

Prepared by the Washington State Patrol - Office of the State Fire Marshal

# Washington State Fireworks-Related INJURY AND FIRE REPORT 2014





STATE OF WASHINGTON  
WASHINGTON STATE PATROL

General Administration Building • PO Box 42642 • Olympia, WA 98504-2642 • (360) 596-3900 • [www.wsp.wa.gov](http://www.wsp.wa.gov)

May 29, 2015

The following report provides an objective overview and analysis of the fireworks-related injuries and fires that took place in Washington State during 2014.

Information summarized in this annual report details the following:

- Fireworks-related injuries were up 27% from 2013, with 277 injuries reported.
- There were 2 fireworks-related fatalities; one incident involving a consumer firework.
- Injury data shows that males, 36 years and older are most often injured by fireworks.
- There were 155 fireworks-related fires reported, resulting in \$320,240 in property loss.
- Fireworks-related incidents continue to occur most often on the 4th of July.

I would like to thank the Washington hospitals, clinics, and fire and law enforcement agencies for their close partnership; your assistance makes a significant difference to our fireworks incident reporting efforts each year. The data we collect helps to identify improvements that can be made to the areas of product safety, injury and fire data collection, and the fireworks education programs in our state.

Overall, I am confident that if we continue to work together, we can make considerable progress towards becoming a more informed and safer Washington.

Sincerely,

A handwritten signature in blue ink, reading "C. M. Duffy".

State Fire Marshal Charles M. Duffy  
Fire Protection Bureau



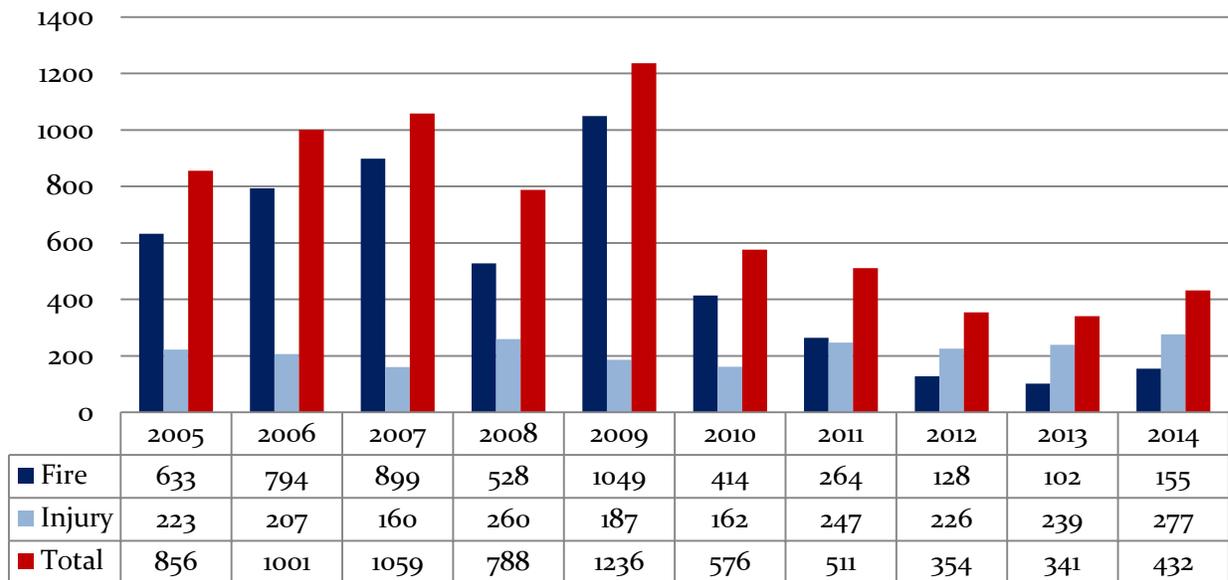
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## 2014 Washington State Fireworks-Related Injury and Fire Report

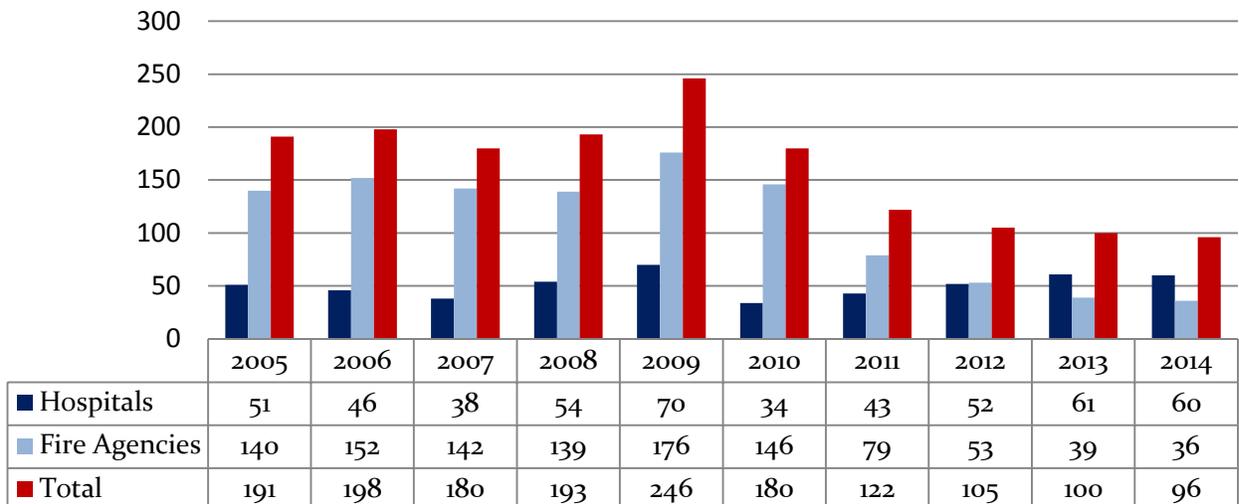
There were 432 fireworks-related injuries and/or fires reported to the Office of the State Fire Marshal in 2014 by fire agencies and hospital emergency rooms. This is a 27% increase from the previous year's total of 341 reported incidents. Data shown in this report was collected from forms submitted by individual fire agencies, hospitals and clinics.

Of the 432 reports received, there were 155 fires resulting in \$320,240 in property loss and 277 injuries.

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



### Number of Agencies Reporting Data - 10 Year Trend

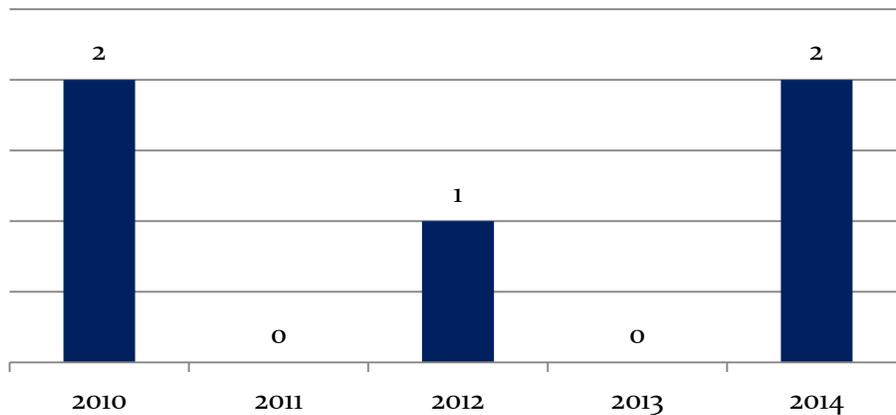


### Fireworks Fatalities

June - A man was killed at a fireworks factory in Tenino when static electricity caused a public display shell to ignite as he loaded fireworks into a truck.

July - A Shelton teen died from injuries sustained after a lit consumer firework tipped over and struck him.

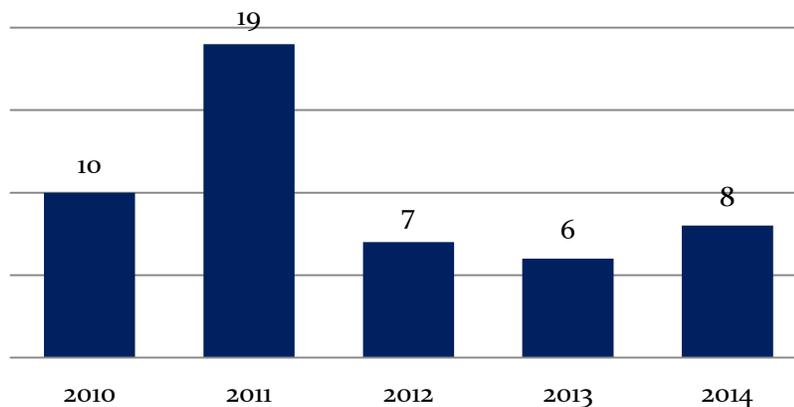
### Fireworks Fatalities



### Sparkler Bombs

In 2014, there was a 33% increase in the number of sparkler bomb incidents reported over the previous year.

### Sparkler Bomb Incidents

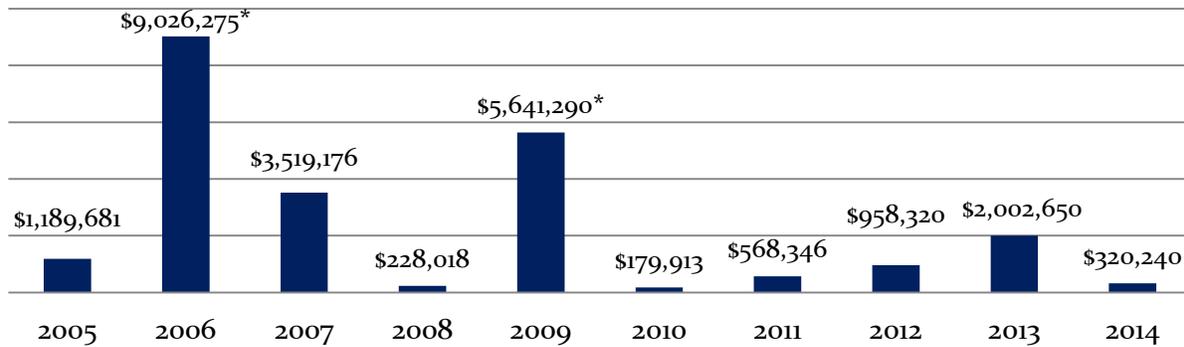


Sparkler bombs are high powered illegal explosive devices. They can be as powerful as a stick of dynamite, igniting accidentally or prematurely by exposure to heat or friction. This often unanticipated discharge is dangerous. In addition to the loud discharge, they produce shrapnel from sparklers (metal 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.

## Fire Loss

In 2014, the economic damage caused by fires suspected of being started by fireworks is estimated to be \$320,240.

### Fireworks-Related 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

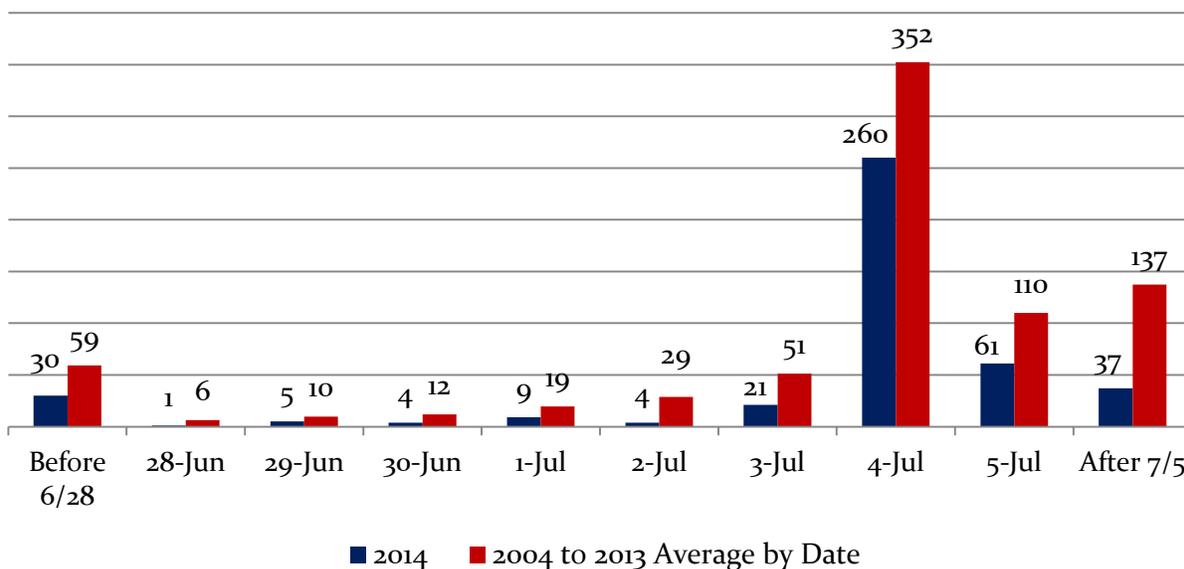
\* 2009 - \$4,775,000 of the total fire loss came from:

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

## Occurrence of Firework-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 - 2014 vs. 10 Year Average



## Analysis of Fires

In 2014, firework-related fires caused an estimated loss of \$320,240. The following firework types were identified as to causing (Table 1):

- Illegal fireworks
  - 24 fires (16%) – wildland or vegetation fires occurred the most
  - \$40,750 in damage – most to residential structures
- Legal fireworks
  - 31 fires (20%) – wildland or vegetation fires occurred the most
  - \$144,500 in damage – most to a moving truck loaded with display fireworks
- Unknown type of fireworks
  - 98 fires (64%) – wildland or vegetation fires occurred the most
  - \$134,990 in damage – most to residential structures

<b>Table #1</b>								
<b>Fires and Dollar Loss By Classification of Fireworks Device - 2014</b>								
	<b>Number of Fires</b>				<b>Dollar Loss</b>			
	<b>Firework Type</b>				<b>Firework Type</b>			
<b>Property Type</b>	<b>Illegal</b>	<b>Legal</b>	<b>Unknown</b>	<b>Total</b>	<b>Illegal</b>	<b>Legal</b>	<b>Unknown</b>	<b>Total</b>
Commercial	1	0	0	1	\$ 50	\$ -	\$ -	\$ 50
Residential	6	5	5	16	\$ 37,300	\$ 67,250	\$ 56,500	\$ 161,050
School	2	0	0	2	\$ 2,000	\$ -	\$ -	\$ 2,000
Vehicle	0	1	1	2	\$ -	\$ 75,000	\$ 25,000	\$ 100,000
Wildland or Vegetation	12	24	74	110	\$ 1,400	\$ 2,250	\$ 900	\$ 4,550
Other*	3	1	18	22	\$ -	\$ -	\$ 52,590	\$ 52,590
<b>Total</b>	<b>24</b>	<b>31</b>	<b>98</b>	<b>153</b>	<b>\$ 40,750</b>	<b>\$ 144,500</b>	<b>\$ 134,990</b>	<b>\$ 320,240</b>

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

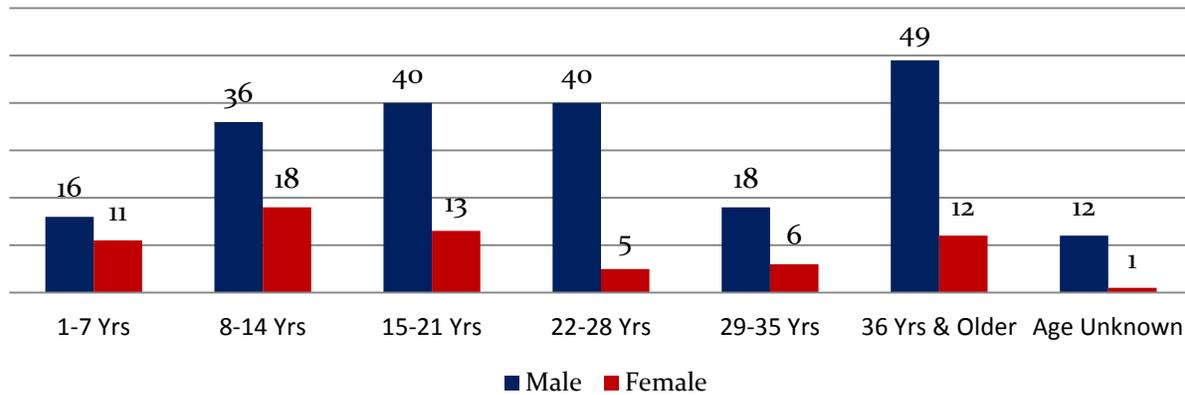
<b>Table #1A</b>								
<b>Fires and Dollar Loss By Classification of Fireworks Device - 2009 to 2013</b>								
	<b>Number of Fires</b>				<b>Dollar Loss</b>			
	<b>Firework Type</b>				<b>Firework Type</b>			
<b>Property Type</b>	<b>Illegal</b>	<b>Legal</b>	<b>Unknown</b>	<b>Total</b>	<b>Illegal</b>	<b>Legal</b>	<b>Unknown</b>	<b>Total</b>
Commercial	8	6	31	45	\$ 95,352	\$ -	\$ 500	\$ 95,852
Residential	33	20	92	145	\$1,047,693	\$260,084	\$5,702,915	\$7,010,692
School	10	3	7	20	\$ 100	\$ -	\$ 10,000	\$ 10,100
Vehicle	11	1	19	31	\$ 48,050	\$ -	\$ 42,600	\$ 90,650
Wildland or Vegetation	159	394	973	1526	\$ 14,945	\$ 69,230	\$ 367,710	\$ 451,885
Other*	26	14	141	181	\$1,623,200	\$ 1,800	\$ 65,840	\$1,690,840
<b>Total</b>	<b>247</b>	<b>438</b>	<b>1263</b>	<b>1948</b>	<b>\$2,829,340</b>	<b>\$ 331,114</b>	<b>\$6,189,565</b>	<b>\$9,350,019</b>

\* 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.

### 2014 Fireworks Injuries by Age and Gender



## Analysis of Injuries

In 2014, there were 277 fireworks-related injuries reported. The leading types of injuries reported were (Table #2):

- Burns (first, second and third-degree combined); 123 or 44%
- Trauma-related from being struck by or holding a firework; 85 or 31%

Type of Injury	Firework Type				Injury Site	Firework Type			
	Illegal	Legal	Unknown	Total		Illegal	Legal	Unknown	Total
Amputation	3	0	0	3	Arm or Hand	24	45	20	89
First Degree Burn	5	28	6	39	Head or Face	21	61	10	92
Second Degree Burn	10	51	13	74	Leg or Foot	4	19	8	31
Third Degree Burn	3	4	3	10	Multiple Locations	15	27	12	54
Multiple Injury	17	26	7	50	Torso	2	9	0	11
Trauma	28	39	18	85	<b>Total</b>	66	161	50	277
Fatality	0	2	0	2					
Unknown	0	11	3	14					
<b>Total</b>	66	161	50	277					

## Firework Types Causing Injury

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

- Illegal fireworks; 66 injuries or 24%
- Legal fireworks; 158 injuries or 57%
- Unknown fireworks; 53 injuries, or 19%

Most commonly used fireworks causing injuries:

Legal fireworks:

- ❖ Multi-Aerials; 49%
- ❖ Sparklers; 21%
- ❖ Roman Candles; 12%

Illegal fireworks:

- ❖ Homemade Devices; 35%
- ❖ M-80/M-100, etc. ; 21%
- ❖ Firecrackers & Chasers; 18%

<b>Table #3 Injuries by Type of Device</b>				
	<b>Illegal</b>	<b>Legal</b>	<b>Unknown</b>	<b>Total</b>
Bottle Rockets	7			7
Firecrackers and Chasers	12			12
Homemade Explosive Devices	23			23
M-80's, M-100's, Cherry Bombs	14			14
Missiles and Rockets	8			8
Cones and Fountains fireworks	0	6	0	6
Ground Spinners	0	4	0	4
Multi Aerials / Aerial Shells/ Mortars	0	78	5	83
Novelties	0	9	0	9
Public Display Mortars (1.3g)	2	6	0	8
Roman Candles	0	19	0	19
Smoke Items	0	2	0	2
Sparklers (Sparkler Bombs under Homemade)	0	33	0	33
Other	0	1	0	1
Unknown			48	48
<b>Total</b>	<b>66</b>	<b>158</b>	<b>53</b>	<b>277</b>

## Analysis of Cause

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

- Holding fireworks in hand; 85 injuries or 31%
- Too close to lit fireworks/hit by fireworks; 59 injuries or 21%
- Leaning over fireworks; 35 injuries or 13%

<b>Table #4 Cause of Injury</b>	
<b>Action</b>	<b>Total</b>
Duds relighting or handling duds	20
Holding fireworks in hands	85
Leaning over fireworks	35
Tampering with fireworks	18
Throwing fireworks	9
Unsafe surface for lighting	16
Lighting fireworks	6
Children with sparkler (infant to 7 years)	9
Too close to lit fireworks/hit by fireworks	59
Other	14
Unknown	6
<b>Total</b>	<b>277</b>

## 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 2014, Asotin, Columbia, Douglas, Ferry, Garfield, Lincoln, Pend Oreille, San Juan, and Wahkiakum did not report any incidents.

<b>Table #5 Summary by County and Agency Type Reporting Incidents in 2014</b>						
County	Fire Agencies			Hospitals		Grand Total
	Fire	Injury	Total	Injury	Total	
Adams	0	0	0	1	1	1
Benton	0	0	0	4	4	4
Chelan	0	0	0	1	1	1
Clallam	0	0	0	6	6	6
Clark	0	0	0	10	10	10
Cowlitz	1	2	3	2	2	5
Franklin	0	0	0	2	2	2
Grant	1	0	1	4	4	5
Grays Harbor	0	0	0	9	9	9
Island	1	0	1	1	1	2
Jefferson	0	0	0	1	1	1
King	82	11	93	70	70	163
Kitsap	5	1	6	8	8	14
Kittitas	5	0	5	2	2	7
Klickitat	0	0	0	1	1	1
Lewis	1	0	1	5	5	6
Mason	0	0	0	3	3	3
Okanogan	0	0	0	4	4	4
Pacific	0	0	0	2	2	2
Pierce	13	1	14	39	39	53
Skagit	0	0	0	5	5	5
Skamania	0	0	0	1	1	1
Snohomish	26	4	30	31	31	61
Spokane	0	1	1	5	5	6
Stevens	0	0	0	2	2	2
Thurston	12	1	13	10	10	23
Walla Walla	3	0	3	0	0	3
Whatcom	0	2	2	7	7	9
Whitman	5	0	5	0	0	5
Yakima	0	0	0	17	17	17
<b>Total</b>	155	23	178	253	253	431

## **ACKNOWLEDGEMENTS**

### **Publication and Design**

Chuck Duffy, State Fire Marshal  
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### **Data Collection**

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

