



5.15 Wildfire

2023 SHMP UPDATE CHANGES

- ❖ The hazard profile has been significantly enhanced to include a detailed hazard description, location, extent, previous occurrences, and probability of future occurrence (including how future conditions may impact the hazard). New and updated figures from federal and state agencies are incorporated.
- ❖ Information was updated regarding the current population affected by wildfires.
- ❖ Wildfire events that occurred in the State of West Virginia (the State) from January 1, 2018, through December 31, 2022, were researched for this 2023 State Hazard Mitigation Plan (SHMP) update.
- ❖ State asset exposure to severe storm events was analyzed and local vulnerabilities were assessed.

5.15.1 Hazard Profile

HAZARD DESCRIPTION

Wildfire is defined in this plan as any free-burning vegetative fire that initiates from an unplanned ignition, whether natural (e.g., lightning) or human-caused (e.g., powerlines, mechanical equipment, discarded cigarettes, escaped prescribed fires), where the management objective is full suppression (National Wildfire Coordinating Group 2021).

A wildland-urban interface (WUI) fire is a wildfire occurring in the WUI. The WUI is described as the area where structures and other human improvements meet and intermingle with undeveloped wildland or vegetative fuels.

Prescribed burning, also known as controlled burning, is the deliberate use of fire under specified and controlled conditions. Prescribed burning is used by forest management professionals and individual landowners to accomplish one or more of the following tasks:

- **Fuel Reduction** – The reduction of accumulated grass, weeds, pine needles, and hardwood leaves. This type of vegetation can encourage wildfires in young stands and hinder regeneration of older stands.
- **Hardwood Control** – Prevents hardwood trees from competing with pines for nutrients and moisture, impeding visibility and access through the stands, and interfering with natural regeneration in areas better suited for growing pines (National Park Service n.d.).

There are three types of wildfires:

- Ground fires occur when subsurface fuels ignite and burn underground. Ground fires may eventually burn through the surface of the ground and become surface fires.
- Surface fires burn on the surface of the ground and are primarily fueled by low-lying vegetation. Ladder fuels are vegetation that allow surface fires to climb into the tree canopy and become crown fires (National Wildfire Coordinating Group 2021).



- Crown fires burn and spread from treetop to treetop. Unlike ground or surface fires, which spread more slowly, crown fires spread at a rapid pace. Crown fires are often pushed by the wind and can turn into extremely intense fires (De La Torre 2021).

LOCATION

Compared to the forest ecosystems in the Western United States, Appalachian forests are much wetter. As a result, the natural fire cycle is longer, often up to 200 or even 1,000 years. When fires do occur in Appalachia, they typically burn at lower severities through the duff along the forest floor. Crown fires are rare. An intact mature temperate forest offers conditions less likely to burn into severe wildfires. With less undergrowth, the fire cannot jump into the forest crown as easily; with thicker bark, mature trees resist fire damage; and with more shade, the forest floor is often cooler and wetter (West Virginia Rivers 2018).

During the fall, there is a greater risk for wildfires in the state, mainly because of the leaves falling and drying out, which turns into fuel for fires. Also, relative humidity reaches some of its lowest points of the year, meaning the air can get very dry. Stronger winds in the fall also are a major contributor to fueling wildfires (Beddoes 2022). There are two statutory fire seasons in West Virginia, March 1 to May 31 and October 1 to December 31, that prohibit outdoor debris burning from 7 a.m. to 5 p.m. The purpose of the law is to reduce the probability of debris fires to escape and cause wildfires when the risk is high (WVDOF 2020).

The West Virginia State Forest Action Plan reports that humans and human activities cause more than 99 percent of all wildfires in the state, with debris burning being the single biggest ignition source (WVDOF 2020). Arson and power lines are other primary causes of wildfire. Table 5.15-1 displays the main causes of wildfire in West Virginia in the year 2020. The primary cause of wildfire in 2020 was burning debris (36.4 percent), followed by equipment (25.2 percent) and arson (22.6 percent).

Table 5.15-1. Causes of Wildfire in West Virginia 2020

Wildfire Cause	Percentage
Debris Burning	36.4%
Equipment	25.2%
Arson	22.6%
Miscellaneous	7.3%
Children	2.9%
Campfire	2.1%
Railroad	1.4%
Smoker	1.4%
Lightning	0.8%

Source: WVDOF 2021

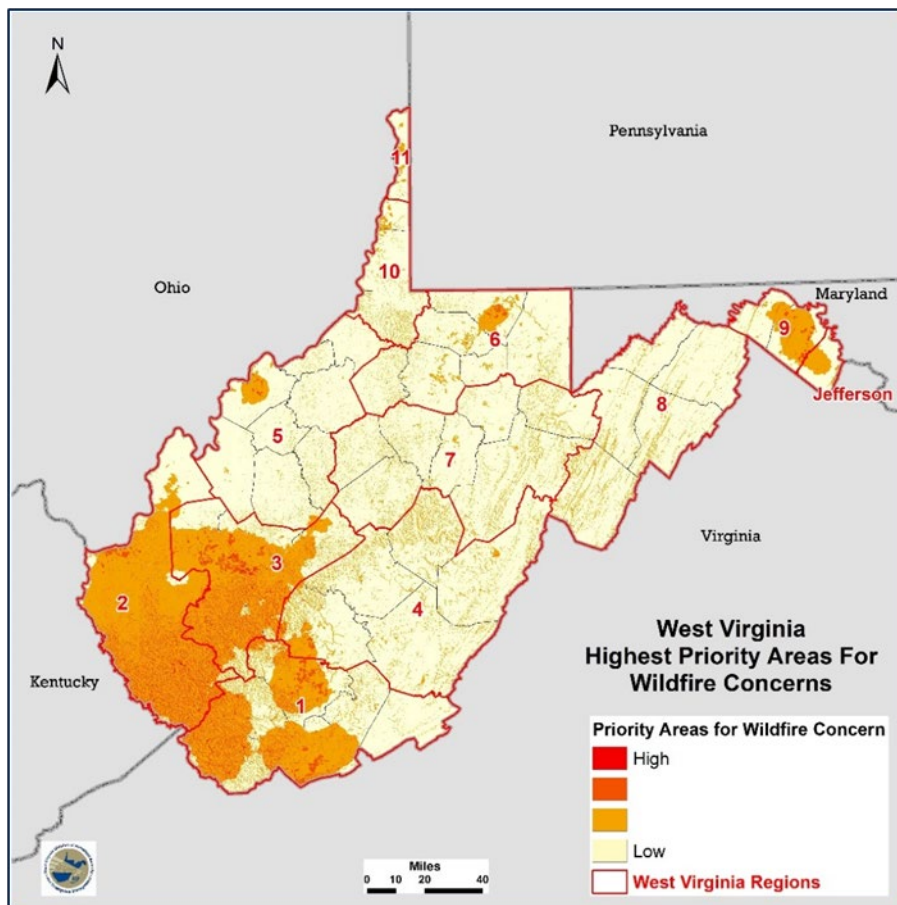
Wildland fire hazards related to coal mining are burning coal seams and mining refuse disposal areas that generate heat from decomposition. Many of these are on corporate-owned properties in remote areas with difficult access, which contributes to large fire occurrences as the fire may go unnoticed or unreported for several hours or days. The known hazard areas have been mapped so they can be monitored during times they are most likely to cause a wildfire. Wildfire control plans are in place if the hazard should cause a wildfire and some hazards have



mitigation measures installed. Some corporations that own large acreages support temporary employees for monitoring, maintenance of hazard mitigation measures, and suppression. The West Virginia Division of Forestry (WVDOF) has and continues to work with landowners where the hazards are located to install mitigation measures. Rights of ingress and egress and liability issues have been a hinderance to installing more mitigation measures, but negotiations are ongoing.

Figure 5.15-1 shows the state’s highest priority areas for wildfire concerns. The State indicated in the 2018 SHMP that it would like to increase efforts to provide potential financial and technical assistance for the development of Community Wildfire Protection Plans (CWPP); these plans focus on communities at higher risk of wildfires (West Virginia Emergency Management Division 2018). Currently, there are 25 CWPPs in West Virginia, covering 50,821 acres serving a population of 69,963.

Figure 5.15-1. Highest Priority Areas for Wildfire Concern



Source: West Virginia Emergency Management Division 2018

Due to the rural nature of the state, with over 80 percent of the state composed of forest land, most communities in the state are in the WUI. A total of 576,466 acres in the state are located in the interface wildfire hazard area, and a total of 3,758,488 acres are located in the intermix wildfire hazard area. Ohio County has the highest percentage (14.1 percent) of land located in the WUI interface hazard area, while Hancock County has the highest



percentage (66.4 percent) of land located in the WUI intermix hazard area land located in the WUI interface and intermix hazard areas is detailed in Table 5.15-2.

Table 5.15-2. Total Acres of Land Area Located in the Wildfire Hazard Areas by County

County	Total Acres of Land Area	Total Acres of Land Area (Excluding Waterbodies) Located in the Wildfire Hazard Areas			
		Total Acres Located in the WUI Interface Wildfire Hazard Area	Percent of Total	Total Acres Located in the WUI Intermix Wildfire Hazard Area	Percent of Total
Barbour	218,598	9,408	4.3%	63,183	28.9%
Berkeley	205,141	22,063	10.8%	75,529	36.8%
Boone	321,687	2,881	0.9%	87,903	27.3%
Braxton	328,023	4,327	1.3%	54,198	16.5%
Brooke	59,321	5,220	8.8%	33,667	56.8%
Cabell	184,109	18,833	10.2%	111,232	60.4%
Calhoun	179,487	2,088	1.2%	27,354	15.2%
Clay	219,951	1,078	0.5%	36,656	16.7%
Doddridge	205,051	3,182	1.6%	29,635	14.5%
Fayette	427,276	11,741	2.7%	100,293	23.5%
Gilmer	217,274	3,319	1.5%	13,329	6.1%
Grant	305,479	9,696	3.2%	33,294	10.9%
Greenbrier	654,360	30,028	4.6%	86,046	13.1%
Hampshire	412,248	18,574	4.5%	125,649	30.5%
Hancock	56,222	5,216	9.3%	37,329	66.4%
Hardy	373,689	11,827	3.2%	56,782	15.2%
Harrison	266,023	19,370	7.3%	109,337	41.1%
Jackson	300,968	16,474	5.5%	84,844	28.2%
Jefferson	134,920	13,178	9.8%	14,008	10.4%
Kanawha	582,312	27,213	4.7%	220,982	37.9%
Lewis	246,359	6,249	2.5%	35,851	14.6%
Lincoln	280,594	4,200	1.5%	111,641	39.8%
Logan	291,325	3,921	1.3%	101,191	34.7%
Marion	199,006	10,270	5.2%	98,925	49.7%
Marshall	199,304	5,756	2.9%	71,835	36.0%
Mason	284,059	16,966	6.0%	78,102	27.5%
McDowell	342,174	4,205	1.2%	68,719	20.1%
Mercer	268,828	17,285	6.4%	117,485	43.7%
Mineral	210,134	12,771	6.1%	62,671	29.8%
Mingo	270,756	4,224	1.6%	121,900	45.0%
Monongalia	232,200	14,593	6.3%	109,356	47.1%
Monroe	302,704	17,162	5.7%	37,486	12.4%
Morgan	146,880	4,255	2.9%	91,028	62.0%



County	Total Acres of Land Area	Total Acres of Land Area (Excluding Waterbodies) Located in the Wildfire Hazard Areas			
		Total Acres Located in the WUI Interface Wildfire Hazard Area	Percent of Total	Total Acres Located in the WUI Intermix Wildfire Hazard Area	Percent of Total
Nicholas	415,482	7,827	1.9%	102,146	24.6%
Ohio	69,666	9,803	14.1%	42,390	60.8%
Pendleton	446,485	7,714	1.7%	25,033	5.6%
Pleasants	85,837	2,887	3.4%	17,167	20.0%
Pocahontas	601,520	6,783	1.1%	48,646	8.1%
Preston	415,612	23,819	5.7%	104,823	25.2%
Putnam	223,706	14,935	6.7%	109,174	48.8%
Raleigh	388,484	29,587	7.6%	104,949	27.0%
Randolph	664,970	15,900	2.4%	56,432	8.5%
Ritchie	290,396	6,192	2.1%	22,024	7.6%
Roane	309,410	5,242	1.7%	46,880	15.2%
Summers	233,898	7,342	3.1%	49,653	21.2%
Taylor	110,892	8,373	7.6%	44,812	40.4%
Tucker	265,897	4,638	1.7%	25,668	9.7%
Tyler	166,857	5,937	3.6%	18,790	11.3%
Upshur	226,613	9,795	4.3%	73,692	32.5%
Wayne	325,702	9,645	3.0%	126,226	38.8%
Webster	355,637	3,053	0.9%	25,705	7.2%
Wetzel	231,289	4,128	1.8%	21,426	9.3%
Wirt	150,356	6,561	4.4%	12,141	8.1%
Wood	241,020	25,738	10.7%	93,388	38.7%
Wyoming	320,602	2,994	0.9%	79,883	24.9%
Total	15,466,796	576,466	3.7%	3,758,488	24.3%

Source: Radeloff et al 2017; USGS 2022; West Virginia University Geographic Information Systems (GIS) Technical Center (WVU GISTC) 2022

EXTENT

The WVDOF has five categories of wildfire danger. Table 5.15-3 describes each category and the expected intensity for each.



Table 5.15-3. Wildfire Risk Categories

Wildfire Category	Category Color	Description
Low	Dark Green	Fuels do not ignite readily from small firebrands, although a more intense heat source, such as lightning, may start fires in duff or punky wood. Fires in open cured grasslands may burn freely a few hours after rain, but timber fires spread slowly by creeping or smoldering and burn in irregular fingers. There is a little danger of spotting.
Moderate	Light Green or Blue	Fires can start from accidental causes, but with the exception of lightning fires in some areas, the number of starts is generally low. Fires in open cured grasslands will burn briskly and spread rapidly on windy days. Timber fires spread slowly to moderately fast. The average fire is of moderate intensity, although heavy concentrations of fuel, especially draped fuel, may burn hot. Short-distance spotting may occur but is not persistent. Fires are not likely to become serious and control is relatively easy.
High	Yellow	All fine dead fuels ignite readily, and fires start easily from most causes. Unattended brush and campfires are likely to escape. Fires spread rapidly and short-distance spotting is common. High intensity burning may develop on slopes or in concentrations of fine fuels. Fires may become serious and their control difficult unless they are attacked successfully while small. Outdoor burning should be restricted to early morning and late evening hours.
Very High	Orange	Fires start easily from all causes. Immediately after ignition, they spread rapidly and increase quickly in intensity. Spot fires are a constant danger. Fires burning in light fuels may quickly develop high intensity characteristics such as long-distance spotting and fire whirlwinds when they burn in heavier fuels. Outdoor burning is not recommended.
Extreme	Red	Fires start quickly, spread furiously, and burn intensely. All fires are potentially serious. Development into high intensity burning will usually be faster and occur from smaller fires than in the very high fire danger class. Direct attack is rarely possible and may be dangerous except immediately after ignition. Fires that develop headway in heavy slash or in conifer stands may be unmanageable while the extreme burning condition lasts. Under these conditions, the only effective and safe control action is on the flanks until the weather changes, or the fuel supply lessens. No outdoor burning should take place in areas with extreme fire behavior.

Source: WVDOF 2022

Heat, fuel, and oxygen are all required for the creation and maintenance of any fire, as depicted in the wildfire triangle as shown in Figure 5.15-3. When not enough heat is generated or when water is used to reduce the heat level; when the fuel is exhausted, removed, or isolated; or when the oxygen supply is limited, then a side of the triangle is broken, and the fire is extinguished.

- **Heat**—A heat source is needed for the initial ignition of wildfires. Heat is also generated by the fire. For a fire to grow, heat must be transferred to the initial and surrounding fuel. It allows fire to spread by removing the moisture from the nearby fuel, enabling it to ignite or travel more easily.
- **Fuel**—The fuel side of the triangle (as shown in the image above) refers to both the external and internal properties of the fuel. External properties refer to the type and the characteristics of the fuel material. Internal properties of fuel address aspects of fuel chemistry. Fuel is characterized by its moisture content, size and shape, quantity, and the location of the fuel type (ground, surface, ladder, or aerial).
- **Oxygen**—Air contains about 21 percent oxygen. Most fires require air with at least 16 percent oxygen content to burn under most conditions. Oxygen supports the chemical processes that occur during a



wildland fire. When fuel burns, it reacts with oxygen from the surrounding air, releasing heat and generating combustion products (NIFC n.d.).

All wildfires begin with an ignition source. Fire behavior describes the manner in which fuels ignite, flames develop, and fire spreads. The “fire behavior triangle” illustrates how the four primary factors influence wildfire behavior: fuel, topography, weather, and the chemical reaction. Each point of the triangle represents one of the three factors, while the center represents the chemical reaction that must take place for the fire to ignite; the sides represent the interplay between the factors. For example, drier and warmer weather combined with dense fuel loads and steeper slopes will cause more hazardous fires than light fuels on flat ground (NIFC n.d.).

Warning Time

Wildfires are often caused by humans, intentionally or accidentally. There is no way to predict when one might break out. However, there are tools used to identify the possibility of fire weather in an area. Fire weather watches and red flag warnings are used to convey the possibility of severe fire weather to wildland fire agencies.

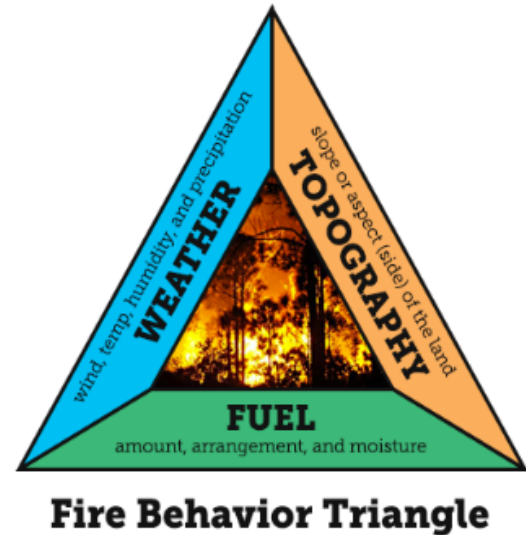
The National Weather Service (NWS) issues Fire Weather Watches and Red Flag Warnings to alert fire departments and residents of the onset, or possible onset, of critical weather and dry conditions that could lead to rapid or dramatic increases in wildfire activity. The watches, warnings, and evacuation notices are science-based predictions that are intended to provide adequate time for evacuation. Fire weather forecasts are available on the NWS website accessed at <https://www.weather.gov/fire/> and provides a hazard/overview map, the NWS Fire Wx Forecast Map, Today’s SPC Outlook, the Latest Wildland Fire Outlook, and Current Large Incidents.

A Fire Weather Watch is issued by the NWS when the potential for severe fire weather exists in the near future. A watch is used when there is a relatively low probability of occurrence and less chance of verifying. The fire danger rating is usually in the high to extreme category. It is normally issued 12 to 24 hours in advance of the expected onset of severe fire weather conditions and typically in conjunction with the routine forecasts. The area affected, onset time, and a statement describing the conditions are included in the forecast. A Red Flag Warning is issued by the NWS to indicate the imminent danger of severe fire weather combined with a relatively high probability of occurrence. At issuance, the fire danger is usually in the high to extreme category. A Red Flag Warning may or may not be preceded by a Fire Weather Watch (NWS n.d.).

PREVIOUS OCCURRENCES AND LOSSES

The National Oceanic and Atmospheric Administration (NOAA) Storm Events Database reports that 31 wildfire events occurred between 1950 and 2022. However, the WVDOF reported over 1,700 wildfires between 2018 and 2021, burning approximately 15,096 acres (WVDOF 2022).

Figure 5.15-2. The Fire Behavior Triangle



Source: WeatherSTEM 2017



Federal Emergency Management Agency (FEMA) Disaster Declarations

Between 1954 and 2022, the State had three FEMA-designated wildfire-related disasters (DR), emergencies (EM), or fire suppression authorization (FSA). An FSA declaration is issued to ease the financial burden on local fire department by reimbursing for suppression costs associated with fighting fire on federal property. Upon passage of the Disaster Mitigation Action of 2000 (DMA 2000), the FSA Program was replaced by the Fire Management Assistance Grant Program (FMAG) in late 2021 (FEMA 2021), though the State has not received any FMAG declarations since the change was made. Wildfires for which FEMA issued disaster declarations are summarized in Table 5.15-4.

Table 5.15-4. FEMA Disaster Declarations for Wildfire (1954 to 2022)

Incident Date	Declaration Number	County Affected	Name	Date Declared
July 18-31, 1996	DR-1132-WV	Barbour, Braxton, Cabell, Clay, Gilmer, Monongalia, Nicholas, Randolph, Upshur, Webster	West Virginia Flooding	August 14, 1996
November 16-30, 2001	FSA-2391-WV	Boone, Cabell, Clay, Kanawha, Lincoln, Logan, McDowell, Mercer, Mingo, Raleigh, Wayne, Wyoming	West Virginia Southwest Complex Fire	November 16, 2001
November 16-30, 2001	FSA-2392-WV	Grant, Hardy	Trough and Smoke Hole Fire Complexes	November 16, 2001

Source: FEMA 2023

U.S. Department of Agriculture (USDA) Disaster Declarations

The Secretary of Agriculture from the USDA is authorized to designate counties as disaster areas to make emergency loans to producers suffering losses in those counties and in counties that are contiguous to a designated county. Between 2012 and 2022, West Virginia was not included in any wildfire-related agricultural disaster declarations (USDA 2023).

Previous Events

For this 2023 SHMP, known wildfire events reported by WVDOF that impacted West Virginia between 2018 and 2021 are listed in Table 5.15-5; there is currently no available data for 2022 (WVDOF 2022). For this SHMP update, there was limited information regarding wildfire events in the state.

Table 5.15-5. Wildfire Events in West Virginia (2018 to 2021)

Year	Number of Wildfires	Acres Burned
2018	457	5,803
2019	408	3,307
2020	371	1,776
2021	550	4,210

Source: WVDOF 2022



PROBABILITY OF FUTURE HAZARD EVENTS

Overall Probability

For this SHMP update, the most up-to-date data was collected to calculate the probability of future occurrence of wildfire events for the project area. Information from FEMA, USDA, the NOAA-NCEI storm events database, the WVDOF, and local news sources were used to identify the number of wildfire events that occurred between 2018 and 2022. Table 5.15-6 presents the probability of future wildfires in West Virginia.

Table 5.15-6. Probability of Future Wildfire Events in West Virginia

Hazard Type	Number of Occurrences between 2018 and 2022	Percent Chance of Occurrence in Any Given Year
Fire/Wildfire	1,786	100%

Source: USDA 2022; FEMA 2022; WVDOF 2022; West Virginia Emergency Management Division 2018

Projected Future Conditions

A major factor contributing to wildfire risk is drought, a phenomenon which is expected to worsen in the future. Heatwaves may also become more common and severe. A 2022 report from FEMA’s U.S. Fire Administration cites future conditions as a key driver of wildfire in the WUI. The report also states that, “The southeastern U.S. has the potential for larger fires (greater than 12,000 acres) to increase by 300 percent to 400 percent” by the middle of the 21st century (U.S. Fire Administration 2022).

Changing weather patterns may also result in an increased occurrence of invasive species. Invasive shrubs and herbs may increase the density of the understory, thereby increasing fuel. On the other hand, many invasive shrubs and herbs begin growing earlier in spring than native plants. This early green-up may reduce the flammability of fire-adapted communities during the spring fire season. Invasive pests can also interact with climate and wildfire by altering forest fuels and forest structure.

5.15.2 Vulnerability Assessment

To understand risk, a community must evaluate what assets are exposed and vulnerable in the identified hazard area. For wildfire, the entirety of West Virginia has been identified as a potential hazard area. Therefore, all assets in the state (population, structures, critical facilities, and lifelines), as described in the State Profile, are vulnerable. The impacts on population, existing structures, critical facilities, and the economy are presented below.

STATE ASSETS

For the purposes of this risk assessment, an asset is considered potentially vulnerable if it is in an identified hazard area. To assess the vulnerability of the state buildings, GIS software was used to overlay the statewide wildfire hazard areas with buildings. Interface WUI includes developed areas that have sparse or no wildland vegetation but are close in proximity to a large patch of wildland, whereas intermix WUI is defined as the area where houses and wildland vegetation directly intermingle (USDA 2019). The spatial analysis for the wildfire hazard determined there are 405 state buildings located in the WUI interface wildfire risk hazard area with the greatest number of state buildings located in Kanawha County (50 buildings), while Marion County had the greatest replacement cost value of \$239.9 million. The Department of Health and Human Resources has the greatest number of buildings



(58) in the WUI interface wildfire risk hazard area, while Fairmont State University has the highest replacement cost value (\$225.3 million).

The spatial analysis also determined there are 171 state buildings located in the WUI intermix wildfire risk hazard area with the greatest number of state buildings located in Kanawha County (30 buildings), while Mercer County has the highest replacement cost value (\$189.4 million). The Division of Highways has the greatest number of buildings (23) in the WUI intermix wildfire risk hazard area, while Concord University has the highest replacement cost value (\$172.9 million).

Table 5.15-7 to Table 5.15-10 summarize the state buildings located in the interface and intermix high wildfire risk hazard areas by counties and agencies, respectively.

Table 5.15-7. State Facilities Within the WUI Interface Wildfire Hazard Area by County

State Facilities Within the WUI Interface Wildfire Hazard Area		Replacement Cost Value for State Facilities Within the WUI Interface Wildfire Hazard Area by County		
County	Number of Structures	Replacement Cost Value (Structure Only)	Replacement Cost Value (Contents Only)	Total Replacement Cost Value (Structure + Contents)
Barbour	8	\$40,000	\$1,171,289	\$1,211,289
Berkeley	4	\$4,171,000	\$470,000	\$4,641,000
Boone	3	\$0	\$85,000	\$85,000
Braxton	5	\$0	\$168,600	\$168,600
Brooke	3	\$2,900,000	\$85,000	\$2,985,000
Cabell	17	\$62,322,526	\$2,774,075	\$65,096,601
Calhoun	1	\$0	\$300,000	\$300,000
Clay	2	\$0	\$243,100	\$243,100
Doddridge	4	\$725,000	\$79,000	\$804,000
Fayette	12	\$32,046,767	\$5,204,000	\$37,250,767
Gilmer	5	\$88,806,230	\$12,435,500	\$101,241,730
Grant	5	\$525,006	\$587,800	\$1,112,806
Greenbrier	20	\$90,831,577	\$15,855,100	\$106,686,677
Hampshire	8	\$6,205,924	\$930,400	\$7,136,324
Hancock	4	\$71,500	\$165,100	\$236,600
Hardy	7	\$1,500,000	\$515,000	\$2,015,000
Harrison	10	\$4,058,614	\$3,729,682	\$7,788,296
Jackson	4	\$1,200,000	\$1,669,500	\$2,869,500
Jefferson	0	\$0	\$0	\$0
Kanawha	50	\$202,921,581	\$31,365,320	\$234,286,901
Lewis	6	\$13,755,596	\$3,659,273	\$17,414,869
Lincoln	4	\$800,000	\$781,000	\$1,581,000
Logan	5	\$0	\$287,600	\$287,600
Marion	15	\$224,449,522	\$15,431,800	\$239,881,322
Marshall	6	\$4,329,891	\$925,600	\$5,255,491
Mason	8	\$3,173,083	\$1,180,350	\$4,353,433
McDowell	5	\$1,125,000	\$395,000	\$1,520,000



State Facilities Within the WUI Interface Wildfire Hazard Area		Replacement Cost Value for State Facilities Within the WUI Interface Wildfire Hazard Area by County		
Mercer	12	\$7,950,000	\$1,512,400	\$9,462,400
Mineral	9	\$2,747,022	\$1,333,000	\$4,080,022
Mingo	10	\$15,995,822	\$4,415,300	\$20,411,122
Monongalia	6	\$19,129,502	\$1,169,000	\$20,298,502
Monroe	5	\$652,903	\$439,427	\$1,092,330
Morgan	8	\$4,467,671	\$909,800	\$5,377,471
Nicholas	2	\$510,000	\$115,000	\$625,000
Ohio	10	\$4,276,000	\$3,446,000	\$7,722,000
Pendleton	3	\$900,000	\$96,900	\$996,900
Pleasants	4	\$130,000	\$180,000	\$310,000
Pocahontas	3	\$0	\$75,000	\$75,000
Preston	5	\$22,756,331	\$3,780,169	\$26,536,500
Putnam	15	\$19,558,800	\$5,684,300	\$25,243,100
Raleigh	15	\$106,926,530	\$17,040,600	\$123,967,130
Randolph	19	\$16,308,784	\$5,249,080	\$21,557,864
Ritchie	4	\$0	\$220,000	\$220,000
Roane	6	\$1,505,400	\$950,840	\$2,456,240
Summers	4	\$151,200	\$251,300	\$402,500
Taylor	2	\$1,083,940	\$228,700	\$1,312,640
Tucker	3	\$129,600	\$89,300	\$218,900
Tyler	4	\$1,000,000	\$630,210	\$1,630,210
Upshur	3	\$4,370,709	\$3,729,000	\$8,099,709
Wayne	3	\$300,000	\$100,000	\$400,000
Webster	4	\$0	\$330,000	\$330,000
Wetzel	4	\$0	\$450,900	\$450,900
Wirt	1	\$0	\$30,000	\$30,000
Wood	15	\$15,410,202	\$2,075,400	\$17,485,602
Wyoming	5	\$191,500	\$210,400	\$401,900
Total	405	\$992,410,733	\$155,236,115	\$1,147,646,848

Source: WVEMD; Radeloff et al 2017

Table 5.15-8. State Facilities Within the WUI Interface Wildfire Hazard Area by Agency

State Facilities Within the WUI Interface Wildfire Hazard Area		Replacement Cost Value for State Facilities Within the WUI Interface Wildfire Hazard Area by Agency		
Agency	Number of Structures	Replacement Cost Value (Structure Only)	Replacement Cost Value (Contents Only)	Total Replacement Cost Value (Structure & Contents)
Adjutant General's Office State of West Virginia	0	\$0	\$0	\$0
Administration, Secretary of Department of Administration	1	\$0	\$112,000	\$112,000
Agriculture, Department of State of West Virginia	4	\$1,200,000	\$1,220,000	\$2,420,000
Air and Environmental Quality Boards State of West Virginia	0	\$0	\$0	\$0



State Facilities Within the WUI Interface Wildfire Hazard Area		Replacement Cost Value for State Facilities Within the WUI Interface Wildfire Hazard Area by Agency		
Agency	Number of Structures	Replacement Cost Value (Structure Only)	Replacement Cost Value (Contents Only)	Total Replacement Cost Value (Structure & Contents)
Alcohol Beverage Control Administration State of West Virginia	0	\$0	\$0	\$0
Architects, Board of State of West Virginia	0	\$0	\$0	\$0
Armory Board State of West Virginia	21	\$51,195,669	\$16,449,000	\$67,644,669
Arts, Culture & History, Department of State of West Virginia	0	\$0	\$0	\$0
Attorney General, Office of The State of West Virginia	0	\$0	\$0	\$0
Aviation, Division of	1	\$2,000,000	\$250,000	\$2,250,000
Bar, State State of West Virginia	0	\$0	\$0	\$0
Barbers & Cosmetologists, Board of State of West Virginia	1	\$0	\$100,000	\$100,000
Blue Ridge Community & Technical College	0	\$0	\$0	\$0
Bluefield State College	0	\$0	\$0	\$0
Board of Treasury Investments	0	\$0	\$0	\$0
Bridgevalley Community & Tech College	1	\$29,146,767	\$2,690,000	\$31,836,767
Cedar Lakes Conference Center State of West Virginia	0	\$0	\$0	\$0
Chiropractic Examiners Board State of West Virginia	1	\$0	\$100,000	\$100,000
Commission For National and Community Service, WV	1	\$0	\$80,000	\$80,000
Concord University	0	\$0	\$0	\$0
Conservation Agency, West Virginia State of West Virginia	6	\$0	\$167,710	\$167,710
Consolidated Public Retirement Board Department of Administration	0	\$0	\$0	\$0
Consumer Advocate, Division of WV Public Service Commission	1	\$0	\$150,000	\$150,000
Corrections, Division of State of West Virginia	5	\$17,693,619	\$2,225,402	\$19,919,021
Courthouse Facilities Improvement Authority	1	\$300,000	\$200,000	\$500,000
Dentistry, Board of State of West Virginia	0	\$0	\$0	\$0
Department of Transportation	2	\$0	\$0	\$0
Dietitians, Board of Licensed	0	\$0	\$0	\$0
Eastern Panhandle Instructional Coop	3	\$300,000	\$595,000	\$895,000
Eastern WV Community & Tech. College	2	\$1,500,000	\$70,000	\$1,570,000
Economic Development Authority State of West Virginia	0	\$0	\$0	\$0
Economic Development, WV Dept of	0	\$0	\$0	\$0
Education, Department of State of West Virginia	8	\$0	\$640,080	\$640,080
Educational Broadcasting Authority State of West Virginia	1	\$30,000	\$0	\$30,000
Enterprise Resource Planning Board, WV	0	\$0	\$0	\$0
Environmental Protection, Division of State of West Virginia	10	\$34,500	\$1,570,912	\$1,605,412
Ethics Commission, West Virginia Department of Administration	1	\$65,000	\$65,000	\$130,000
Examiners In Counseling, Board of State of West Virginia	0	\$0	\$0	\$0
Fairmont State University	1	\$211,509,751	\$13,786,800	\$225,296,551
Fire Commission State of West Virginia	0	\$0	\$0	\$0
Fleet Management Office, Dept of Admin State of West Virginia	1	\$0	\$50,000	\$50,000



State Facilities Within the WUI Interface Wildfire Hazard Area		Replacement Cost Value for State Facilities Within the WUI Interface Wildfire Hazard Area by Agency		
Agency	Number of Structures	Replacement Cost Value (Structure Only)	Replacement Cost Value (Contents Only)	Total Replacement Cost Value (Structure & Contents)
Forestry, Division of State of West Virginia	7	\$292,488	\$932,300	\$1,224,788
General Services Division Department of Administration	1	\$4,550,000	\$100,000	\$4,650,000
Geological and Economic Survey State of West Virginia	0	\$0	\$0	\$0
Glenville State College	1	\$88,806,230	\$12,031,000	\$100,837,230
Governor, Office of The State of West Virginia	0	\$0	\$0	\$0
Health & Human Resources, Department of State of West Virginia	58	\$187,701,974	\$21,358,675	\$209,060,649
Higher Education Policy Commission, WV	0	\$0	\$0	\$0
Highways, Division of State of West Virginia	43	\$48,291,619	\$9,125,940	\$57,417,559
Homeland Security & Emergency Management Division	1	\$0	\$205,000	\$205,000
Insurance Commissioner, Office of The State of West Virginia	1	\$0	\$25,000	\$25,000
Investment Management Board, WV State of West Virginia	0	\$0	\$0	\$0
Joint Committee on Government & Finance State of West Virginia	1	\$0	\$73,871	\$73,871
Justice & Community Services, Div. of	1	\$0	\$750,000	\$750,000
Juvenile Services, Division of	9	\$12,566,000	\$2,508,300	\$15,074,300
Labor, Division of State of West Virginia	0	\$0	\$0	\$0
Land Division/Dept of Agriculture State of West Virginia	1	\$129,407	\$0	\$129,407
Landscape Architects, Board of State of West Virginia	0	\$0	\$0	\$0
Library Commission State of West Virginia	1	\$0	\$166,959	\$166,959
Lottery Commission State of West Virginia	0	\$0	\$0	\$0
Marshall University	0	\$0	\$0	\$0
Military Affairs, Secretary of and Public Safety	0	\$0	\$0	\$0
Miner's Health Safety, Division of and Training, State of West Virginia	3	\$1,900,000	\$1,550,000	\$3,450,000
Motor Vehicles, Division of State of West Virginia	9	\$0	\$1,085,000	\$1,085,000
Mountain State Esc	1	\$1,000,000	\$250,000	\$1,250,000
Mountwest Community & Technical College	1	\$2,813,114	\$200,000	\$3,013,114
National Coal Heritage Area Authority	3	\$2,000,000	\$450,000	\$2,450,000
Natural Resources, Division of State of West Virginia	7	\$655,006	\$835,900	\$1,490,906
New River Community & Technical College	1	\$8,990,000	\$2,500,000	\$11,490,000
Northern Community & Tech College, WV College Square	0	\$0	\$0	\$0
Occupational Therapy Board State of West Virginia	1	\$0	\$10,000	\$10,000
Office of Technology/IS&C Department of Administration	0	\$0	\$0	\$0
Osteopathic Medicine, WV Board of State of West Virginia	0	\$0	\$0	\$0
Osteopathic Medicine, WV School of	6	\$66,788,139	\$8,217,098	\$75,005,237
Parks, West Virginia State C\O Division of Natural Resources	10	\$4,952,847	\$734,300	\$5,687,147
Pharmacy, Board of State of West Virginia	1	\$850,000	\$80,000	\$930,000
Physical Therapy, Board of State of West Virginia	0	\$0	\$0	\$0



State Facilities Within the WUI Interface Wildfire Hazard Area		Replacement Cost Value for State Facilities Within the WUI Interface Wildfire Hazard Area by Agency		
Agency	Number of Structures	Replacement Cost Value (Structure Only)	Replacement Cost Value (Contents Only)	Total Replacement Cost Value (Structure & Contents)
Pierpont Community and Technical College	0	\$0	\$0	\$0
Practical Nurses, Board of State of West Virginia	0	\$0	\$0	\$0
Prosecuting Attorneys Institute, WV	0	\$0	\$0	\$0
Psychologists Examiners, Board of State of West Virginia	0	\$0	\$0	\$0
Public Service Commission State of West Virginia	0	\$0	\$0	\$0
Purchasing, Division of Department of Administration	0	\$0	\$0	\$0
Rail Authority State of West Virginia	0	\$0	\$0	\$0
Real Estate Commission State of West Virginia	0	\$0	\$0	\$0
Regional Jail & Corr. Fac. Authority State of West Virginia	0	\$0	\$0	\$0
Registered Nurses, Board of State of West Virginia	0	\$0	\$0	\$0
Rehabilitation Services Division of Commerce	16	\$0	\$3,206,999	\$3,206,999
Respiratory Care, WV Board of	0	\$0	\$0	\$0
School Building Authority, West Virginia	1	\$500,000	\$300,000	\$800,000
Schools For The Deaf and The Blind State of West Virginia	0	\$0	\$0	\$0
Senior Services, Bureau of State of West Virginia	0	\$0	\$0	\$0
Shepherd University	0	\$0	\$0	\$0
Southern Educational Services Coop	0	\$0	\$0	\$0
Southern WV Community & Tech College	1	\$15,882,800	\$3,515,000	\$19,397,800
Speech Pathology & Audiology Examiners West Virginia Board of	0	\$0	\$0	\$0
State Police, West Virginia Dept of Military Affairs & Public Safety	39	\$18,428,788	\$5,680,000	\$24,108,788
Supreme Court of Appeals State of West Virginia	53	\$0	\$5,134,100	\$5,134,100
Tax Appeals, WV Office of	0	\$0	\$0	\$0
Tax Department State of West Virginia	2	\$0	\$5,120,000	\$5,120,000
Treasurer of State State of West Virginia	0	\$0	\$0	\$0
University Physicians and Surgeons	6	\$13,530,000	\$2,775,000	\$16,305,000
Unknown	21	\$0	\$0	\$0
Veterans Assistance, Department of State of West Virginia	6	\$0	\$52,000	\$52,000
Veterinary Medicine, Board of State of West Virginia	1	\$0	\$25,000	\$25,000
Water Development Authority State of West Virginia	0	\$0	\$0	\$0
West Liberty University	0	\$0	\$0	\$0
West Virginia Parkways Authority	7	\$29,715,500	\$8,540,000	\$38,255,500
West Virginia State University - Institute	1	\$130,503,950	\$9,519,200	\$140,023,150
West Virginia State University - Malden	1	\$1,114,000	\$115,000	\$1,229,000
West Virginia University	0	\$0	\$0	\$0
West Virginia University Arthurdale	1	\$31,259	\$43,669	\$74,928
West Virginia University At Parkersburg	0	\$0	\$0	\$0
West Virginia University Beckley	0	\$0	\$0	\$0



State Facilities Within the WUI Interface Wildfire Hazard Area		Replacement Cost Value for State Facilities Within the WUI Interface Wildfire Hazard Area by Agency		
Agency	Number of Structures	Replacement Cost Value (Structure Only)	Replacement Cost Value (Contents Only)	Total Replacement Cost Value (Structure & Contents)
West Virginia University Bruceton Mills	0	\$0	\$0	\$0
West Virginia University Charleston	0	\$0	\$0	\$0
West Virginia University Fort Ashby	1	\$2,747,022	\$705,000	\$3,452,022
West Virginia University Granville	1	\$18,789,502	\$986,000	\$19,775,502
West Virginia University Jacksons Mill	1	\$11,287,734	\$3,312,473	\$14,600,207
West Virginia University Kearneysville	0	\$0	\$0	\$0
West Virginia University Keyser	0	\$0	\$0	\$0
West Virginia University Montgomery	0	\$0	\$0	\$0
West Virginia University Reedsville	0	\$0	\$0	\$0
West Virginia University Union	1	\$452,903	\$53,427	\$506,330
West Virginia University Wardensville	0	\$0	\$0	\$0
West Virginia University Weston	1	\$2,165,145	\$75,000	\$2,240,145
Workforce West Virginia	2	\$0	\$117,000	\$117,000
WV Public Employees Grievance Board	0	\$0	\$0	\$0
WVsom Clinic Inc Dba Robert C Byrd Clinic	1	\$0	\$2,250,000	\$2,250,000
Total (WV State)	405	\$992,410,733	\$155,236,115	\$1,147,646,848

Source: WVEMD; Radeloff et al 2017

Table 5.15-9. State Facilities Within the WUI Intermix Wildfire Hazard Area by County

State Facilities Within the WUI Intermix Wildfire Hazard Area		Replacement Cost Value for State Facilities Within the WUI Intermix Wildfire Hazard Area by County		
County	Number of Structures	Replacement Cost Value (Structure Only)	Replacement Cost Value (Contents Only)	Total Replacement Cost Value (Structure & Contents)
Barbour	2	\$0	\$15,000	\$15,000
Berkeley	5	\$17,495,660	\$1,719,072	\$19,214,732
Boone	5	\$20,050,000	\$4,416,000	\$24,466,000
Braxton	7	\$2,669,153	\$2,890,000	\$5,559,153
Brooke	0	\$0	\$0	\$0
Cabell	6	\$7,883,550	\$2,229,000	\$10,112,550
Calhoun	0	\$0	\$0	\$0
Clay	1	\$0	\$0	\$0
Doddridge	8	\$65,699,435	\$8,498,500	\$74,197,935
Fayette	4	\$5,245,296	\$1,576,667	\$6,821,963
Gilmer	0	\$0	\$0	\$0
Grant	0	\$0	\$0	\$0
Greenbrier	1	\$4,416,000	\$766,000	\$5,182,000
Hampshire	4	\$13,650	\$217,450	\$231,100
Hancock	3	\$661,500	\$50,600	\$712,100



State Facilities Within the WUI Intermix Wildfire Hazard Area		Replacement Cost Value for State Facilities Within the WUI Intermix Wildfire Hazard Area by County		
County	Number of Structures	Replacement Cost Value (Structure Only)	Replacement Cost Value (Contents Only)	Total Replacement Cost Value (Structure & Contents)
Hardy	3	\$33,031,471	\$3,384,035	\$36,415,506
Harrison	4	\$1,821,232	\$2,658,500	\$4,479,732
Jackson	0	\$0	\$0	\$0
Jefferson	0	\$0	\$0	\$0
Kanawha	30	\$79,675,000	\$10,588,301	\$90,263,301
Lewis	2	\$211,000	\$132,000	\$343,000
Lincoln	1	\$25,000	\$0	\$25,000
Logan	10	\$42,895,150	\$12,254,036	\$55,149,186
Marion	4	\$24,400,000	\$2,435,000	\$26,835,000
Marshall	0	\$0	\$0	\$0
Mason	0	\$0	\$0	\$0
McDowell	1	\$0	\$0	\$0
Mercer	6	\$172,098,124	\$17,271,850	\$189,369,974
Mineral	2	\$443,000	\$349,500	\$792,500
Mingo	1	\$3,120,000	\$25,000	\$3,145,000
Monongalia	9	\$10,102,000	\$2,422,000	\$12,524,000
Monroe	0	\$0	\$0	\$0
Morgan	12	\$1,951,442	\$570,000	\$2,521,442
Nicholas	1	\$200,000	\$50,000	\$250,000
Ohio	5	\$2,680,000	\$520,000	\$3,200,000
Pendleton	0	\$0	\$0	\$0
Pleasants	0	\$0	\$0	\$0
Pocahontas	2	\$6,333,200	\$1,311,000	\$7,644,200
Preston	4	\$440,000	\$395,000	\$835,000
Putnam	0	\$0	\$0	\$0
Raleigh	3	\$7,532,900	\$811,700	\$8,344,600
Randolph	3	\$38,075,000	\$2,824,000	\$40,899,000
Ritchie	0	\$0	\$0	\$0
Roane	2	\$120,000	\$15,000	\$135,000
Summers	0	\$0	\$0	\$0
Taylor	1	\$0	\$132,000	\$132,000
Tucker	1	\$221,580	\$250,000	\$471,580
Tyler	0	\$0	\$0	\$0
Upshur	3	\$200,000	\$35,000	\$235,000
Wayne	4	\$1,866,769	\$97,564	\$1,964,333
Webster	0	\$0	\$0	\$0
Wetzel	1	\$0	\$0	\$0
Wirt	1	\$0	\$28,500	\$28,500



State Facilities Within the WUI Intermix Wildfire Hazard Area		Replacement Cost Value for State Facilities Within the WUI Intermix Wildfire Hazard Area by County		
County	Number of Structures	Replacement Cost Value (Structure Only)	Replacement Cost Value (Contents Only)	Total Replacement Cost Value (Structure & Contents)
Wood	9	\$74,653,680	\$15,096,323	\$89,750,003
Wyoming	0	\$0	\$0	\$0
Total	171	\$626,230,792	\$96,034,598	\$722,265,390

Source: WVEMD 2022; Radeloff et al 2017

Table 5.15-10. State Facilities Within the WUI Intermix Wildfire Hazard Area by Agency

State Facilities Within the WUI Intermix Wildfire Hazard Area		Replacement Cost Value for State Facilities Within the WUI Intermix Wildfire Hazard Area by Agency		
Agency	Number of Structures	Replacement Cost Value (Structure Only)	Replacement Cost Value (Contents Only)	Total Replacement Cost Value (Structure + Contents)
Adjutant General's Office State of West Virginia	1	\$100,000	\$50,000	\$150,000
Administration, Secretary of Department of Administration	0	\$0	\$0	\$0
Agriculture, Department of State of West Virginia	1	\$75,000	\$0	\$75,000
Air and Environmental Quality Boards State of West Virginia	0	\$0	\$0	\$0
Alcohol Beverage Control Administration State of West Virginia	0	\$0	\$0	\$0
Architects, Board of State of West Virginia	0	\$0	\$0	\$0
Armory Board State of West Virginia	15	\$78,339,828	\$11,807,564	\$90,147,392
Arts, Culture & History, Department of State of West Virginia	0	\$0	\$0	\$0
Attorney General, Office of The State of West Virginia	0	\$0	\$0	\$0
Aviation, Division of	0	\$0	\$0	\$0
Bar, State State of West Virginia	1	\$1,230,000	\$250,000	\$1,480,000
Barbers & Cosmetologists, Board of State of West Virginia	0	\$0	\$0	\$0
Blue Ridge Community & Technical College	1	\$17,395,660	\$1,334,072	\$18,729,732
Bluefield State College	0	\$0	\$0	\$0
Board of Treasury Investments	0	\$0	\$0	\$0
Bridgevalley Community & Tech College	0	\$0	\$0	\$0
Cedar Lakes Conference Center State of West Virginia	0	\$0	\$0	\$0
Chiropractic Examiners Board State of West Virginia	0	\$0	\$0	\$0
Commission For National and Community Service, WV	0	\$0	\$0	\$0
Concord University	1	\$158,888,424	\$14,040,500	\$172,928,924
Conservation Agency, West Virginia State of West Virginia	6	\$0	\$889,900	\$889,900
Consolidated Public Retirement Board Department of Administration	0	\$0	\$0	\$0
Consumer Advocate, Division of WV Public Service Commission	0	\$0	\$0	\$0
Corrections, Division of State of West Virginia	3	\$41,864,101	\$8,789,300	\$50,653,401
Courthouse Facilities Improvement Authority	0	\$0	\$0	\$0
Dentistry, Board of State of West Virginia	0	\$0	\$0	\$0



State Facilities Within the WUI Intermix Wildfire Hazard Area		Replacement Cost Value for State Facilities Within the WUI Intermix Wildfire Hazard Area by Agency		
Agency	Number of Structures	Replacement Cost Value (Structure Only)	Replacement Cost Value (Contents Only)	Total Replacement Cost Value (Structure + Contents)
Department of Transportation	0	\$0	\$0	\$0
Dietitians, Board of Licensed	1	\$0	\$20,000	\$20,000
Eastern Panhandle Instructional Coop	1	\$0	\$85,000	\$85,000
Eastern WV Community & Tech. College	1	\$8,173,410	\$600,000	\$8,773,410
Economic Development Authority State of West Virginia	0	\$0	\$0	\$0
Economic Development, WV Dept of	0	\$0	\$0	\$0
Education, Department of State of West Virginia	12	\$0	\$1,872,000	\$1,872,000
Educational Broadcasting Authority State of West Virginia	2	\$6,612,000	\$3,100,000	\$9,712,000
Enterprise Resource Planning Board, WV	0	\$0	\$0	\$0
Environmental Protection, Division of State of West Virginia	6	\$233,080	\$3,778,985	\$4,012,065
Ethics Commission, West Virginia Department of Administration	0	\$0	\$0	\$0
Examiners In Counseling, Board of State of West Virginia	0	\$0	\$0	\$0
Fairmont State University	0	\$0	\$0	\$0
Fire Commission State of West Virginia	0	\$0	\$0	\$0
Fleet Management Office, Dept of Admin State of West Virginia	0	\$0	\$0	\$0
Forestry, Division of State of West Virginia	3	\$0	\$426,000	\$426,000
General Services Division Department of Administration	1	\$33,288,000	\$500,000	\$33,788,000
Geological and Economic Survey State of West Virginia	0	\$0	\$0	\$0
Glenville State College	0	\$0	\$0	\$0
Governor, Office of The State of West Virginia	0	\$0	\$0	\$0
Health & Human Resources, Department of State of West Virginia	13	\$13,980,000	\$3,865,000	\$17,845,000
Higher Education Policy Commission, WV	2	\$4,330,000	\$3,300,000	\$7,630,000
Highways, Division of State of West Virginia	23	\$20,373,194	\$4,856,500	\$25,229,694
Homeland Security & Emergency Management Division	0	\$0	\$0	\$0
Insurance Commissioner, Office of The State of West Virginia	0	\$0	\$0	\$0
Investment Management Board, WV State of West Virginia	0	\$0	\$0	\$0
Joint Committee on Government & Finance State of West Virginia	0	\$0	\$0	\$0
Justice & Community Services, Div. of	0	\$0	\$0	\$0
Juvenile Services, Division of	5	\$13,301,200	\$1,702,000	\$15,003,200
Labor, Division of State of West Virginia	0	\$0	\$0	\$0
Land Division/Dept of Agriculture State of West Virginia	0	\$0	\$0	\$0
Landscape Architects, Board of State of West Virginia	0	\$0	\$0	\$0
Library Commission State of West Virginia	0	\$0	\$0	\$0
Lottery Commission State of West Virginia	0	\$0	\$0	\$0
Marshall University	0	\$0	\$0	\$0
Military Affairs, Secretary of and Public Safety	0	\$0	\$0	\$0



State Facilities Within the WUI Intermix Wildfire Hazard Area		Replacement Cost Value for State Facilities Within the WUI Intermix Wildfire Hazard Area by Agency		
		Replacement Cost Value (Structure Only)	Replacement Cost Value (Contents Only)	Total Replacement Cost Value (Structure + Contents)
Agency	Number of Structures			
Miner's Health Safety, Division of and Training, State of West Virginia	2	\$17,050,000	\$3,500,000	\$20,550,000
Motor Vehicles, Division of State of West Virginia	0	\$0	\$0	\$0
Mountain State Esc	0	\$0	\$0	\$0
Mountwest Community & Technical College	0	\$0	\$0	\$0
National Coal Heritage Area Authority	0	\$0	\$0	\$0
Natural Resources, Division of State of West Virginia	1	\$200,000	\$50,000	\$250,000
New River Community & Technical College	0	\$0	\$0	\$0
Northern Community & Tech College, WV College Square	0	\$0	\$0	\$0
Occupational Therapy Board State of West Virginia	0	\$0	\$0	\$0
Office of Technology/IS&C Department of Administration	1	\$0	\$2,450,000	\$2,450,000
Osteopathic Medicine, WV Board of State of West Virginia	0	\$0	\$0	\$0
Osteopathic Medicine, WV School of	1	\$0	\$18,500	\$18,500
Parks, West Virginia State C\O Division of Natural Resources	17	\$9,888,769	\$2,009,700	\$11,898,469
Pharmacy, Board of State of West Virginia	0	\$0	\$0	\$0
Physical Therapy, Board of State of West Virginia	1	\$0	\$80,000	\$80,000
Pierpont Community and Technical College	0	\$0	\$0	\$0
Practical Nurses, Board of State of West Virginia	1	\$0	\$60,000	\$60,000
Prosecuting Attorneys Institute, WV	0	\$0	\$0	\$0
Psychologists Examiners, Board of State of West Virginia	0	\$0	\$0	\$0
Public Service Commission State of West Virginia	0	\$0	\$0	\$0
Purchasing, Division of Department of Administration	0	\$0	\$0	\$0
Rail Authority State of West Virginia	0	\$0	\$0	\$0
Real Estate Commission State of West Virginia	0	\$0	\$0	\$0
Regional Jail & Corr. Fac. Authority State of West Virginia	3	\$82,648,048	\$3,380,000	\$86,028,048
Registered Nurses, Board of State of West Virginia	0	\$0	\$0	\$0
Rehabilitation Services Division of Commerce	1	\$0	\$554,000	\$554,000
Respiratory Care, WV Board of	1	\$0	\$100,000	\$100,000
School Building Authority, West Virginia	0	\$0	\$0	\$0
Schools For The Deaf and The Blind State of West Virginia	0	\$0	\$0	\$0
Senior Services, Bureau of State of West Virginia	1	\$0	\$150,000	\$150,000
Shepherd University	0	\$0	\$0	\$0
Southern Educational Services Coop	0	\$0	\$0	\$0
Southern WV Community & Tech College	3	\$36,729,150	\$8,015,219	\$44,744,369
Speech Pathology & Audiology Examiners West Virginia Board of	1	\$0	\$20,000	\$20,000
State Police, West Virginia Dept of Military Affairs & Public Safety	17	\$15,880,111	\$2,450,000	\$18,330,111
Supreme Court of Appeals State of West Virginia	3	\$0	\$74,500	\$74,500



State Facilities Within the WUI Intermix Wildfire Hazard Area		Replacement Cost Value for State Facilities Within the WUI Intermix Wildfire Hazard Area by Agency		
Agency	Number of Structures	Replacement Cost Value (Structure Only)	Replacement Cost Value (Contents Only)	Total Replacement Cost Value (Structure + Contents)
Tax Appeals, WV Office of	0	\$0	\$0	\$0
Tax Department State of West Virginia	0	\$0	\$0	\$0
Treasurer of State State of West Virginia	1	\$0	\$675,000	\$675,000
University Physicians and Surgeons	0	\$0	\$0	\$0
Unknown	10	\$0	\$0	\$0
Veterans Assistance, Department of State of West Virginia	2	\$0	\$20,000	\$20,000
Veterinary Medicine, Board of State of West Virginia	0	\$0	\$0	\$0
Water Development Authority State of West Virginia	0	\$0	\$0	\$0
West Liberty University	1	\$2,000,000	\$500,000	\$2,500,000
West Virginia Parkways Authority	0	\$0	\$0	\$0
West Virginia State University - Institute	0	\$0	\$0	\$0
West Virginia State University - Malden	0	\$0	\$0	\$0
West Virginia University	0	\$0	\$0	\$0
West Virginia University Arthurdale	0	\$0	\$0	\$0
West Virginia University At Parkersburg	1	\$51,935,381	\$9,834,823	\$61,770,204
West Virginia University Beckley	0	\$0	\$0	\$0
West Virginia University Bruceton Mills	0	\$0	\$0	\$0
West Virginia University Charleston	0	\$0	\$0	\$0
West Virginia University Fort Ashby	0	\$0	\$0	\$0
West Virginia University Granville	0	\$0	\$0	\$0
West Virginia University Jacksons Mill	0	\$0	\$0	\$0
West Virginia University Kearneysville	0	\$0	\$0	\$0
West Virginia University Keyser	0	\$0	\$0	\$0
West Virginia University Montgomery	1	\$4,857,375	\$0	\$4,857,375
West Virginia University Reedsville	0	\$0	\$0	\$0
West Virginia University Union	0	\$0	\$0	\$0
West Virginia University Wardensville	1	\$6,858,061	\$784,035	\$7,642,096
West Virginia University Weston	0	\$0	\$0	\$0
Workforce West Virginia	1	\$0	\$42,000	\$42,000
WV Public Employees Grievance Board	0	\$0	\$0	\$0
WVsom Clinic Inc DbA Robert C Byrd Clinic	0	\$0	\$0	\$0
Total (WV State)	171	\$626,230,792	\$96,034,598	\$722,265,390

Source: WVEMD; Radeloff et al 2017



CRITICAL FACILITIES AND COMMUNITY LIFELINES

It is recognized that a number of critical facilities are located in the wildfire hazard area. Facilities at risk from being impacted by wildfire incidents include locations that provide services for vulnerable populations (i.e., schools and senior facilities) and emergency response agencies (i.e., fire and police). Transportation routes are vulnerable to wildfire and have the potential to be blocked off, creating limited access from first responders. Facilities that are most vulnerable are those that are already in poor condition and may not be able to withstand high heat associated with fires. Utility infrastructure is also vulnerable; interruption of services may impact critical facilities that need to be in operation during a hazard. Medical facilities, fire/EMS, schools, and shelters could all sustain damages from wildfire events depending on the intensity of wind and pathway of the burn.

Due to the state’s geography, each county needs to be as self-sufficient as possible in terms of wildfire response and recovery personnel and equipment. Statewide, there are 51 facilities in the WUI Interface Wildfire Hazard area and 28 facilities in the WUI intermix wildfire hazard area. Kanawha County has the greatest number of critical facilities (15) located in the WUI interface area as well as the most located in the WUI intermix wildfire risk hazard area (11) compared to the other counties. Table 5.15-11 summarizes the total number of critical facilities by lifeline category located in the WUI interface area by county. Table 5.15-12 summarizes the total number of critical facilities by lifeline category located in the WUI intermix area by county.

Table 5.15-11. Critical Facilities Located Within the WUI Interface Wildfire Hazard Area

Critical Facilities Located Within the WUI Interface Wildfire Hazard Area								
County	Communications	Energy	Food, Water, Shelter	Hazardous Material	Health & Medical	Safety & Security	Transportation	Total
Barbour	0	0	0	0	0	1	0	1
Berkeley	0	0	0	0	0	1	0	1
Boone	0	0	0	0	0	0	0	0
Braxton	0	0	0	0	0	1	0	1
Brooke	0	0	0	0	0	0	0	0
Cabell	0	0	0	0	0	1	1	2
Calhoun	0	0	0	0	0	0	0	0
Clay	0	0	0	0	0	0	0	0
Doddridge	0	0	0	0	0	0	0	0
Fayette	0	0	0	0	0	1	0	1
Gilmer	0	0	0	0	0	0	0	0
Grant	0	0	0	0	0	0	0	0
Greenbrier	0	0	1	0	0	2	0	3
Hampshire	0	0	0	0	0	0	0	0
Hancock	0	0	0	0	0	0	0	0
Hardy	0	0	0	0	0	2	0	2
Harrison	0	0	0	0	1	1	0	2
Jackson	0	0	0	0	0	0	0	0
Jefferson	0	0	0	0	0	0	0	0
Kanawha	1	0	1	0	2	10	1	15
Lewis	0	0	0	0	0	0	0	0



Critical Facilities Located Within the WUI Interface Wildfire Hazard Area								
County	Communications	Energy	Food, Water, Shelter	Hazardous Material	Health & Medical	Safety & Security	Transportation	Total
Lincoln	0	0	0	0	0	0	0	0
Logan	0	0	0	0	0	1	0	1
Marion	0	0	0	0	1	2	0	3
Marshall	0	0	0	0	0	1	0	1
Mason	0	0	0	0	0	0	0	0
McDowell	0	0	0	0	0	1	0	1
Mercer	0	0	0	0	0	1	0	1
Mineral	0	0	0	0	0	1	0	1
Mingo	0	0	0	0	0	2	0	2
Monongalia	0	0	0	0	0	0	0	0
Monroe	0	0	0	0	0	0	0	0
Morgan	0	0	0	0	0	0	0	0
Nicholas	0	0	0	0	0	0	0	0
Ohio	0	0	1	0	0	1	0	2
Pendleton	0	0	0	0	0	0	0	0
Pleasants	0	0	0	0	0	0	0	0
Pocahontas	0	0	0	0	0	0	0	0
Preston	0	0	0	0	0	0	0	0
Putnam	0	0	0	0	0	1	0	1
Raleigh	0	0	0	0	1	0	0	1
Randolph	0	0	0	0	0	2	0	2
Ritchie	0	0	0	0	0	0	0	0
Roane	0	0	0	0	0	2	0	2
Summers	0	0	0	0	0	1	0	1
Taylor	0	0	0	0	0	0	0	0
Tucker	0	0	0	0	0	0	0	0
Tyler	0	0	0	0	0	0	0	0
Upshur	0	0	0	0	0	0	0	0
Wayne	0	0	0	0	0	0	0	0
Webster	0	0	0	0	1	0	0	1
Wetzel	0	0	0	0	0	0	0	0
Wirt	0	0	0	0	0	0	0	0
Wood	0	0	0	0	0	2	1	3
Wyoming	0	0	0	0	0	0	0	0
Total	1	0	3	0	6	38	3	51

Source: WVEMD; Radeloff et al 2017



Table 5.15-12. Critical Facilities Located Within the WUI Intermix Wildfire Hazard Area

Critical Facilities Located Within the WUI Intermix Wildfire Hazard Area								
County	Communications	Energy	Food, Water, Shelter	Hazardous Material	Health & Medical	Safety & Security	Transportation	Total
Barbour	0	0	0	0	0	0	0	0
Berkeley	0	0	0	0	0	0	0	0
Boone	0	0	0	0	0	1	0	1
Braxton	0	0	0	0	0	1	0	1
Brooke	0	0	0	0	0	0	0	0
Cabell	0	0	0	0	0	0	0	0
Calhoun	0	0	0	0	0	0	0	0
Clay	0	0	0	0	0	0	0	0
Doddridge	0	0	0	0	0	3	0	3
Fayette	0	0	0	0	0	1	0	1
Gilmer	0	0	0	0	0	0	0	0
Grant	0	0	0	0	0	0	0	0
Greenbrier	0	0	0	0	0	0	0	0
Hampshire	0	0	0	0	0	2	0	2
Hancock	0	0	0	0	0	0	0	0
Hardy	0	0	0	0	0	0	0	0
Harrison	0	0	0	0	0	0	0	0
Jackson	0	0	0	0	0	0	0	0
Jefferson	0	0	0	0	0	0	0	0
Kanawha	0	0	1	0	1	9	0	11
Lewis	0	0	0	0	0	0	0	0
Lincoln	0	0	0	0	0	0	0	0
Logan	0	0	0	0	0	2	0	2
Marion	0	0	0	0	0	0	0	0
Marshall	0	0	0	0	0	0	0	0
Mason	0	0	0	0	0	0	0	0
McDowell	0	0	0	0	0	1	0	1
Mercer	0	0	0	0	0	1	0	1
Mineral	0	0	0	0	0	0	0	0
Mingo	0	0	0	0	0	0	0	0
Monongalia	1	0	0	0	0	0	0	1
Monroe	0	0	0	0	0	0	0	0
Morgan	0	0	0	0	0	0	0	0
Nicholas	0	0	0	0	0	0	0	0
Ohio	0	0	0	0	0	1	0	1
Pendleton	0	0	0	0	0	0	0	0



Critical Facilities Located Within the WUI Intermix Wildfire Hazard Area								
County	Communications	Energy	Food, Water, Shelter	Hazardous Material	Health & Medical	Safety & Security	Transportation	Total
Pleasants	0	0	0	0	0	0	0	0
Pocahontas	0	0	0	0	0	0	0	0
Preston	0	0	0	0	0	0	0	0
Putnam	0	0	0	0	0	0	0	0
Raleigh	0	0	0	0	0	1	0	1
Randolph	0	0	0	0	0	1	0	1
Ritchie	0	0	0	0	0	0	0	0
Roane	0	0	0	0	0	0	0	0
Summers	0	0	0	0	0	0	0	0
Taylor	0	0	0	0	0	0	0	0
Tucker	0	0	0	0	0	0	0	0
Tyler	0	0	0	0	0	0	0	0
Upshur	0	0	0	0	0	0	0	0
Wayne	0	0	0	0	0	0	0	0
Webster	0	0	0	0	0	0	0	0
Wetzel	0	0	0	0	0	0	0	0
Wirt	0	0	0	0	0	0	0	0
Wood	0	0	0	0	0	1	0	1
Wyoming	0	0	0	0	0	0	0	0
Total	1	0	1	0	1	25	0	28

Source: WVEMD; Radeloff et al 2017

POPULATION

Wildfires have the potential to impact human health and life of residents and responders, structures, infrastructure, and natural resources. Based on the analysis, an estimated 422,175 residents are located in the wildland urban interface (WUI) hazard area and 23.34 percent are highly vulnerable. In addition, an estimated 1,807,426 residents are located in the WUI hazard area, with 6.18 percent being highly vulnerable. Overall, Mingo County has the highest percentage of the population who are highly vulnerable (86.03 percent of the population exposed is highly vulnerable).

Table 5.15-13 and Table 5.15-14 list the estimated population living in the high wildfire risk hazard areas (both Interface and Intermix) that could be impacted should a wildfire occur. The analysis indicates that the population in Mercer County has the highest number of highly vulnerable people for interface, and Kanawha County has the highest number of highly vulnerable people for intermix. This analysis does not include the number of tourists and visitors in the state whose lodgings are also located in these high-risk areas. Therefore, these results may be underestimating exposure and vulnerability.



Table 5.15-13. Population Located within the WUI Interface Wildfire Hazard Area

Population Located Within the WUI Interface Wildfire Hazard Area			% Population Highly Vulnerable
County	Highly Vulnerable Population	Total Population	
Barbour	390	1,276	30.56%
Berkeley	0	8,284	0.00%
Boone	34	1,159	2.96%
Braxton	74	263	27.90%
Brooke	2,532	6,821	37.12%
Cabell	10,995	42,686	25.76%
Calhoun	0	265	0.00%
Clay	20	56	35.54%
Doddridge	0	739	0.00%
Fayette	4,267	9,419	45.30%
Gilmer	284	603	47.16%
Grant	514	1,015	50.64%
Greenbrier	4,452	7,398	60.17%
Hampshire	496	1,072	46.26%
Hancock	2,323	8,448	27.50%
Hardy	0	1,471	0.00%
Harrison	6,296	24,751	25.44%
Jackson	0	4,959	0.00%
Jefferson	0	6,681	0.00%
Kanawha	12,782	65,134	19.62%
Lewis	401	2,025	19.81%
Lincoln	146	484	30.14%
Logan	1,457	2,147	67.86%
Marion	4,533	15,408	29.42%
Marshall	1,748	8,703	20.08%
Mason	0	4,631	0.00%
McDowell	255	324	78.54%
Mercer	13,097	18,947	69.12%
Mineral	119	4,403	2.71%
Mingo	1,474	1,713	86.03%
Monongalia	492	26,127	1.88%
Monroe	0	1,168	0.00%
Morgan	0	1,001	0.00%
Nicholas	0	2,061	0.00%
Ohio	2,574	16,769	15.35%
Pendleton	0	262	0.00%
Pleasants	0	659	0.00%
Pocahontas	0	278	0.00%



Population Located Within the WUI Interface Wildfire Hazard Area			% Population Highly Vulnerable
County	Highly Vulnerable Population	Total Population	
Preston	551	4,006	13.75%
Putnam	0	21,395	0.00%
Raleigh	10,341	28,197	36.67%
Randolph	4,051	7,219	56.11%
Ritchie	0	571	0.00%
Roane	709	892	79.57%
Summers	257	1,569	16.37%
Taylor	1,101	3,525	31.24%
Tucker	0	492	0.00%
Tyler	0	1,352	0.00%
Upshur	0	5,435	0.00%
Wayne	0	8,081	0.00%
Webster	0	379	0.00%
Wetzel	0	3,557	0.00%
Wirt	0	614	0.00%
Wood	9,703	34,951	27.76%
Wyoming	57	328	17.50%
Total	98,523	422,173	23.34%

Source: Centers for Disease Control and Prevention (CDC) 2020; Radeloff et al 2017

Table 5.15-14. Population Located within the WUI Intermix Wildfire Hazard Area

Population Located Within the WUI Intermix Wildfire Hazard Area			% Population Highly Vulnerable
County	Highly Vulnerable Population	Total Population	
Barbour	1,803	8,384	21.51%
Berkeley	1,002	35,181	2.85%
Boone	2,626	14,897	17.63%
Braxton	1,062	3,196	33.23%
Brooke	0	13,266	0.00%
Cabell	1,763	32,232	5.47%
Calhoun	0	2,373	0.00%
Clay	393	1,915	20.54%
Doddridge	0	2,815	0.00%
Fayette	6,692	20,016	33.43%
Gilmer	956	1,500	63.76%
Grant	859	2,106	40.81%
Greenbrier	3,412	11,575	29.48%
Hampshire	4,104	10,321	39.76%
Hancock	3,168	19,374	16.35%
Hardy	0	4,101	0.00%



Population Located Within the WUI Intermix Wildfire Hazard Area			
County	Highly Vulnerable Population	Total Population	% Population Highly Vulnerable
Harrison	1,747	28,212	6.19%
Jackson	0	11,623	0.00%
Jefferson	206	8,405	2.45%
Kanawha	17,411	84,983	20.49%
Lewis	1,327	5,164	25.70%
Lincoln	1,340	11,292	11.87%
Logan	14,949	22,099	67.65%
Marion	694	27,950	2.48%
Marshall	463	17,439	2.66%
Mason	0	10,755	0.00%
McDowell	1,015	4,587	22.12%
Mercer	13,627	30,505	44.67%
Mineral	213	11,296	1.89%
Mingo	8,456	13,702	61.72%
Monongalia	1,092	40,394	2.70%
Monroe	0	3,523	0.00%
Morgan	0	14,165	0.00%
Nicholas	0	12,479	0.00%
Ohio	294	21,781	1.35%
Pendleton	0	971	0.00%
Pleasants	0	2,379	0.00%
Pocahontas	0	2,347	0.00%
Preston	452	15,570	2.91%
Putnam	0	22,100	0.00%
Raleigh	12,288	27,366	44.90%
Randolph	595	9,389	6.34%
Ritchie	0	1,226	0.00%
Roane	2,588	4,821	53.68%
Summers	870	3,523	24.68%
Taylor	3,144	10,092	31.15%
Tucker	0	2,406	0.00%
Tyler	0	2,381	0.00%
Upshur	0	10,680	0.00%
Wayne	0	22,261	0.00%
Webster	0	2,217	0.00%
Wetzel	0	3,462	0.00%
Wirt	0	822	0.00%
Wood	521	24,529	2.13%
Wyoming	595	6,884	8.64%



Population Located Within the WUI Intermix Wildfire Hazard Area			
County	Highly Vulnerable Population	Total Population	% Population Highly Vulnerable
Total	111,730	1,807,426	6.18%

Source: CDC 2020; Radeloff et al 2017

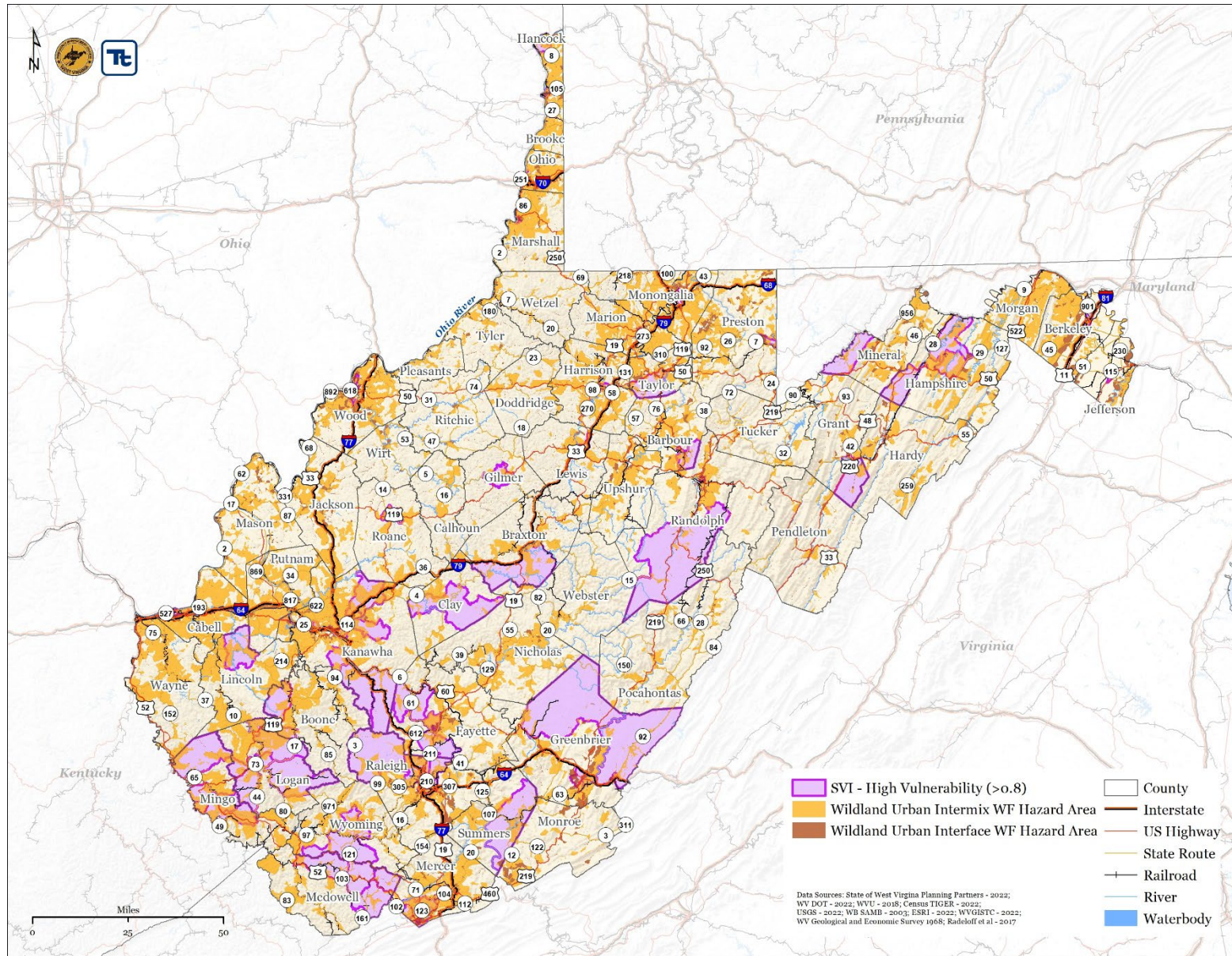
Impacts on Socially Vulnerable Populations

Many communities and populations are especially vulnerable to wildfires, including low-income communities, migrant populations, populations whose primarily language is not English, indigenous populations, communities of older adults, and those with respiratory and other health concerns. The elderly (persons over the age of 65, 19.9 percent of the population), the young (persons under the age of 5, 5.2 percent of the population), and individuals living below the U.S. Census poverty threshold (16.9 percent of the population) are considered highly vulnerable based on a variety of factors including their physical and financial ability to react or respond during a hazard, the location and construction quality of their housing, and the ability to be self-sustaining for prolonged periods of time after an incident because of limited ability to stockpile supplies. In addition, members of immigrant communities may not speak English and may also be concerned about impacts to their immigration status and elect not to seek help during wildfire events. Indigenous populations are also affected, as they may lose sacred sites; fisheries and hunting and gathering grounds may be degraded (National Academies Press 2020).

Similarly, when a wildfire impacts an area with leased properties where multiple families live in one structure, it may be difficult for those not listed on the lease to prove that they were affected by the fire for insurance purposes. This could result in a lack of access to services. Additionally, fires can quickly increase the price of housing and rent due to limited space available, which further displaces people already affected by the fire and increases homelessness. Figure 5.15-3 provides more information on where the hazard area is located in relation to the social vulnerability index.



Figure 5.15-3. WUI Hazard Area and Social Vulnerability Index





FUTURE CHANGES THAT MAY IMPACT STATE VULNERABILITY

Understanding future changes that may impact vulnerability in the state can assist in planning for future development and ensuring that appropriate mitigation, planning, and preparedness measures are in place. The State considered the following factors in examining potential conditions that may affect hazard vulnerability:

- Potential or projected development
- Projected changes in population
- Other identified conditions as relevant and appropriate, including impacts of future conditions.

Potential or Projected Development

It is anticipated that any new development and new residents in the wildland urban intermix/interface will be exposed to the wildfire hazard. Companies and potential homeowners should be mindful of the wildfire hazard areas when considering building in certain areas.

Projected Changes in Population

West Virginia is losing population faster than recent forecasts, which do not account for county-by-county increases. According to population projections in 2022 from the WVU Bureau of Business and Economic Research, West Virginia's population was projected to fall from 1,793,716 in 2020 to 1,705,509 in 2040 (West Virginia University 2022). As of July 1, 2019, according to estimates by the U.S. Census Bureau, West Virginia's total population is 1,792,147, representing a 3.3 percent decline since 2010 (approximately 60,487 fewer residents). West Virginia lost population both naturally, with 19,000 more deaths than births, and through migration, with 27,000 more people leaving the state than moving in (WVDOT 2020). Refer to Section 2 (State Profile), which includes a discussion on population trends for the State.

As stated previously, over 90 percent of wildfires in the State are caused by humans. As the overall resident population changes, there may be an increase in the number of human-caused wildfires as more people move into currently less developed parts of the state and as more people engage in activities that may accidentally spark wildfires. In addition to the resident population, the visitor population to the state is also increasing. Visitors may be less familiar with wildfire risk as well as precautions that should be taken to prevent or limit wildfire ignition. The increase in both resident and visitor populations may stress existing resources available for wildfire suppression activities as more water will be needed for human use and consumption.

Other Factors of Change

Future conditions, including warming temperatures, have the potential to significantly increase vulnerability to wildfire in the state. The state has experienced longer droughts, an increase in consecutive dry days, and a decrease in the days of intense rainfall. Warm temperatures and drought create perfect conditions for wildfire outbreak throughout the state.

Increasing temperatures and, in some areas, droughts have the ability to stress native plant and animal species, especially in higher-elevation ecosystems, with increased exposure to non-native biological invasions due to shifting populations and fires (USGS 2018). Invasive species can increase wildfire risk.



5.15.3 Consequence Analysis

IMPACTS TO THE PUBLIC

The most at-risk populations include those within a short distance of the interface between the built environment and the wildland environment, including home and landowners along and within the wildland urban interface/intermix. Impacts to the public include potential for injury or loss of life, and destruction and/or loss of land and property due to wildfire. Loss of property can leave people homeless and with a hefty list of assets that need to be replaced, and some of these may be out-of-pocket costs. Smoke and air pollution from wildfires can be a health hazard, especially for sensitive populations, including children, the elderly, and those with respiratory and cardiovascular diseases.

In addition, Wildfires may also make land more vulnerable to landslides if heavy precipitation follows a wildfire event. This has the potential to put more of the public at risk from a secondary hazard incident resulting from wildfire.

IMPACTS TO RESPONDERS

Wildfires are often fast-moving, causing mass destruction in a shortened time frame. Emergency response to wildfires must involve several first response organizations, ranging from local police to specific federal agencies. Assessments must be done to determine the current needs of the situation, including evacuation, search and rescue, distribution of resources, firefighting, and relocation of displaced individuals. All these emergency responders can be exposed to the dangers from the initial incident as well as after-effects from smoke inhalation and heat stroke.

Wildfires may immobilize a region and shut down transportation which, in turn, stops the flow of supplies and disrupts the distribution of medical and emergency services and goods. Wildfires can quickly burn up buildings, trees, and additional infrastructure, making it difficult for responders to access the incident area. Rural areas may experience isolation for days at a time until first responders can safely access the area.

IMPACTS TO CONTINUITY OF OPERATIONS

Intense fires can bring down trees, electrical wires, telephone poles, lines, and communication towers. Communication and power can be disrupted for days while utility companies work to repair the extensive damage. Wildfires can obstruct and slow transportation by knocking down trees and utility lines and causing structural collapses in buildings not designed to withstand the heat. Uncontrolled fires can also impact airports and roadways, sometimes even closing them completely, stopping the flow of supplies and disrupting continuity of operations in the state and counties.

Wildfires may also disrupt the distribution of gasoline, kerosene, diesel fuel, fuel oils, propane, and other petroleum products as these goods can also fuel fires to grow even more unmanageable. This disruption could cause major problems for organizations and businesses that rely on such supplies as well as impact the average citizen relying on gas to attend work. Additionally, such a disruption could affect or disable backup power generation.



IMPACTS TO PROPERTY, FACILITIES, AND INFRASTRUCTURE

Wildfires make properties, facilities, and critical infrastructure highly vulnerable to damage. The most vulnerable structures to wildfire events are those within the wildland urban interface/intermix hazard area. Buildings and infrastructure constructed of wood or vinyl siding are generally more likely to be impacted by the fire hazard than buildings constructed of brick or concrete due to various melting points.

When post-fire flooding overwhelms the transportation, infrastructure failures inevitably occur, and communities have varying levels of risk depending on the nature of the infrastructure that exists, its vulnerability to post-fire flooding, and the level of redundancy in the transportation infrastructure for that community. The vulnerability of infrastructure to this flooding varies according to physical factors of the associated drainage area, including size, slope, and its variation throughout the drainage area, and the severity of the fire (Valentin and Stormont 2019). In addition to protecting human life and communities, wildfire mitigation efforts need to consider areas that are at high risk to post-fire impacts due to flooding of critical infrastructure (Fraser, Chester and Underwood 2019). Roads provide a vital transportation link between populated areas. Road closures, as a result of a wildfire event, will have significant impacts on those communities and each county.

The state has more than 906.44 miles located in the interface wildfire hazard area and 42.31 miles of state-owned roads located in the intermix high wildfire risk areas. Raleigh County has the greatest number of road miles (39.15 miles) exposed in the interface wildfire hazard area, and Ohio County has the greatest number of road miles (47.91 miles) exposed in the intermix wildfire hazard area. A complete list of state roads located in the Interface and Intermix wildfire risk areas is included in Table 5.15-15 below.

Table 5.15-15. State Roads Located Within the WUI Interface and Intermix Hazards Areas

County	State Roads Located Within the WUI Interface Wildfire Hazard Area	State Roads Located Within the WUI Intermix Wildfire Hazard Area
	Mileage of Roadway	Mileage of Roadway
Barbour	10.88	0.25
Berkeley	12.50	13.38
Boone	29.28	14.77
Braxton	15.22	25.50
Brooke	12.84	17.46
Cabell	15.64	18.02
Calhoun	7.82	19.97
Clay	12.67	20.25
Doddridge	8.81	31.79
Fayette	27.62	8.33
Gilmer	13.27	32.43
Grant	10.40	6.11
Greenbrier	14.71	12.46
Hampshire	16.93	22.89
Hancock	12.07	26.03
Hardy	10.61	11.41



County	State Roads Located Within the WUI Interface Wildfire Hazard Area	State Roads Located Within the WUI Intermix Wildfire Hazard Area
	Mileage of Roadway	Mileage of Roadway
Harrison	21.92	8.17
Jackson	16.30	21.16
Jefferson	1.84	19.18
Kanawha	37.05	7.35
Lewis	0.01	27.11
Lincoln	22.64	1.82
Logan	24.91	39.87
Marion	6.52	15.53
Marshall	4.45	14.16
Mason	31.14	14.82
McDowell	27.71	24.79
Mercer	24.79	51.90
Mineral	16.80	39.46
Mingo	15.68	19.36
Monongalia	17.89	16.20
Monroe	13.41	22.66
Morgan	5.18	7.85
Nicholas	27.43	20.35
Ohio	6.74	47.91
Pendleton	3.84	9.86
Pleasants	6.63	1.77
Pocahontas	16.27	8.03
Preston	28.25	16.97
Putnam	30.15	37.85
Raleigh	39.15	30.97
Randolph	4.47	37.58
Ritchie	20.24	5.05
Roane	5.69	16.34
Summers	19.25	7.39
Taylor	4.92	23.27
Tucker	10.54	3.62
Tyler	18.58	10.24
Upshur	4.49	9.38
Wayne	23.31	15.67
Webster	12.93	33.32
Wetzel	20.42	24.97
Wirt	13.61	15.89
Wood	38.48	10.43



County	State Roads Located Within the WUI Interface Wildfire Hazard Area	State Roads Located Within the WUI Intermix Wildfire Hazard Area
	Mileage of Roadway	Mileage of Roadway
Wyoming	31.52	33.97
Total	906.42	1,053.27

Source: Radeloff et al 2017; WVDOT 2021

IMPACTS TO THE ENVIRONMENT

Fire is a natural and critical ecosystem process in most terrestrial ecosystems, affecting the types, structure, and spatial extent of native vegetation. Low-intensity fires can clear and thin the forest by removing flammable vegetation from the forest floor, improving soil and habitat for wildlife, and promoting the new growth of native plants (Snow 2022). However, in some circumstances, it can also cause severe negative environmental impacts, such as the following:

- Soil Erosion—The protective covering provided by foliage and dead organic matter is removed, leaving the soil fully exposed to wind and water erosion. Accelerated soil erosion occurs, causing landslides and threatening aquatic habitats (California Ecosystems Climate Solutions 2020).
- Reduced Agricultural Resources—Wildfire can have disastrous consequences on agricultural resources, removing them from production and necessitating lengthy restoration programs (Philip 2019).
- Spread of Invasive Plant Species—Non-native woody plant species frequently invade burned areas. When weeds become established, they can dominate the plant cover over broad landscapes and become difficult and costly to control (U.S. Department of the Interior, Office of Wildland Fire 2022).
- Destroyed Endangered Species Habitat—Wildfire can have negative consequences for endangered species by degrading their habitat (Butcher, Kristin 2019).
- Soil Sterilization—Some wildfires burn so hot that they can sterilize the soil. Topsoil exposed to extreme heat can become water-repellant and soil nutrients may be lost (FireSafe Sonoma 2020).
- Damaged Fisheries—Fisheries can suffer from increased water temperatures, sedimentation, and changes in water quality (NASA Jet Propulsion Laboratory, California Institute of Technology 2022) (Beakes, et al. 2014).
- Damaged Cultural and Historical Resources—The destruction of cultural and historic resources may occur, scenic vistas can be damaged, and access to recreational areas can be reduced (National Park Service 2021).

Overall, wildfires have physical, chemical, and biological impacts on ecosystem resources and the environment (DeBano et al. 1998). Wildfires threaten air quality, water quality, soil properties, nutrient cycling, vegetation, and wildlife habitat. During periods of heavy rainfall, the burned areas can erode, becoming mud flows and debris flows, thereby increasing sedimentation loads in streams and rivers and potentially impacting water quality, fisheries, and long-term coral health. Further impacts include stream bank destabilization, which could worsen impacts of heavy rainfall and lead to riparian flooding.

Fires that reach urban areas are also dangerous to the environment. The increasing age and density of infrastructure within West Virginia can exacerbate consequences of fires on the environment because of the increased amount of chemicals and contaminants that would be released from burning infrastructure. These



chemicals, such as iron, lead, and zinc, may leach into the storm water, contaminate nearby streams, and impair aquatic life.

IMPACTS TO THE ECONOMIC CONDITION OF THE STATE

Wildfire events can have major economic impacts on a community from the initial loss of structures as well as the subsequent loss of revenue from destroyed businesses. These hazard events may cost thousands of taxpayer dollars to suppress and control and may involve hundreds of operating hours on fire apparatus as well as thousands of volunteer man hours from the volunteer firefighters. There are also many direct and indirect costs to local businesses that need to excuse volunteers from working to fight these fires.

Property loss is an immediate economic impact of wildfires, in addition to secondary impacts that carry on for years. With the loss of property comes the displacement of individuals and families from their homes, the decimation of businesses, and significant effects on insurers. Local employment and wages may actually increase during large wildfires as fire suppression efforts generate employment opportunities. However, wildfires tend to make local labor markets less stable over time because they cause dramatic disparities in seasonal employment (Reiff, Anderson and Velasquez 2022).

Wildfires not only have the potential to wipe out outdoor areas that draw in tourists but also to drive people away for years to come. Tourists and outdoors enthusiasts tend to avoid state and national parks when smoke is present, and this can have a widespread impact on other industries as well. In this way, wildfires can also negatively affect hospitality, restaurant, and other industries present in these key locations (Reiff, Anderson and Velasquez 2022).

A fire occurs in a structure every 64 seconds across the U.S., although outdoor fires remain more common. In total, fires in the U.S. in 2020 caused \$21.9 billion in property damage. The largest wildfires may cause well over \$1 billion in property loss and damage individually—the costliest wildfire in U.S. history, 2018’s Camp Fire, resulted in a loss of about \$10 billion at the time. In addition, eight of the ten costliest wildfires ever in the U.S. have taken place in the past four years (Reiff, Anderson and Velasquez 2022).

IMPACTS TO PUBLIC CONFIDENCE IN STATE GOVERNANCE

The public confidence in state governance primarily depends on how effective the State has been in the past at preparing for and responding to wildfire events. Public confidence also depends on the size of the event and the preparation the State takes for these events. In general, if the State is transparent in sharing relevant information with the public; proves it has the capability to support the residents of West Virginia if a wildfire occurs; and demonstrates its reliability to the public through the availability of programs and services relevant to wildfire events, then the public will remain confident in the state’s governance (Chew, et al. 2021).