

Prepared by the Washington State Patrol - State Fire Marshal's Office

Washington State Fireworks-Related INJURY AND FIRE REPORT 2015



A MESSAGE FROM THE STATE FIRE MARSHAL



The following report provides an objective overview and analysis of the fireworks-related injuries and fires that took place in Washington State during 2015.

The information contained in this annual report details the following:

- Fireworks-related injuries were up 11% in 2015, with 241 injuries reported.
- There were no fatalities involving consumer fire works; 1 fatality involved a homemade pipe bomb that pre-ignited during fabrication.
- Injury data showed that males, 36 years and older were most often injured by fireworks.
- There were 240 fireworks-related fires reported, resulting in \$627,080 in property loss.
- Overall, fireworks-related incidents continue to occur most often on the Fourth of July.

The ongoing assistance of many hospitals, fire and law enforcement agencies have made this publication possible. Special thanks are due to them for their support, collective wisdom, and commitment to advancing public safety and the fireworks programs in Washington State.

Sincerely,

A handwritten signature in blue ink that reads "C.M. Duffy". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

State Fire Marshal Charles M. Duffy
Fire Protection Bureau

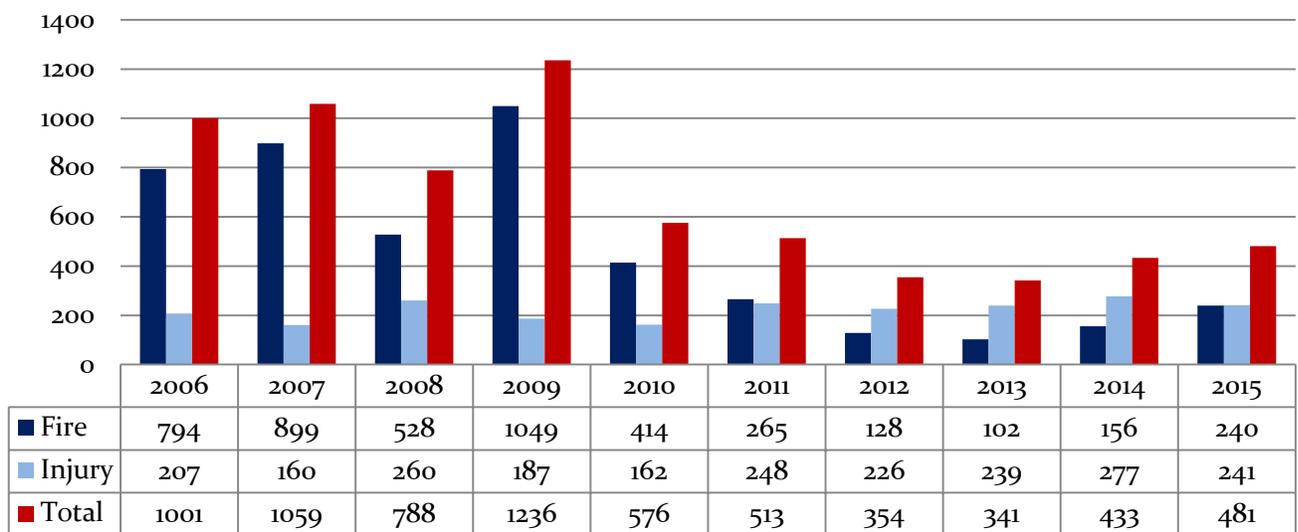
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2015 Washington State Fireworks-Related Injury and Fire Report

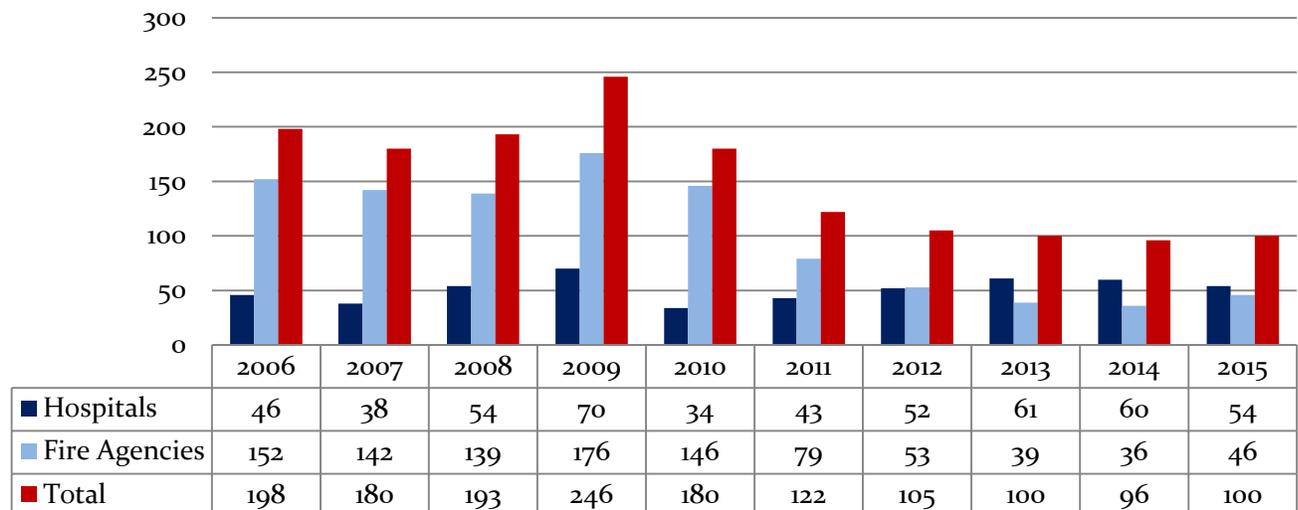
There were 481 fireworks-related injuries and/or fires reported to the Office of the State Fire Marshal in 2015 by fire agencies and hospital emergency rooms. This is an 11% increase from the previous year's total of 433 reported incidents. Data shown in this report was collected from forms submitted by individual fire agencies, hospitals, and clinics.

Of the 481 reports received, there were 240 fires resulting in \$627,080 in property loss and 241 injuries.

Number of Fireworks Related Incidents - 10 Year Trend



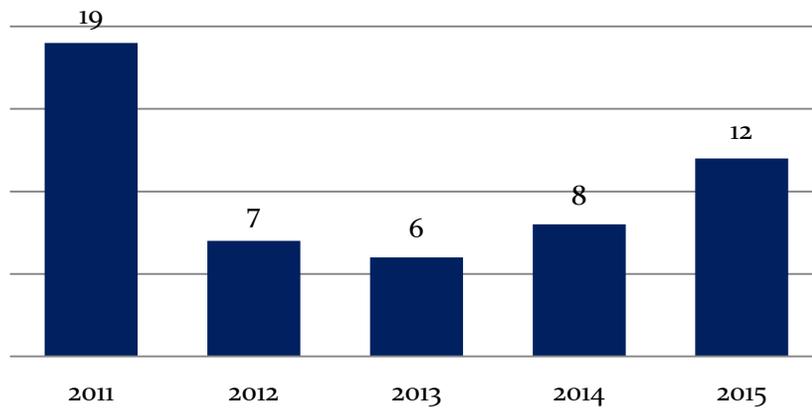
Number of Agencies Reporting Data - 10 Year Trend



Sparkler Bombs

In 2015, there was a 50% increase in the number of sparkler bomb incidents reported over the previous year.

Sparkler Bomb Incidents

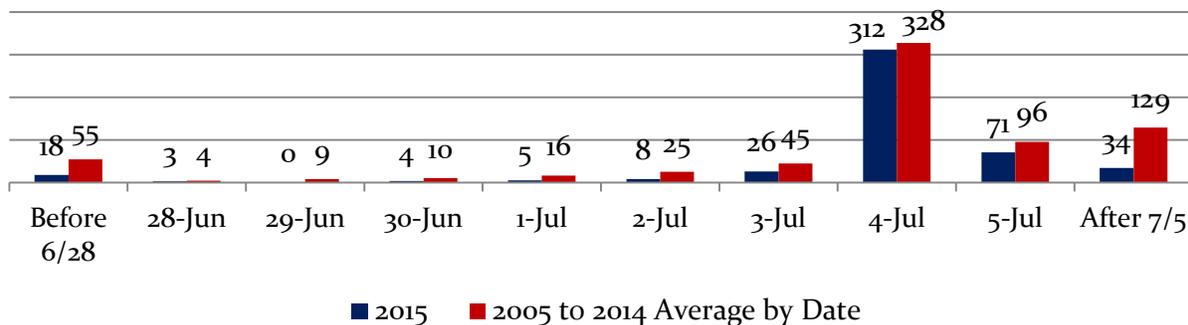


Sparkler bombs are high powered illegal explosive devices. They can be as powerful as a stick of dynamite, igniting accidentally or prematurely by exposure to heat or friction. This often unanticipated discharge is dangerous. In addition to the loud discharge, they produce shrapnel from sparklers (metal wire), materials used to make the bomb, and anything the device destroys by projecting debris. This shrapnel can cause life altering injuries such as amputations and severe eye injuries.

Occurrence of Fireworks-Related Injuries and Fires

Firework-related incidents continue to occur most often on July 4th. This is a trend that has remained constant over the past ten years.

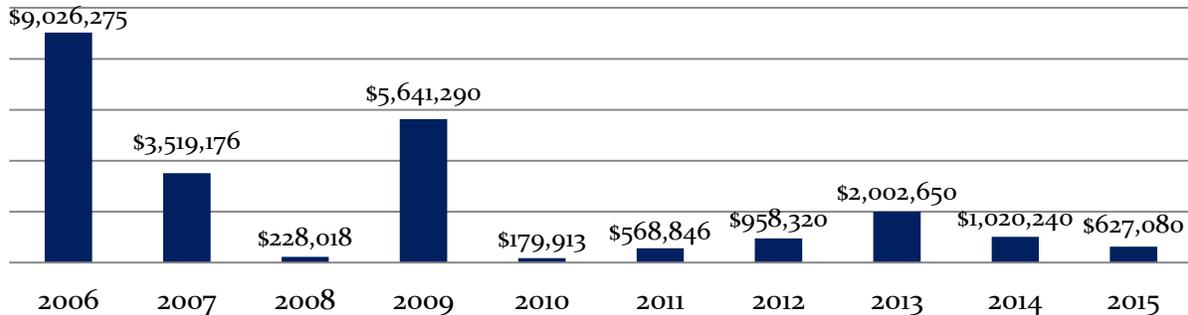
Incidents by Date; 2015 vs. 10 Year Average



Economic Fire Loss

The total reported economic loss caused by fireworks-related fires caused an estimated loss of \$627,080, in 2015. This figure dropped 39% from the previous year.

Fireworks Caused Fires/Loss - 10 Year Trend



* 2006 - \$8,852,350 of the total fire loss came from:

- 3 school fires – total of \$8,052,350
- 4 residential fires – total of \$800,000

* 2009 - \$5,025,000 of the total fire loss came from:

- 6 residential fires – total of \$4,775,000
- 1 wildland fire – total of \$250,000

Analysis of Fires

The firework types listed below were identified as causing the following incidents (Table 1):

- Illegal fireworks
 - 48 fires (19%) – wildland or vegetation fires occurred the most
 - \$110,305 in damage – most to residential structures
- Legal fireworks
 - 76 fires (32%) – wildland or vegetation fires occurred the most
 - \$33,475 in damage – most to a moving truck loaded with display fireworks
- Unknown type of fireworks
 - 117 fires (49%) – wildland or vegetation fires occurred the most
 - \$483,300 in damage – most to residential structures

Property Type	Number of Fires				Dollar Loss			
	Illegal	Legal	Unknown	Total	Illegal	Legal	Unknown	Total
Commercial	0	1	2	3	\$ -	\$ 15,000	\$ 33,000	\$ 48,000
Residential	5	5	5	15	\$ 101,050	\$ 2,500	\$ 424,100	\$ 527,650
School/Grounds	3	1	5	9	\$ 100	\$ 500	\$ 20,000	\$ 20,600
Vehicle	0	2	0	2	\$ -	\$ 12,000	\$ -	\$ 12,000
Wildland or Vegetation	37	61	95	193	\$ 6,155	\$ 2,400	\$ 4,000	\$ 12,555
Other*	3	6	10	19	\$ 3,000	\$ 1,075	\$ 2,200	\$ 6,275
Total	48	76	117	241	\$ 110,305	\$ 33,475	\$ 483,300	\$ 627,080

* Other fires include dumpsters, fences, beauty bark, fences, etc.

**Table # 1A
Fires and Dollar Loss By Classification of Fireworks Device - 2010 to 2014**

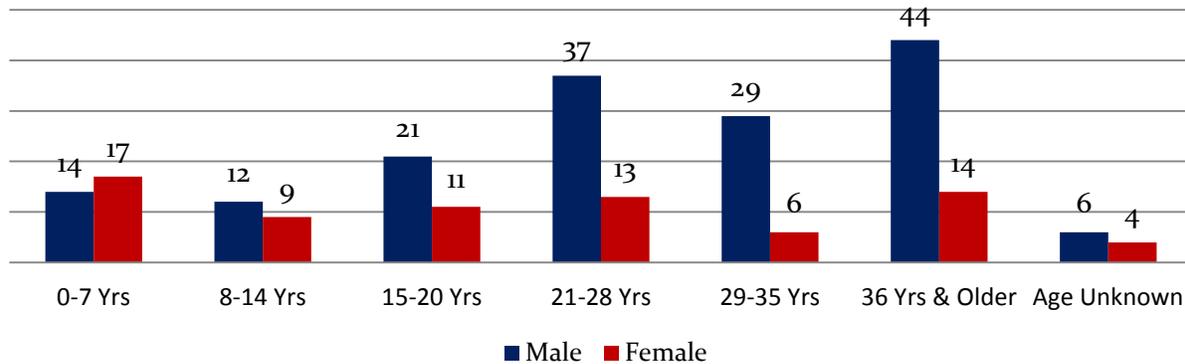
	Number of Fires				Dollar Loss			
	Firework Type				Firework Type			
Property Type	Illegal	Legal	Unknown	Total	Illegal	Legal	Unknown	Total
Commercial	5	6	14	25	\$ 94,402	\$ 75,000	\$ 500	\$ 169,902
Residential	25	16	33	74	\$1,394,523	\$ 314,294	\$ 859,500	\$2,568,317
School/Grounds	10	3	4	17	\$ 2,100	\$ -	\$ -	\$ 2,100
Vehicle	6	1	8	15	\$ 8,050	\$ -	\$ 67,300	\$ 75,350
Wildland or Vegetation	93	348	360	801	\$ 12,500	\$ 71,030	\$ 117,340	\$ 200,870
Other*	27	14	90	131	\$1,623,200	\$ 1,800	\$ 88,430	\$ 1,713,430
Total	166	388	509	1063	\$3,134,775	\$ 462,124	\$ 1,133,070	\$4,729,969

* Other fires include dumpsters, portable toilets, book deposits, etc.

Fireworks Injuries

Fireworks-related injuries by age and gender show that males, 36 years and older are most often injured.

2015 Fireworks Injuries by Age and Gender



Analysis of Injuries

In 2015, there were 241 fireworks-related injuries reported. The leading types of injuries reported were (Table #2):

- Burns (first, second and third-degree combined); 119 or 49%
- Multiple Injury from being struck by or holding a firework; 86 or 36%

Type of Injury	Firework Type				Injury Site	Firework Type			
	Illegal	Legal	Unknown	Total		Illegal	Legal	Unknown	Total
Amputation	11	8	0	19	Arm or Hand	15	60	6	81
First Degree Burn	9	26	4	39	Head or Face	11	39	16	66
Second Degree Burn	9	51	12	72	Leg or Foot	6	9	3	18
Third Degree Burn	3	3	2	8	Multiple Locations	20	29	13	62
Multiple Injury Type	5	25	11	41	Torso	2	10	2	14
Trauma	16	31	11	58		54	147	40	241
Fatality*	1	0	0	1					
Unknown	0	3	0	3					
Total	54	147	40	241					

* A pipe bomb preignited during illegal manufacture, killing one.

Firework Types Causing Injury

Table #3 shows the types of firework devices that caused injuries.

- Illegal fireworks; 57 injuries or 24%
- Legal fireworks; 144 injuries or 60%
- Unknown fireworks; 40 injuries, or 16%

Most commonly used fireworks causing injuries:

Legal fireworks:

- ❖ Multi-Aerials; 32%
- ❖ Sparklers; 13%
- ❖ Roman Candles; 2%

Illegal fireworks:

- ❖ Homemade Devices; 22%
- ❖ M-80/M-100, etc. ; 4%
- ❖ Firecrackers & Chasers; 4%

Table #3 Injuries by Type of Device				
	Illegal	Legal	Unknown	Total
Bottle Rockets	7			7
Firecrackers and Chasers	9			9
Homemade Explosive Devices	22			22
M-80's, M-100's, Cherry Bombs	10			10
Missiles and Rockets	8			8
Cones and Fountains	0	8	0	8
Ground Spinners	0	5	0	5
Multi Aerials / Aerial Shells/ Mortars	0	77	0	77
Novelties	0	4	0	4
Public Display Mortars (1.3g)	1	0	0	1
Roman Candles	0	9	0	9
Smoke Items	0	4	0	4
Sparklers (Sparkler Bombs under Homemade)	0	32	0	32
Other	0	5	1	6
Unknown			39	39
Total	57	144	40	241

Analysis of Cause

Table #4 shows the leading cause of fireworks-related injuries.

- Too close to lit fireworks/hit by fireworks; 89 injuries or 37%
- Holding fireworks in hand; 75 injuries or 31%

Table #4 Cause of Injury	
Action	Total
Duds-relighting or handling dud	3
Holding fireworks in hands	75
Leaning over fireworks	13
Altering/Illegal manufacture	11
Unsafe surface for lighting	11
Lighting fireworks	19
Children with sparkler (infant to 7 years)	3
Too close to lit fireworks/hit by fireworks	89
Other	16
Unknown	1
Total	241

Incident Summary by County and Reporting Agency Type

Table #5 provides a summary of the total fireworks-related incidents by county and reporting agency type. In 2015, Adams, Columbia, Douglas, Ferry, Klickitat, Lincoln, San Juan, Skamania and Wahkiakum did not report any incidents.

Table # 5						
Summary by County and Agency Type Reporting Incidents in 2015						
County	Fire Agencies			Hospitals		Total
	Fire	Injury	Total	Injury	Total	
Asotin	10	0	10	2	2	12
Benton	4	0	4	3	3	7
Clark	8	2	10	22	22	32
Cowlitz	0	0	0	2	2	2
Franklin	8	0	8	1	1	9
Garfield	3	0	3	0	0	3
Grant	10	0	10	2	2	12
Grays Harbor	2	1	3	7	7	10
Island	6	0	6	5	5	11
Jefferson	1	0	1	0	0	1
King	115	1	115	57	57	173
Kitsap	5	0	5	11	11	16
Kittitas	0	0	0	1	1	1
Lewis	0	0	0	3	3	3
Mason	0	0	0	2	2	2
Okanogan	0	0	0	2	2	2
Pacific	1	1	2	0	0	2
Pend Oreille	0	0	0	1	1	1
Pierce	15	1	16	33	33	49
Skagit	0	0	0	6	6	6
Snohomish	32	1	33	55	55	88
Spokane	0	0	0	2	2	2
Stevens	0	0	0	1	1	1
Thurston	12	0	12	6	6	18
Walla Walla	0	0	0	2	2	2
Whatcom	6	1	7	1	1	8
Whitman	2	0	2	0	0	2
Yakima	0	0	0	6	6	6
Total	240	8	248	233	233	481

ACKNOWLEDGEMENTS

Publication and Design

Chuck Duffy, State Fire Marshal
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Lysandra Davis, Deputy State Fire Marshal
Lillian Dyou, Office Assistant 3

Data Collection

Special thanks to the 100 hospitals, and fire and law enforcement agencies for submitting data.

