

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

# Washington State Fireworks-Related INJURY AND FIRE REPORT 2017



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# MESSAGE FROM THE STATE FIRE MARSHAL

The following report provides an objective overview and analysis of the fireworks-related injuries and fires that were reported by fire agencies, hospitals and clinics to the State Fire Marshal's Office in 2017.

The information contained in this annual report details the following:

- Fireworks-related injuries were up slightly in 2017, with 262 injuries reported.
- Statistics showed that males, age 36 and older, had the highest risk of fireworks-related injuries.
- Burns continue to be the leading type of reported injury.
- There were 83 fires reported due to fireworks use, resulting in a loss of \$59,200.

The ongoing assistance of many hospitals, clinics, and fire agencies have made this publication possible. Special thanks are due for their commitment to public safety and the fireworks program in Washington State.

Sincerely,



State Fire Marshal Charles P. LeBlanc

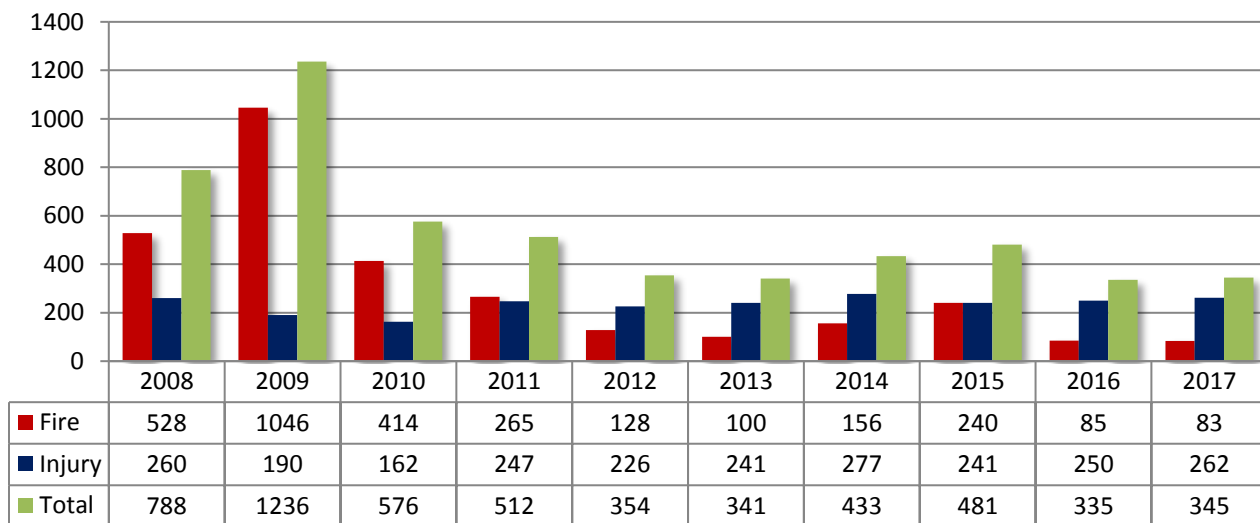


## 2017 WASHINGTON STATE FIREWORKS-RELATED INJURY & FIRE REPORT

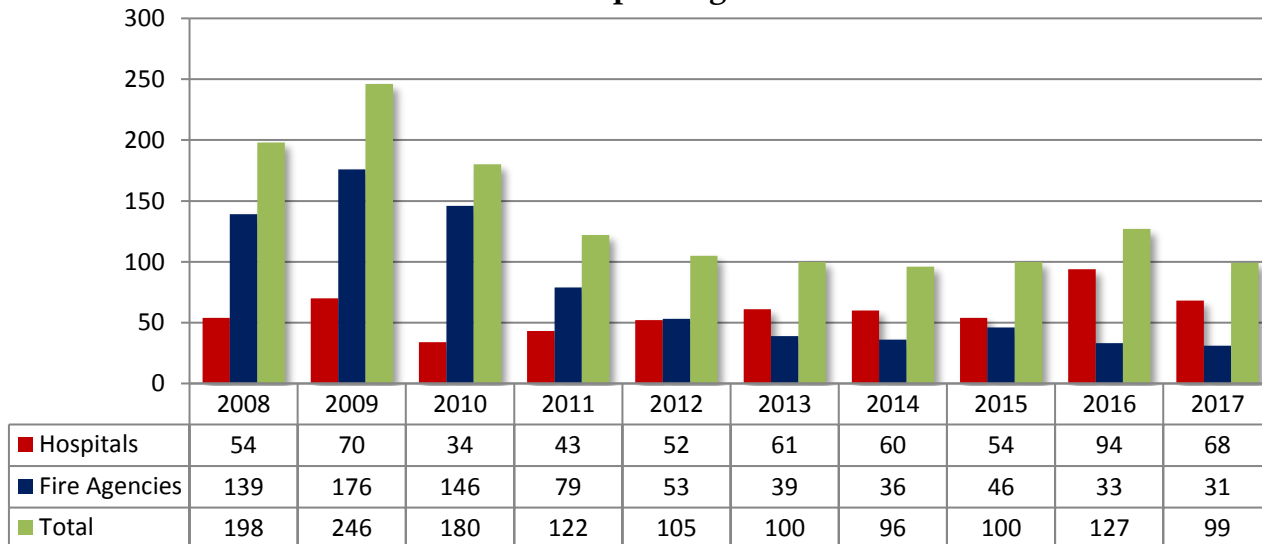
The data presented in this report is reflective of the paper-based incident reports submitted by the participating fire agencies, hospitals, and clinics. The National Fire Incident Reporting System (NFIRS) data was unavailable for analysis from 2011 to 2017; therefore, the information presented may not be inclusive of the actual number of incidents and injuries taking place in Washington State. In July 2017, the legislature returned the NFIRS program administration to the State Fire Marshal's Office, and implementation took effect January 1, 2018. Future publications of fireworks-related injuries and fires will be inclusive of this information.

Of the 345 reports received, there were 83 fires resulting in \$59,200 in property loss and 262 injuries. This is a three percent increase from the previous year's total of 335 reported incidents.

### Number of Fireworks-Related Incidents - 10-Year Trend



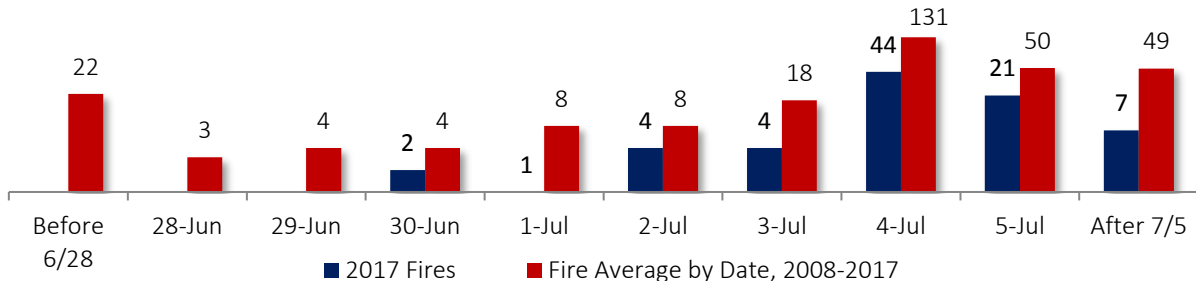
### Number of Entities Reporting - 10-Year Trend



## OCCURRENCE OF FIREWORKS-RELATED FIRES

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

**Fireworks-Related Fires by Date; 2017 Compared to 10-Year Average**



## FIRES BY CLASSIFICATION OF FIREWORKS DEVICE

The firework types listed below were identified as causing the following incidents:

- State illegal fireworks – Includes fireworks legal to possess and discharge only on tribal lands, and explosive devices
  - 6 fires (7%)– wildland or vegetation fires occurred the most
  - \$3,500 in damage – most to residential structures
- State legal fireworks – Fireworks legal to possess and discharge on and off tribal lands
  - 29 fires (35%) – wildland or vegetation fires occurred the most
  - \$28,100 in damage – most to residential structures
- Unknown type of fireworks
  - 48 fires (58%) – wildland or vegetation fires occurred the most
  - \$27,600 in damage – most to residential structures

**Fires and Dollar Loss By Classification of Fireworks Device - 2017**

Property Type	Number of Fires				Dollar Loss			
	Firework Type				Firework Type			
	Illegal	Legal	Unknown	Total	Illegal	Legal	Unknown	Total
Commercial	0	0	2	2	\$ -	\$ -	\$ 5,300	\$ 5,300
Residential	1	4	5	10	\$ 2,000	\$ 25,000	\$ 15,750	\$ 42,750
School/Grounds	1	0	0	1	\$ 1,500	\$ -	\$ -	\$ 1,500
Vehicle	0	0	1	1	\$ -	\$ -	\$ -	\$ -
Wildland or Vegetation	4	25	34	63	\$ -	\$ 3,100	\$ 5,550	\$ 8,650
Other*	0	0	6	6	\$ -	\$ -	\$ 1,000	\$ 1,000
<b>Total</b>	<b>6</b>	<b>29</b>	<b>48</b>	<b>83</b>	<b>\$ 3,500</b>	<b>\$ 28,100</b>	<b>\$ 27,600</b>	<b>\$ 59,200</b>

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

**Five-Year Impact of Fires and Dollar Loss By Classification of Fireworks Device –  
2012 to 2016**

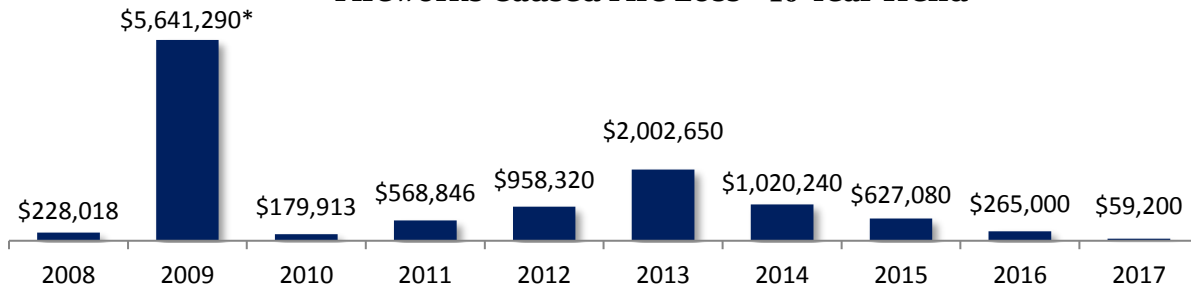
Property Type	Number of Fires				Dollar Loss			
	Firework Type				Firework Type			
	Illegal	Legal	Unknown	Total	Illegal	Legal	Unknown	Total
Commercial	3	3	4	10	\$ 50	\$ 90,000	\$ 33,000	\$ 123,050
Residential	18	17	19	54	\$ 1,378,350	\$ 359,000	\$ 1,217,100	\$ 2,954,450
School/Grounds	9	1	7	17	\$ 2,100	\$ 500	\$ 20,000	\$ 22,600
Vehicle	4	3	7	14	\$ 1,600	\$ 12,000	\$ 109,300	\$ 122,900
Wildland or Vegetation	84	144	258	486	\$ 8,205	\$ 72,750	\$ 14,000	\$ 94,955
Other*	21	17	87	125	\$1,508,000	\$ 2,875	\$ 44,430	\$ 1,555,305
<b>Total</b>	<b>139</b>	<b>185</b>	<b>382</b>	<b>706</b>	<b>\$2,898,305</b>	<b>\$ 537,125</b>	<b>\$ 1,437,830</b>	<b>\$4,873,260</b>

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

**FIRE LOSS**

Of the 83 fires reported for inclusion in this report, loss caused by fireworks is estimated at \$59,200. This figure dropped 78 percent from the previous year.

**Fireworks Caused Fire Loss - 10-Year Trend**



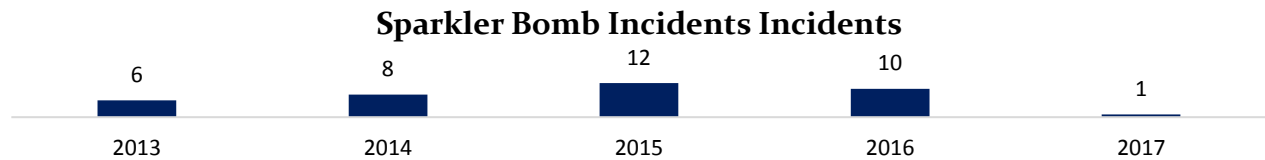
\* 2009 - \$5,025,000 of the total fire loss came from:

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

## SPARKLER BOMBS

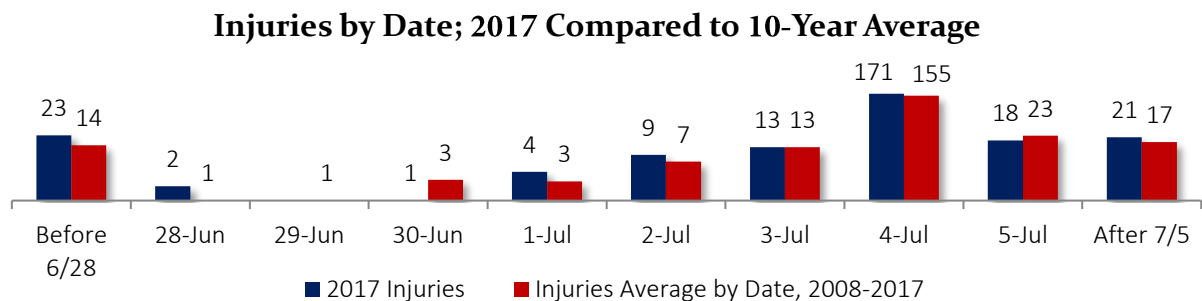
Sparkler bombs are high powered, illegal explosive devices. They can be as powerful as a stick of dynamite, igniting accidentally or prematurely by exposure to heat or friction. This often unanticipated discharge is dangerous. In addition to the loud discharge, they produce shrapnel from sparklers (metal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

There was a 90 percent decrease in the number of sparkler bomb incidents reported over the previous year.



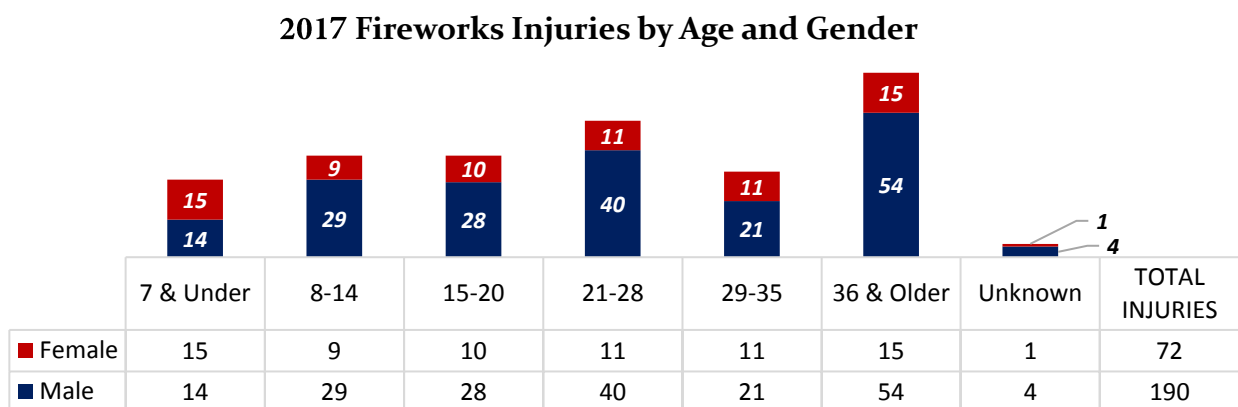
## OCCURRENCE OF FIREWORKS-RELATED INJURIES

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



## INJURIES BY AGE AND GENDER

Of the 262 fireworks-related injuries reported, males, 36 years and older had the highest risk of injury—an ongoing trend that has remained constant for the past five years.



## INJURIES BY CLASSIFICATION OF FIREWORKS DEVICE

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The leading types of injuries reported were:

- Burns (first, second and third-degree combined); 120 or 46%
- Multiple Injury from being struck by or holding a firework; 67 or 26%

The type of firework devices causing injuries were:

- Illegal fireworks; 54 injuries or 21%
- Legal fireworks; 159 injuries or 61%
- Unknown fireworks; 49 injuries or 19%

Injuries by Classification of Fireworks Device									
Type of Injury	Firework Type				Injury Site	Firework Type			
	Illegal	Legal	Unknown	Total		Illegal	Legal	Unknown	Total
Abrasion	11	17	5	34	Face or Head	14	37	14	65
Amputation	9	11	6	26	Hand or Arm	21	72	10	103
Burns	20	83	18	120	Leg or Foot	7	16	7	30
Fractures	2	5	3	10	Multiple Locations	11	21	11	43
Hearing/Sight Loss	0	3	2	5	Torso	1	13	7	21
Multiple Injury/Trauma	12	40	15	67	<b>Total</b>	54	159	49	262
<b>Total</b>	54	159	49	262					

## FIREWORKS FATALITIES

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Over the past five years, two fireworks-related fatalities were reported, both occurring in 2014. One death was caused by an explosion of display firework, which ignited as they were being loaded into a van. The second death involved a mortar.



## INJURIES BY TYPE OF DEVICE

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Most commonly used fireworks causing injuries:

Illegal fireworks:

- Homemade Devices; 6%
- M-80's/M-100's, etc.; 5%
- Firecrackers & Chasers; 5%

Legal fireworks:

- Multi-Aerials; 37%
- Sparklers; 8%
- Roman Candles; 7%

Injuries by Type of Device		
DEVICE TYPE	Total	
<b>Illegal</b>	Firecrackers and Chasers	15
	M-80's, M-100's, etc.	13
	Homemade Devices	12
	Bottle Rockets	8
	Missiles and Rockets	3
	Public Display Mortars (1.3g)	3
	<i>Total Illegal</i>	<i>54</i>
<b>State Legal</b>	Multi-Aerials/Aerial Shells/Mortars	97
	Sparklers (Sparkler Bombs under Homemade)	21
	Roman Candles	19
	Flying/Ground Spinners	8
	Novelties	8
	Smoke items	5
	Cones and Fountains	1
	<i>Total State Legal</i>	<i>159</i>
Unknown Device	49	
<i>Total Unknown Device</i>	<i>49</i>	
<b>TOTAL DEVICES</b>	<b>262</b>	

## CAUSE OF INJURY

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The leading causes of fireworks-related injuries were:

- Too close to lit fireworks/hit by fireworks; 107 injuries or 41%
- Holding fireworks in hand; 79 injuries or 30%

Cause of Injury	
Action	Total
Too Close; Hit by Fireworks Debris	107
Holding Fireworks	79
Lighting/Relighting	41
Leaning Over Fireworks	21
Unsafe Surface for Lighting	9
Unknown	3
Altering/Illegal Manufacture	2
<b>Total</b>	<b>262</b>

## SUMMARY BY COUNTY AND REPORTING AGENCY TYPE

The following table provides a summary of the total fireworks-related injuries and fires reported by county and reporting agency type. In 2017, Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Lincoln, Okanogan, Pend Oreille, and San Juan counties did not report any incidents.

Summary by County and Agency Type Reporting Incidents in 2017						
County	Fire Agencies			Hospitals		Total
	Fire	Injury	Total	Injury	Total	
Benton	0	0	0	6	6	6
Chelan	0	0	0	1	1	1
Clallam	0	0	0	4	4	4
Clark	0	1	1	16	16	17
Cowlitz	2	0	2	4	4	6
Douglas	2	0	2	0	0	2
Grant	7	0	7	9	9	16
Grays Harbor	0	0	0	12	12	12
Island	2	0	2	1	1	3
Jefferson	0	1	1	0	0	1
King	34	0	34	47	47	81
Kitsap	2	0	2	14	14	16
Kittitas	0	0	0	1	1	1
Klickitat	0	0	0	2	2	2
Lewis	0	0	0	8	8	8
Mason	0	0	0	2	2	2
Pacific	1	0	1	1	1	2
Pierce	20	0	20	62	62	82
Skagit	0	0	0	10	10	10
Skamania	0	0	0	2	2	2
Snohomish	2	0	2	31	31	33
Spokane	0	0	0	3	3	3
Stevens	0	0	0	1	1	1
Thurston	5	0	5	6	6	11
Wahkiakum	0	0	0	1	1	1
Walla Walla	5	0	5	0	0	5
Whatcom	1	0	1	3	3	4
Whitman	0	0	0	2	2	2
Yakima	0	0	0	11	11	11
<b>Total</b>	<b>83</b>	<b>2</b>	<b>85</b>	<b>260</b>	<b>260</b>	<b>345</b>

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## **ACKNOWLEDGEMENTS**

### **Publication and Design**

Charles P. LeBlanc, State Fire Marshal  
Melissa Gannie, Assistant State Fire Marshal  
Dan Johnson, Chief Deputy State Fire Marshal  
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Alicia Causey, Customer Service Specialist

### **Data Collection**

Special thanks to the hospitals, clinics and fire agencies  
for submitting data.

