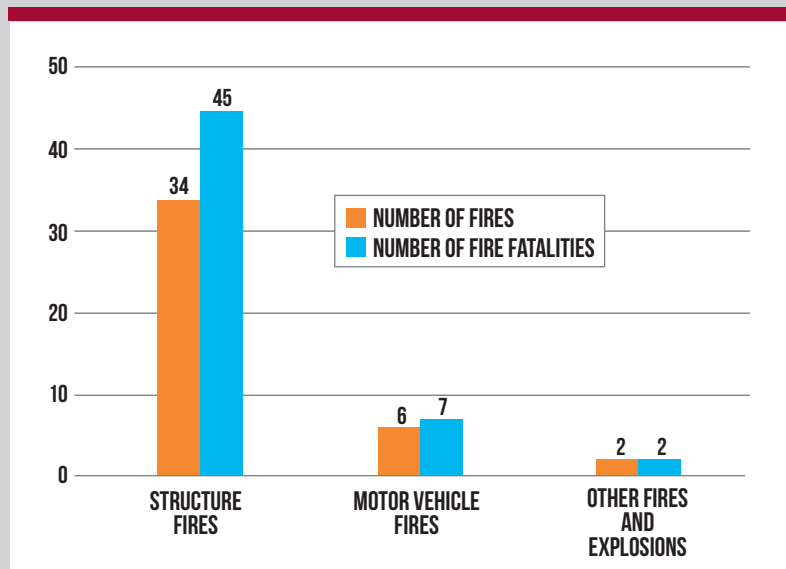
Fifty-four (54) civilians died in Massachusetts fires in 2014. Forty-five, or 83%, of these deaths occurred in structure fires. Forty-two (42), or 78% of these fire deaths, occurred where people feel safest, in their home. There were seven civilian deaths in motor vehicle fires and two deaths in outside fires. See Figure 2.

Creating safer communities through coordinated training, education, prevention, investigation, emergency response and leadership.

Smoke alarms are the key to notifying occupants of danger whether they are asleep or awake, but smoke alarms cannot guarantee escape from fires.

Figure 2

FATAL FIRES AND FIRE DEATHS



Half of People Died in Fires at Night

Half of the people died in fires that occurred at night, when people are usually asleep. Smoke alarms are the key to notifying occupants to danger whether they are asleep or awake, but they cannot guarantee escape. See Figure 3.

2014 Is above the 5 and 10-Year Averages

The 54 fire deaths in 2014 are greater than both the last five-year average of 45 deaths and the last 10-year average of 47 fire deaths. See Figure 4.

Figure 3

CIVILIAN FIRE DEATHS BY HOUR

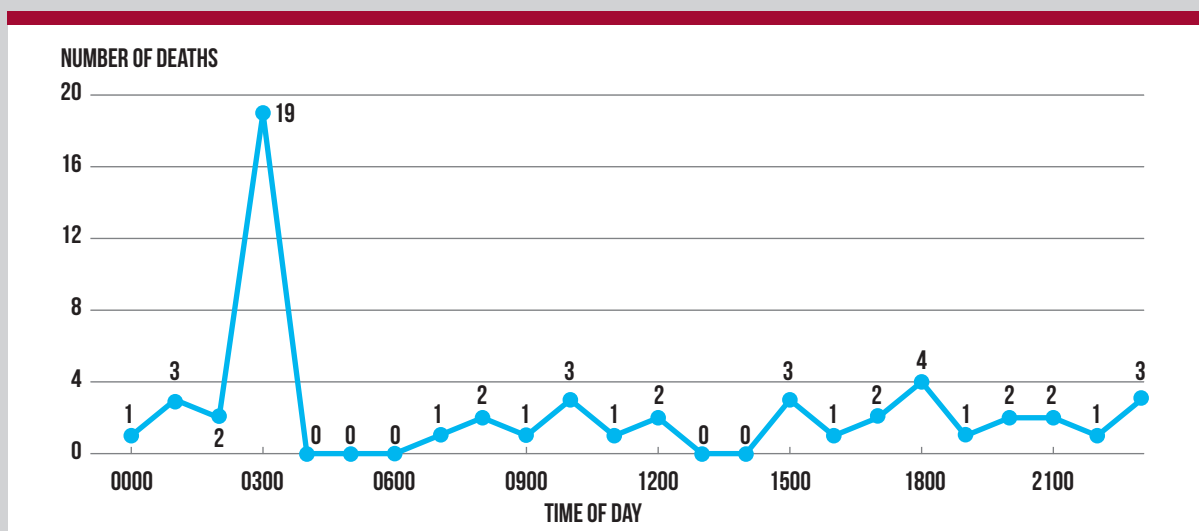
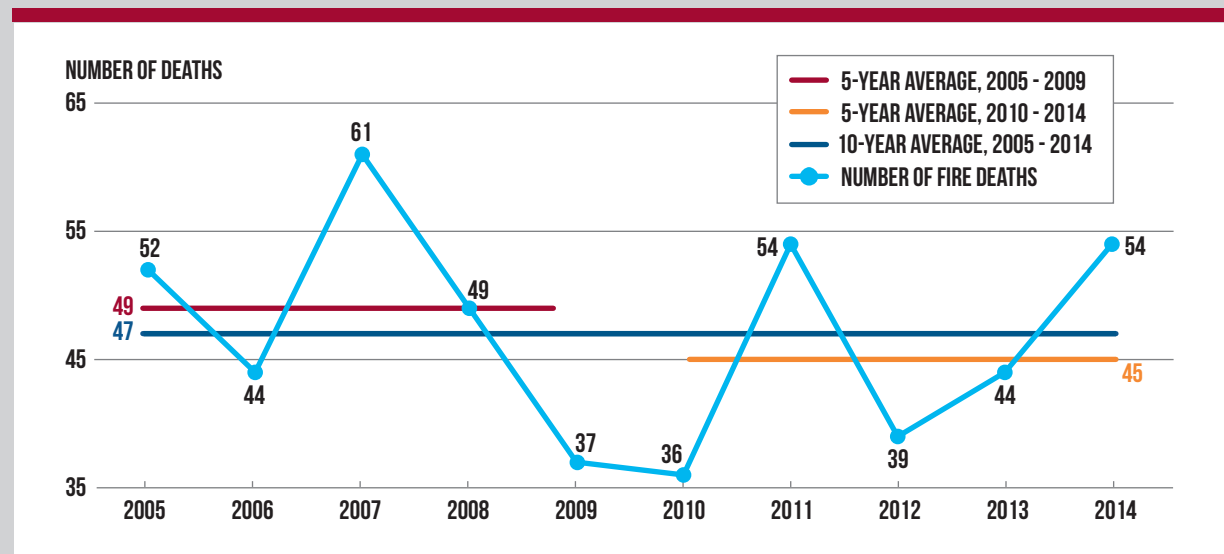


Figure 4

CIVILIAN FIRE DEATHS BY YEAR



27 Men, 21 Women and 6 Children under 18 Died from Fires in 2014

Of the 54 fire deaths in 2014, 27, or 50%, were men, 21, or 39%, were women and six, or 11%, were children under 18. See Figure 5.

28% of Fire Deaths Were People over the Age of 65

Fifteen (15), or 28%, of the civilian fatal fire victims were over 65 years of age. This included nine elderly men and six elderly women. Six (6), or 11%, of the civilian fatal fire victims were under 18 years old. Thirty-three (33), or 61%, were adults between 18 and 65 years of age. See Figure 6.

Figure 5

CIVILIAN FIRE DEATHS BY GENDER

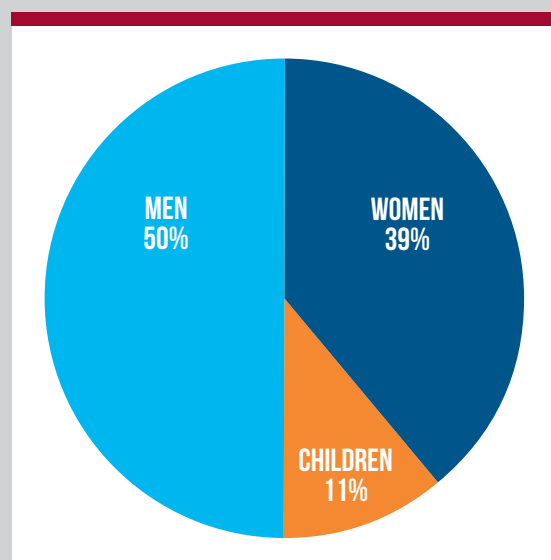
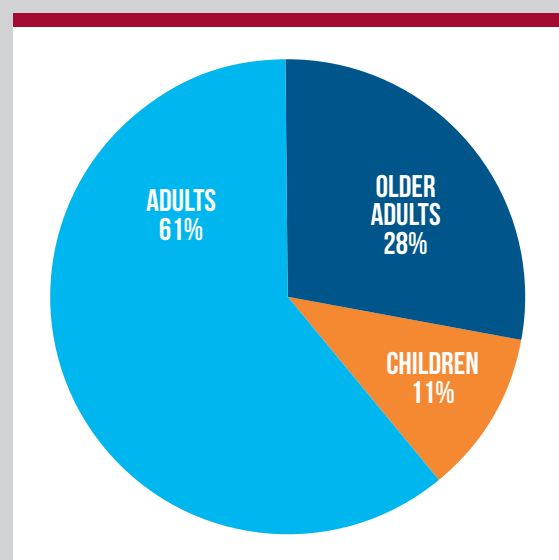


Figure 6

CIVILIAN FIRE DEATHS BY AGE

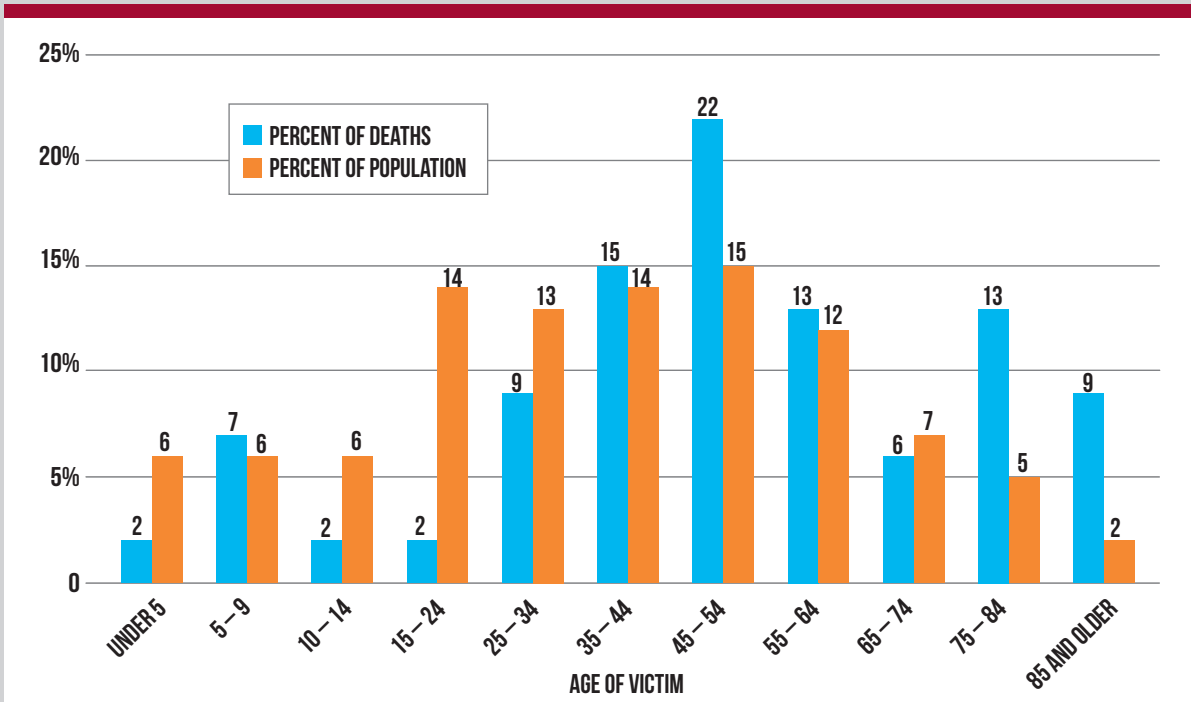


Older Adults Are Twice as Likely to Die in a Fire than Any Other Age Group

Older adults, especially those over the age of 85, had the greatest risk of dying in a fire. Adults over the age 85 account for 2% of the population but 9% of the fire deaths, making them 4.5 times more likely to die in a fire than any other age group. Figure 7 shows the percentage of fire deaths versus population percentage by age groups in 2014.

Figure 7

FIRE DEATHS BY AGE COMPARED TO PERCENT OF POPULATION



Child Fire Deaths Drop 50% Since the Start of the S.A.F.E. Program

Fire deaths of children under age 18 have fallen by 50% since the start of the S.A.F.E. Program in the fall of 1995. Average annual child fire deaths are down 72%. Sadly, in 2014, there were multiple child deaths in two fires. See Figure 8.

Electrical Fires Are Leading Cause of Fire Deaths

In 2014, electrical problems were the leading cause of residential fire deaths and fatal residential fires. These fires accounted for 15, or 36%, of residential fire deaths. Improper disposal of smoking materials was the second leading cause of fire deaths, accounting for nine, or 21%, of residential fire deaths. See Figure 9.

CIVILIAN INJURIES

310 Civilians Injured in Fires in 2014 – Mostly at Home

Massachusetts' fires injured 310 civilians in 2014. Two hundred and sixty-eight (268), or 86%, of civilian injuries occurred in structure fires. Two hundred and forty-seven (247) injuries occurred in residential building fires, accounting for 80% of all injuries and 92% of all structure fire injuries. Nine (9), or 3%, occurred in motor vehicle fires. Thirty-three (33), or 11%, of civilian injuries occurred in outside and other fires. Special outside fires accounted for nine, or 3%, of all civilian injuries. Brush fires accounted for six, or 2%, of civilian fire injuries; and outside rubbish fires accounted for one, or less than 1% of all civilian fire injuries. Seventeen (17), or 5%, of civilian injuries were caused by unclassified fires.

Figure 8

CHILD FIRE DEATHS BY YEAR

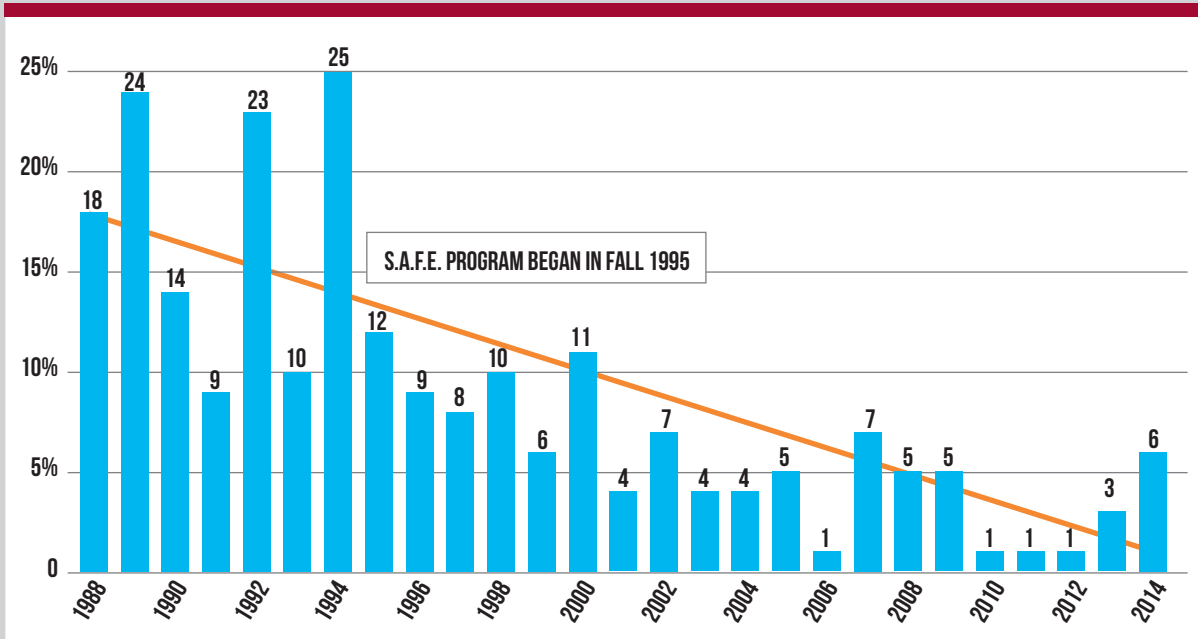
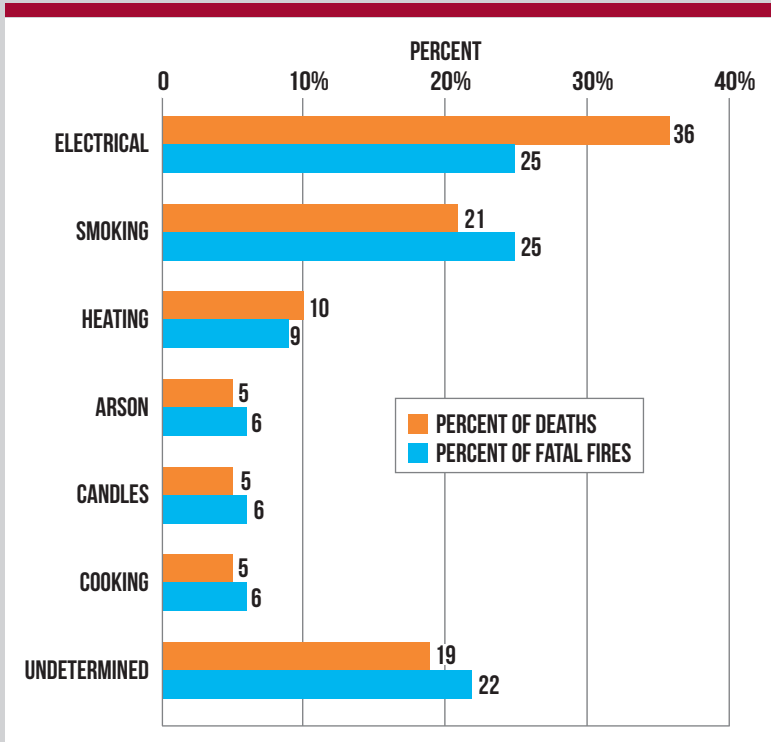


Figure 9

CAUSES OF RESIDENTIAL FATAL FIRES AND FIRE DEATHS



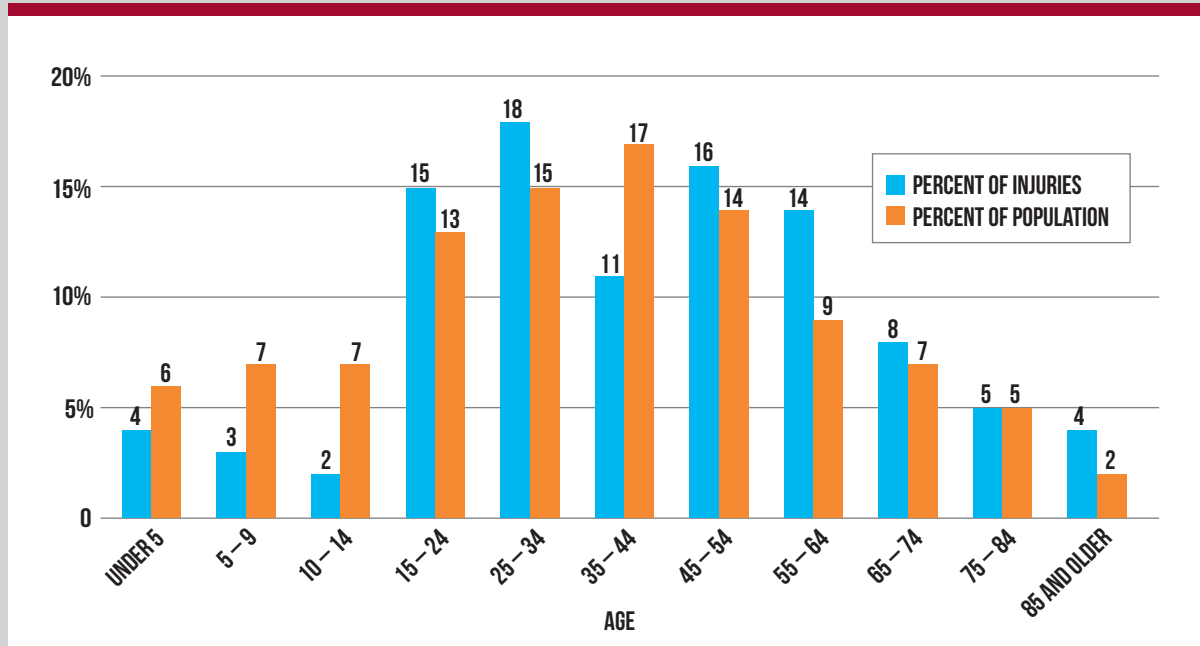
Average annual child fire deaths are down 72% since the beginning of the S.A.F.E. program in 1995.

Adults 55 to 64 at High Risk for Fire Injury

Adults between the ages of 55 and 64 represent 9% of the Massachusetts population, yet they accounted for 14% of the injuries at structure fires in 2014. Adults between the ages of 25 and 34 represent 15% of the population and yet they accounted for 18% of the injuries in 2014. People in these age groups are most at risk being injured in a fire because they are more likely to try and control the fire. In these age groupings, 48% of the fire-related injuries were incurred while trying to control the fire. See Figure 10.

Figure 10

INJURIES BY AGE COMPARED TO PERCENT OF POPULATION



2014 FIREFIGHTER DEATHS

2 Fire-Related Firefighter Deaths in 2014

In 2014, there were two fire-related fire service fatalities in one fire in the Commonwealth of Massachusetts. Lieutenant Edward Walsh and Firefighter Michael Kennedy of the Boston Fire Department were trapped in the basement of a townhouse fire. In the past five years there have been six fire-related fire service deaths for an average just over one fire-related fire service death per year.

FIRE SERVICE INJURIES

450 Firefighters Injured in 2014

In 2014, 450 firefighters were injured while fighting the 28,999 reported fires in Massachusetts. On average, one firefighter was injured at one of every 66 fires in 2014.

Vacant Building Fires Cause Most Firefighter Injuries per Fire

Firefighters were injured at one of every seven vacant building fires. Fires in vacant buildings continue to cause most firefighter injuries. Electrical fires and fires in vacant buildings caused the most injuries at structure fires. See Figure 11.

IN MEMORY MASSACHUSETTS FIREFIGHTERS LOST IN 2014



Lt. Edward J. Walsh
Boston Fire Department
Engine Co. 33

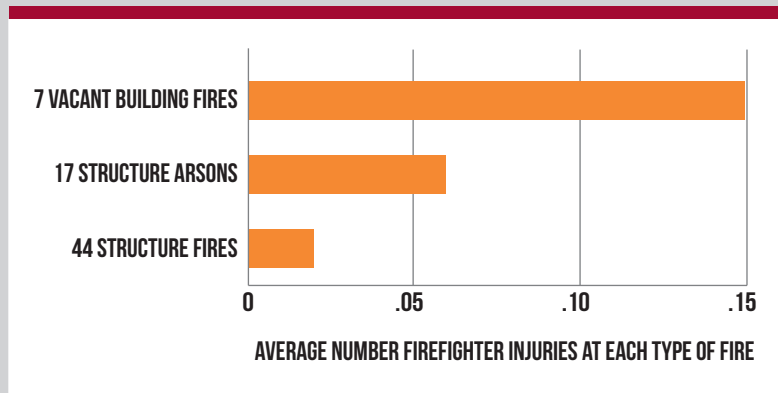


Firefighter Michael Kennedy
Boston Fire Department
Ladder Co. 15

In 2014, 450 firefighters were injured while fighting the 28,999 reported fires in Massachusetts. On average, one firefighter was injured at one of every 66 fires in 2014.

Figure 11

ONE FIREFIGHTER IS INJURED AT EVERY:



Over 1/3 of Injuries from Overexertion or Strain

Thirty-five percent (35%) of all firefighter injuries in 2014 were from overexertion or strains. Seventy-two percent (72%) of firefighter injuries were reported as minor. See Figure 12.

RESIDENTIAL BUILDING FIRES

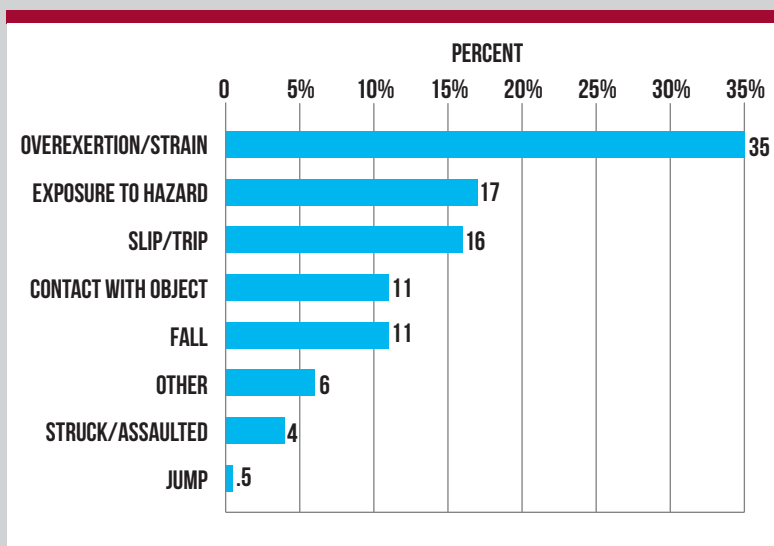
85% of Building Fires Occurred in Residential Occupancies

Massachusetts fire departments reported that 14,733, or 85%, of the 17,327 building fires occurred in residential occupancies. These fires caused 42 civilian deaths, two fire service deaths, 247 civilian injuries, 341 fire service injuries and an estimated dollar loss of \$150.5 million.

In 2014, 35% of all firefighter injuries were from overexertion or strains. Seventy-two percent of firefighter injuries were reported as minor.

Figure 12

CAUSES OF FIREFIGHTER INJURIES

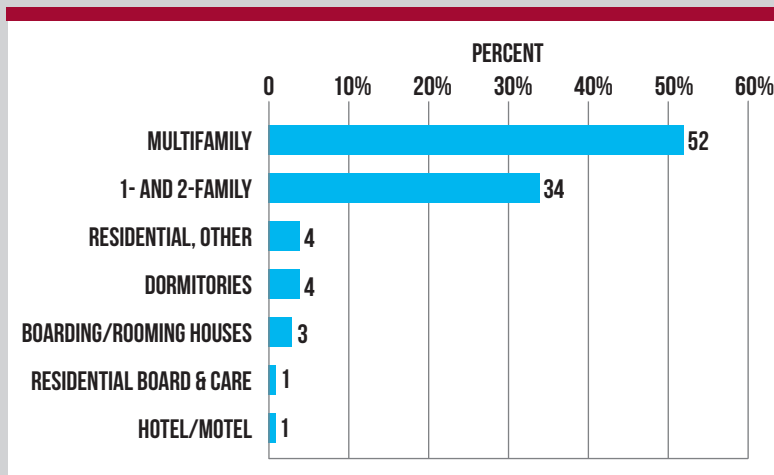


Over 1/2 of Residential Fires Occurred in Multi-Family Homes

Seven thousand six hundred and ninety (7,690) fires occurred in multi-family homes in 2014. These fires accounted for 52% of all the residential building fires. Five thousand and thirty-seven (5,037) fires occurred in one- or two-family homes in 2014. These fires accounted for 34% of all the residential building fires. See Figure 13.

Figure 13

RESIDENTIAL FIRES BY OCCUPANCY TYPE

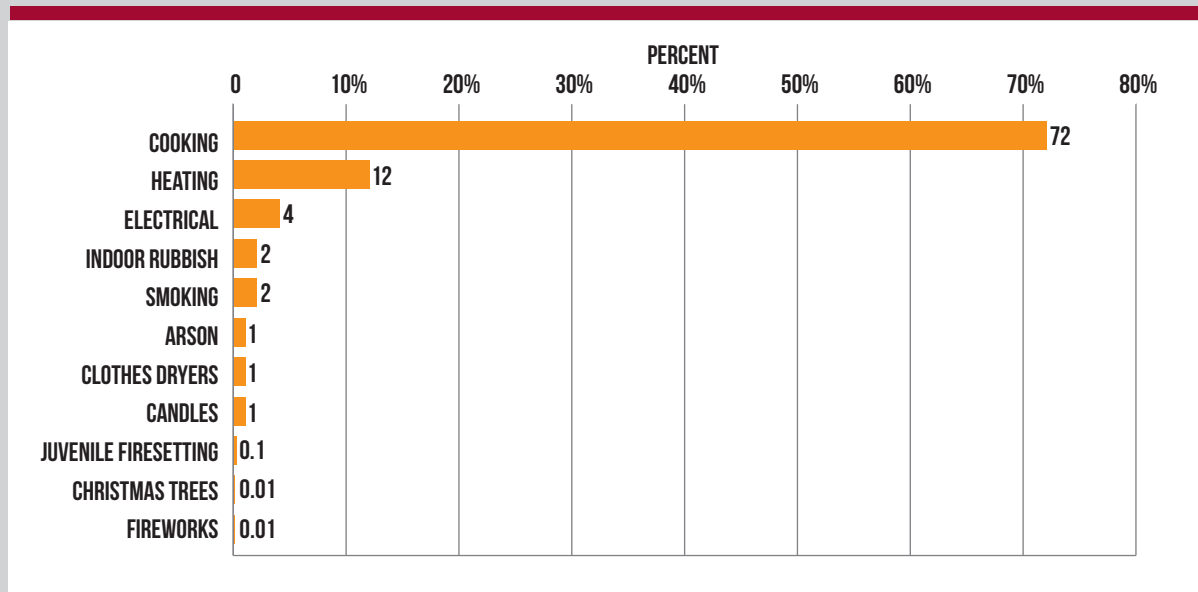


Cooking Was the Leading Cause of Home Fires in 2014

Cooking fires were the leading of fires in the Commonwealth's homes. There were 10,630 reported cooking fires, or 72%, of the 14,733 incidents. Heating equipment accounted for 1,763, or 12%, of the total fires. Electrical problems caused 544, or 4%, of incidents. See Figure 14.

Figure 14

CAUSES OF RESIDENTIAL FIRES



MOTOR VEHICLE FIRES

2,496 Motor Vehicle Fires Account for 9% of All Reported Fires

Motor vehicle fires accounted for 9% of total reported fire incidents. The 2,496 motor vehicle fires in 2014 were a decrease of 4% from the 2,595 motor vehicle fires reported in 2013. They caused seven, or 13%, of the civilian fire deaths, nine civilian injuries, 18 fire service injuries, and an estimated property damage of \$28.3 million.

OUTSIDE AND OTHER FIRES

9,100 Brush, Trash, & Other Outside Fires Down 8%

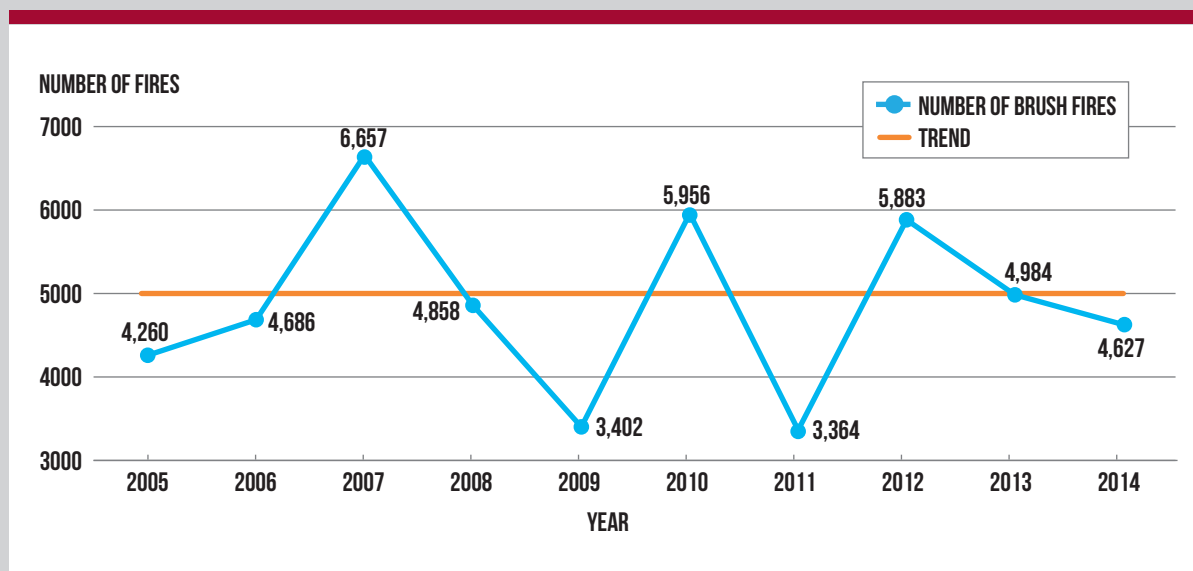
The 9,100 outside and other fires and explosions caused two civilian deaths, 33 civilian injuries, 35 fire service injuries, and an estimated dollar loss of \$5 million. The 4,627 trees, grass and brush fires, 2,691 outside trash fires, 761 special outside fires, 39 cultivated vegetation or crop fires, and 982 other fires accounted for 31% of the total fire incidents in 2014. These fires decreased by 8% from the 9,924 incidents reported in 2013.

Brush Fires

Brush fires are the most variable category of fires from year to year. Large increases and decreases are not uncommon and are often dependent on the weather. If it is a dry spring or summer, the number of brush fires usually increases. In 2014, the reported number of brush fires decreased by 357 or 7%, from the 4,984 reported in 2013. See Figure 15.

Figure 15

BRUSH FIRES BY YEAR



In 2014, 201 structure arsons, 67 motor vehicle arsons, and 533 outside and other arsons caused six civilian deaths, accounting for 14% of civilian fire deaths, five civilian injuries and 16 fire service injuries.

ARSON FIRES

801 Arsons - 201 Structures, 67 Vehicles, 533 Other Arsons

Eight hundred and one (801), or 3%, of the 28,999 fire incidents reported to the Massachusetts Fire Incident Reporting System were considered to be intentionally set, or for the purpose of analysis, arson¹. The 201 structure arsons, 67 motor vehicle arsons, and 533 outside and other arsons caused six civilian deaths, accounting for 14% of civilian fire deaths, five civilian injuries and 16 fire service injuries. The estimated dollar loss from arsons was \$7.2 million. The average dollar loss per arson fire was \$8,985. Total arson was down by 12% from the 906 in 2013.

NON-FIRE INCIDENTS

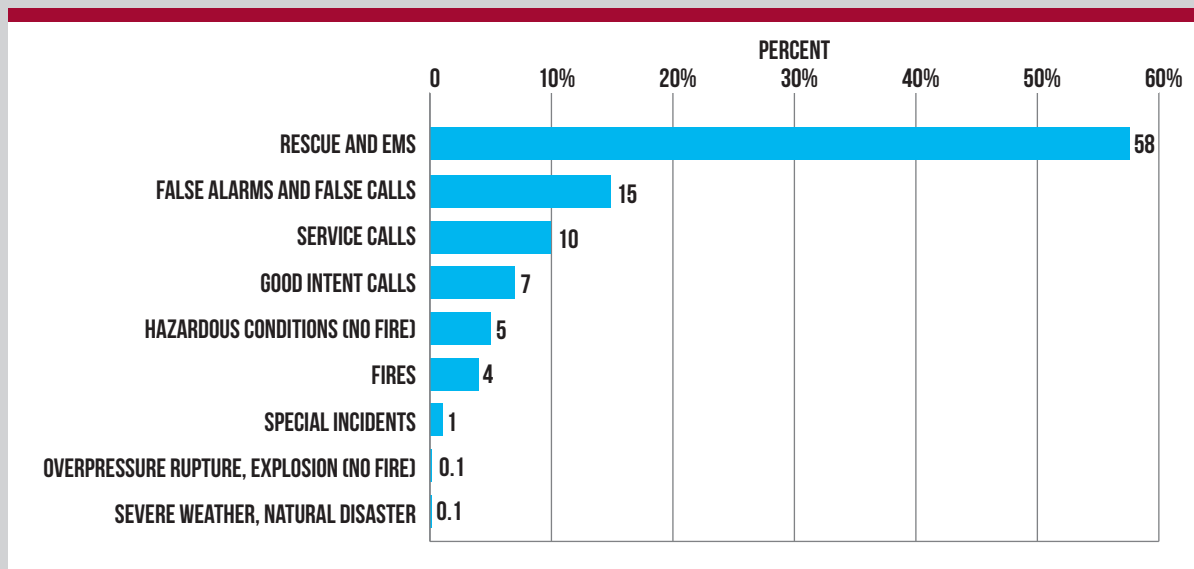
58% of All Massachusetts Calls Were EMS Incidents

In 2014, 344 fire departments in Massachusetts reported 809,769 responses to MFIRS (including mutual aid responses). Of these 809,769 responses, 779,040 non-fire calls were voluntarily reported. Rescue and EMS calls were by far the leading type of call that Massachusetts fire departments responded to with 472,446, or 58% all reported calls. See Figure 16.

¹ In MFIRS (v5) a fire is considered an arson if the Cause of Ignition = 1 (Intentional) and the Age of Person (Fire Module) is greater than 17 or if the field is blank; or if the Wildland Module is used, the Wildland Fire Cause = 7 (Incendiary) and the Age of the Person (Wildland Module) is greater than 17 or if the field is left blank.

Figure 16

RESPONSES BY INCIDENT TYPE



CONCLUSIONS

Working Smoke Alarms Save Lives

Most people die in fires at night in the so-called safety of their own home. While the overall trend in the number of deaths continues to decline, electrical fires overtook smoking as the leading cause of all fatal fires in 2014. Yet cooking, something that we do everyday, is still the leading cause of fires in the home and the leading cause of civilian fire injuries. We must all work to address this problem.

The lack of working smoke alarms or sprinkler systems are contributing factors to these tragedies. It is important to remember that properly maintained alarms provide an early warning of a fire, and residential sprinklers provide the opportunity to safely escape. It is important to make and practice an escape plan. Having working smoke alarms gives us valuable time, but a practiced home escape plan allows us to get out of our houses quickly. Time is of the essence in a fire.

Cooking remains the leading cause of fires in the home and the leading cause of civilian fire injuries. The lack of working smoke alarms or sprinkler systems are contributing factors to these tragedies.

2014 FIRES BY COUNTY

County	Total Fires	Structure Fires	Vehicle Fires	Other Fires	Civilian Deaths	Civilian Injuries	Fire Service Deaths	Fire Service Injuries	Dollar Loss
Barnstable	881	403	82	396	2	40	0	7	\$9,466,227
Berkshire	475	293	45	137	0	11	0	15	6,208,858
Bristol	1,976	847	262	867	5	37	0	13	16,051,757
Dukes	22	10	1	11	0	0	0	1	237,602
Essex	2,854	1,635	244	975	8	29	0	88	25,047,501
Franklin	263	115	24	124	0	2	0	3	2,435,298
Hampden	1,965	1,081	223	661	4	34	0	47	14,402,137
Hampshire	401	204	34	168	0	5	0	5	5,659,909
Middlesex	4,860	3,115	410	1,335	18	47	0	85	46,522,485
Nantucket	82	41	11	30	1	0	0	0	472,543
Norfolk	3,130	1,812	245	1,073	2	19	0	54	19,227,021
Plymouth	1,840	793	203	844	3	33	0	30	14,135,493
Suffolk	6,627	4,901	349	1,377	5	15	2	54	52,177,781
Worcester	3,618	2,153	363	1,102	6	38	0	48	29,796,111
Total	28,999	17,403	2,496	9,100	54	310	2	450	\$241,840,723

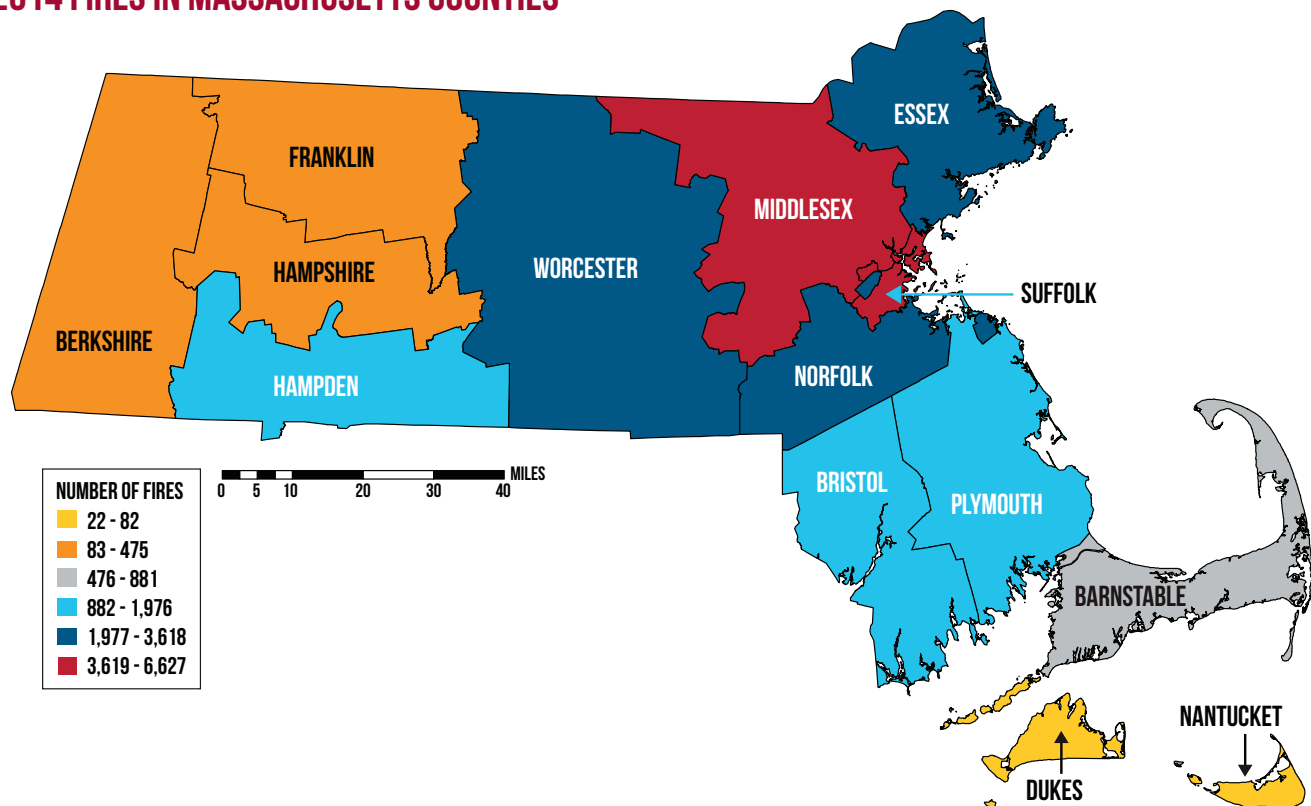
2014 ARSONS BY COUNTY

County	Total Arsons	Structure Arsons	Vehicle Arsons	Other Arsons	Civilian Deaths	Civilian Injuries	Fire Service Deaths	Fire Service Injuries	Dollar Loss
Barnstable	52	7	4	41	0	0	0	0	\$415,200
Berkshire	19	3	3	13	0	0	0	1	99,800
Bristol	86	32	11	43	1	3	0	0	1,300,002
Dukes	1	0	0	1	0	0	0	0	0
Essex	79	12	7	60	1	0	0	5	850,075
Franklin	18	3	0	15	0	1	0	0	500
Hampden	55	17	6	32	1	0	0	0	631,181
Hampshire	30	2	0	28	0	0	0	0	15,056
Middlesex	72	28	9	35	0	2	0	3	500,236
Nantucket	3	0	1	2	2	1	0	0	0
Norfolk	78	11	5	62	1	0	0	1	1,288,503
Plymouth	67	25	4	38	0	0	0	2	361,050
Suffolk	159	33	8	118	0	0	0	0	446,230
Worcester	82	28	9	45	1	0	0	4	1,289,179
Total	801	201	67	533	6	5	0	16	\$7,197,012

2014 NON-FIRE RESPONSES BY COUNTY AND BY INCIDENT TYPE

County	Total Non-Fire Responses	Over-pressure Rupture, Explosion (No-fire)	Rescue, EMS Incidents	Hazardous Conditions (No-fire)	Service Calls	Good Intent Calls	False Alarm Calls	Severe Weather, Natural Disaster	Special Incidents
Barnstable	38,824	44	26,554	1,964	3,096	1,874	5,087	70	135
Berkshire	10,595	12	5,808	916	1,345	505	1,921	40	48
Bristol	55,715	66	36,882	2,257	3,625	3,340	9,086	47	412
Dukes	565	0	44	48	19	131	317	0	6
Essex	98,555	93	56,442	4,247	14,239	6,565	16,123	136	710
Franklin	6,877	22	3,828	679	888	511	752	88	109
Hampden	43,969	104	26,050	1,869	3,570	5,294	6,903	30	149
Hampshire	13,605	44	8,091	729	1,465	729	2,442	22	99
Middlesex	172,734	141	100,895	9,731	18,899	9,923	27,744	203	5,198
Nantucket	2,954	3	1,348	343	155	100	999	2	4
Norfolk	81,905	127	50,205	4,526	8,120	5,180	11,958	46	1,743
Plymouth	73,547	79	49,331	3,344	6,546	5,334	8,601	65	247
Suffolk	94,321	80	51,474	4,198	13,120	8,308	16,743	75	323
Worcester	84,892	91	55,495	3,782	7,152	5,474	11,544	65	1,289
Massachusetts	779,058	906	472,447	38,633	82,239	53,252	120,220	889	10,472

2014 FIRES IN MASSACHUSETTS COUNTIES





MFIRS
Massachusetts Fire Incident Reporting System

Department of Fire Services
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(978) 567-3380