

Dufur Natural Hazard Mitigation Plan Meeting



Agenda

- **Community Profile**
- **Hazard Discussion, Prioritization**
- **Critical Facilities List**
- **Action Plan Development**

Community Demographics

- Population fairly steady since 2010 according to Decennial Census/PSU (table below) –ACS data shows growth to 857

Table 1.2: Total Population, City of Dufur, Wasco County, Oregon, 2010-2022

Jurisdiction	Population (2022)	Population (2020)	Population (2010)	Population Change (2010 - 2022)	Percent Change (2010 - 2022)
Dufur	611	632	604	7	1.1%
Wasco County	26,794	26,670	25,213	1,581	5.9%
Oregon	4,281,851	4,237,256	3,831,074	450,777	10.5%

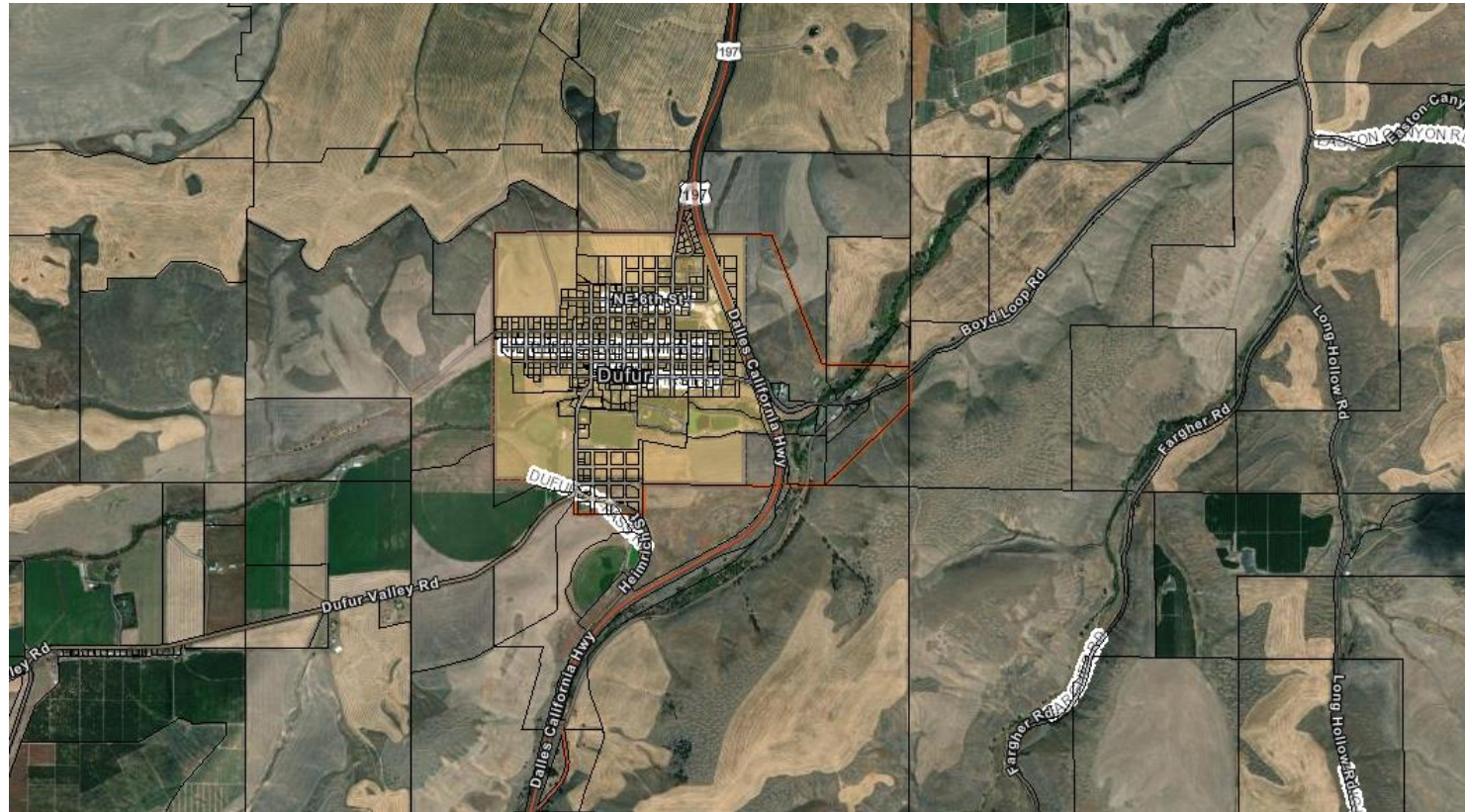
Community Demographics

- Higher age dependency ratio than Wasco County as a whole—more children and slightly lower elderly population
- Higher median household income than Wasco County (\$74,321 vs \$61,316)
- Very low poverty rate in the City but higher in the student population
- 74% drive alone for their commute
- 19.1% disabled
- School Population more diverse than City population due to larger geographic area

Link:

https://data.census.gov/profile/Dufur_city,_Oregon?g=160XX00US4120900#populations-and-people

Hazards Review and Discussion



Countywide Hazards Ranking

HAZARD ANALYSIS MATRIX² WORKSHEET

JURISDICTION: Wasco County

Hazards		History	Vulnerability	Maximum Threat	Probability	Total Score
		WF = 2	WF = 5	WF = 10	WF = 7	
Wildland-Wildfire	WF X SR	2 X 10	5 X 9	10 X 10	7 X 10	225
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	WF X SR	2 X ___	5 X ___	10 X ___	7 X ___	
	Subscore	=	=	=	=	
	WF X SR	2 X ___	5 X ___	10 X ___	7 X ___	
	Subscore	=	=	=	=	

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1. Wildland-Wildfire
2. Extreme Heat
3. Drought
4. Severe Storm/Winter Weather
5. Flood
6. Earthquake
7. Volcano
8. Landslide

DATE: 4/15/24

WF = weight factor
SR = severity rating

Wild Fire

Important Definitions

Any instance of uncontrolled burning within a forested area is a wildland fire, whereas uncontrolled burning in grassland, brush, or woodlands is classified as a **wildfire**. (2019 Wasco County NHMP, p. HA-15)

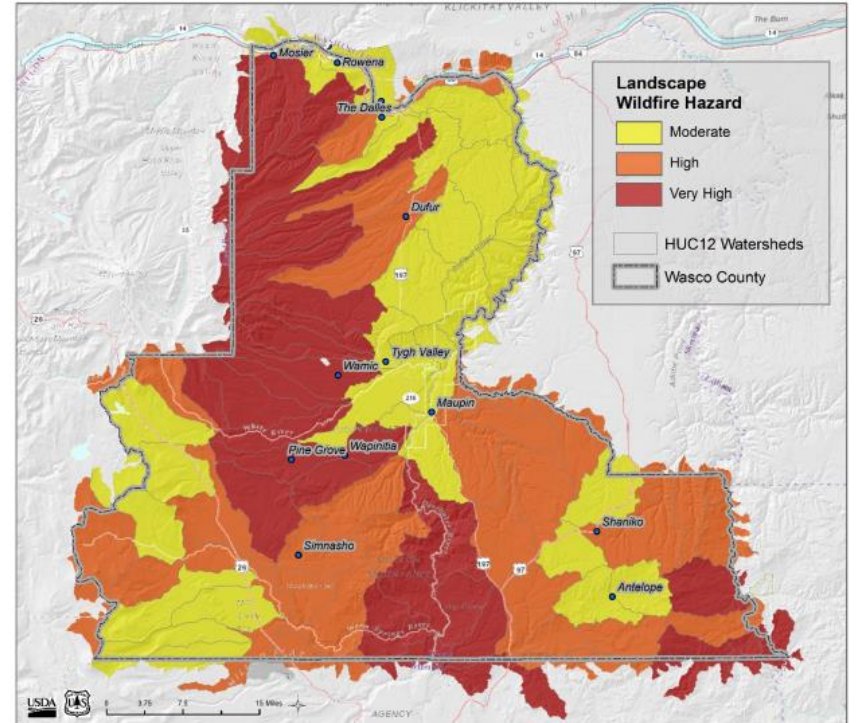
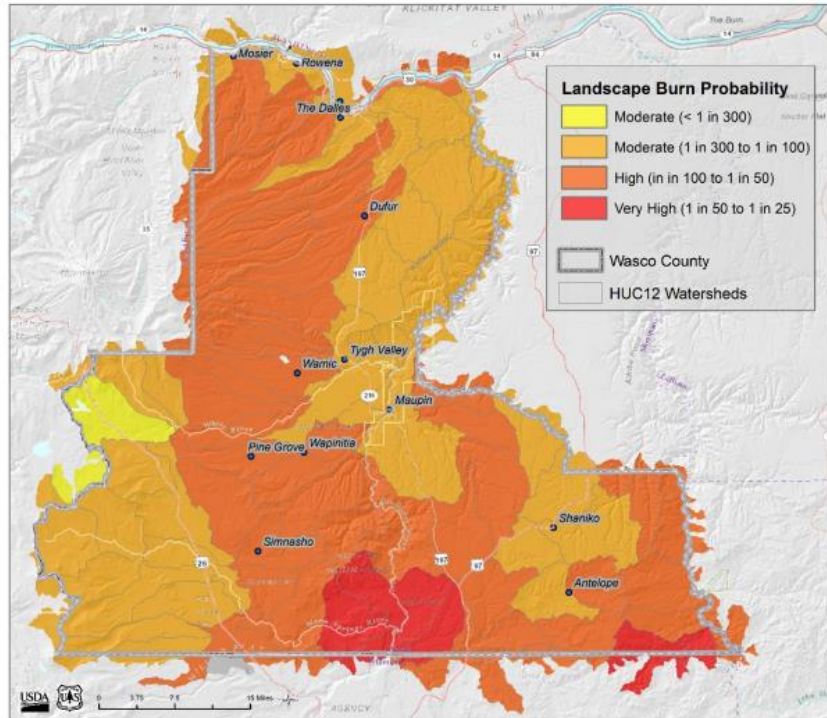
OAR 629-044-1005

(l) “Wildfire Risk” means the wildfire impacts to values based on scientifically modeled wildfire frequency and wildfire intensity.

(m) “Wildland-Urban Interface” means a geographical area where structures and other human development meets or intermingles with wildland or vegetative fuels.

Source: CPAW

Wild Fire



Source: CPAW

Wild Fire

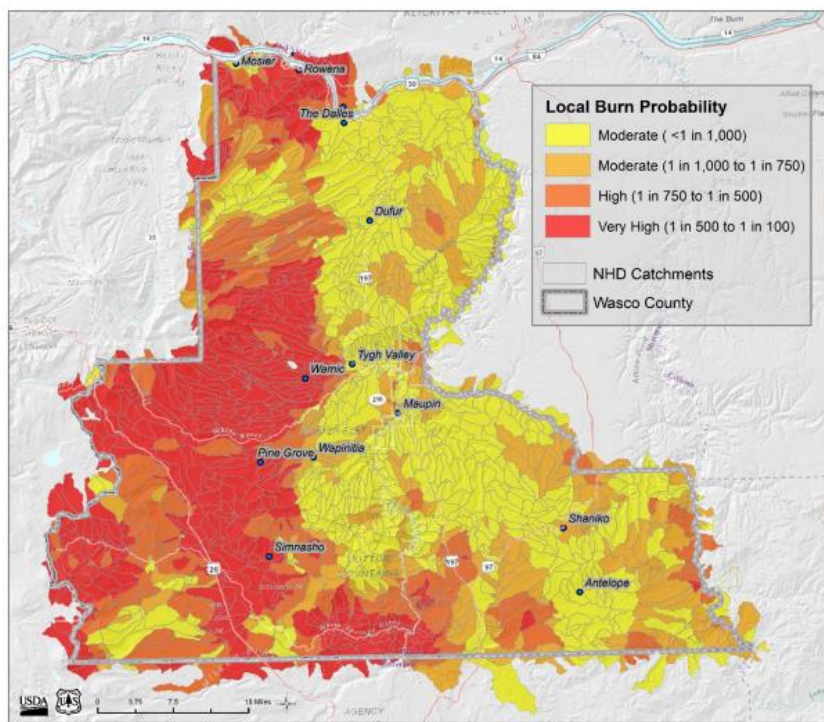


Figure A7 Local Burn Probability for Wasco County

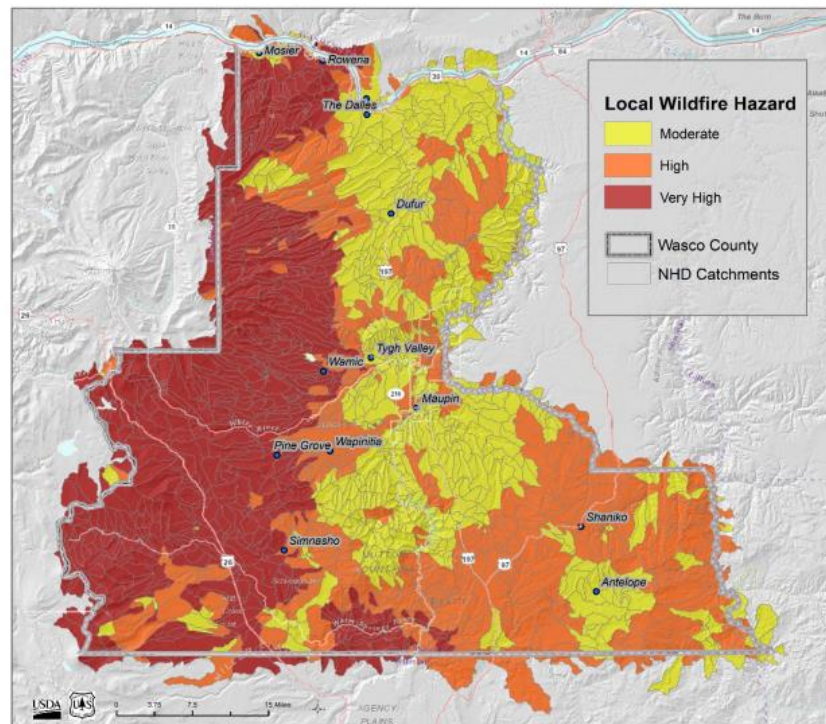


Figure A9. Summarized Local Wildfire Hazard for Wasco County

Extreme Heat

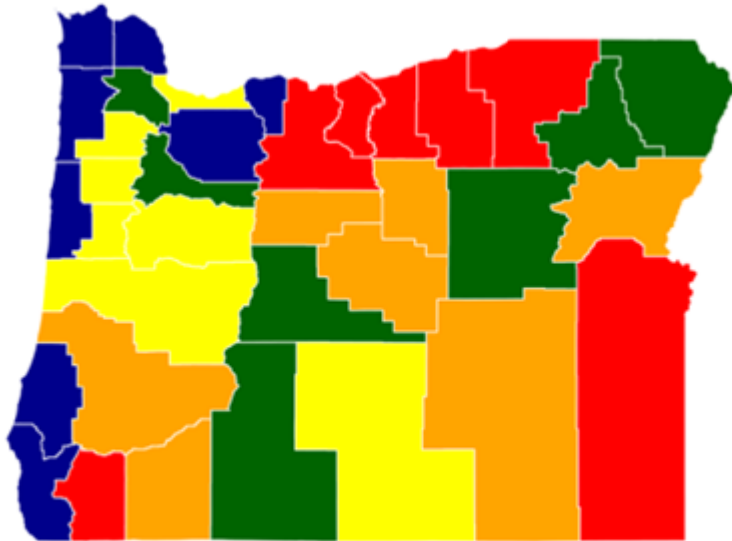
Important Definitions

Extreme heat events occur as a result of natural variability. Conditions that drive extreme heat events in the Pacific Northwest include, upper-level ridges, or large areas of high atmospheric pressure, and strong offshore flow.

- One method to measure extreme heat is to count the number of days with temperatures above a certain threshold, such as days with temperatures above 90°F.
- The National Weather Service issues heat warnings when the heat index exceeds given local thresholds. Heat index is a measure of how hot it feels combining temperature and relative humidity. As relative humidity increases, a temperature can feel even hotter.

Extreme Heat

Figure 2-63. Relative Probability of Extreme Heat



Note: 5 = "Very High"; 4 = "High"; 3 = "Moderate"; 2 = "Low"; 1 = "Very Low"

Source: Oregon Climate Change Research Institute

NOAA's National Weather Service

Heat Index Temperature (°F)

Relative Humidity (%)	80	82	84	86	88	90	92	94	96	98	100	102	104	106	108	110
40	80	81	83	85	88	91	94	97	101	105	109	114	119	124	130	136
45	80	82	84	87	89	93	96	100	104	109	114	119	124	130	137	
50	81	83	85	88	91	95	99	103	108	113	118	124	131	137		
55	81	84	86	89	93	97	101	106	112	117	124	130	137			
60	82	84	88	91	95	100	105	110	116	123	129	137				
65	82	85	89	93	98	103	108	114	121	128	136					
70	83	86	90	95	100	105	112	119	126	134						
75	84	88	92	97	103	109	116	124	132							
80	84	89	94	100	106	113	121	129								
85	85	90	96	102	110	117	126	136								
90	86	91	98	105	113	122	131									
95	86	93	100	108	117	127										
100	87	95	103	112	121	132										

Likelihood of Heat Disorders with Prolonged Exposure or Strenuous Activity

Caution
 Extreme Caution
 Danger
 Extreme Danger

source: <https://www.weather.gov/ohi/heat>

Drought

Important Definitions

Drought is a condition of climatic dryness severe enough to reduce soil moisture and water below the minimum necessary for sustaining plant, animal, and human life systems.

Drought is typically measured in terms of water availability in a defined geographical area.

The Oregon Drought Severity Index is the most commonly used drought measurement in the state. It categorizes droughts as mild, moderate, severe, and extreme.

Severe Local Storm

Important Definitions

Communities throughout Wasco County are vulnerable to a variety of severe storm hazards:

Ice Storms or Freezing Rain (black ice): Occur when rain falls from warm moist upper layers of the atmosphere into a cold, dry layer near the ground. The rain freezes on contact with the cold ground and accumulates on exposed surfaces.

Snow Storm or Blizzard: National Weather Service defines a blizzard as a storm which contains large amounts of snow OR blowing snow, with winds in excess of 35 mph and visibilities of less than 1/4 mile for an extended period of time (at least 3 hours). Accumulations average between 4 – 5 inches in the City of the Dalles each year.

Windstorm: Wind that is strong enough to cause at least light damage to trees and buildings and may or may not be accompanied by precipitation. Peak wind gusts have gone above 100 miles per hour. The strongest winds that impact Wasco County come from either east or west.

Tornado: Tornadoes characterized by funnel clouds of varying sizes that generate winds as fast as 500 miles per hour. They can affect an area of ¼ to ¾ of a mile and seldom more than 16 miles long.

Flood

Important Definitions

FEMA: A general and temporary condition of partial or complete inundation of 2 or more acres of normally dry land area. (National Flood Insurance Program Requirements, 59.1 – Definition)

In Wasco County, flooding events primarily caused by extensive wet conditions that follow a period of mid and high elevation ice and snow pack development.

Flood Types in Wasco County:

- **Riverine floods:** Amount of water flowing through a river channel exceeds the capacity of that channel.

(Most common type of flooding)

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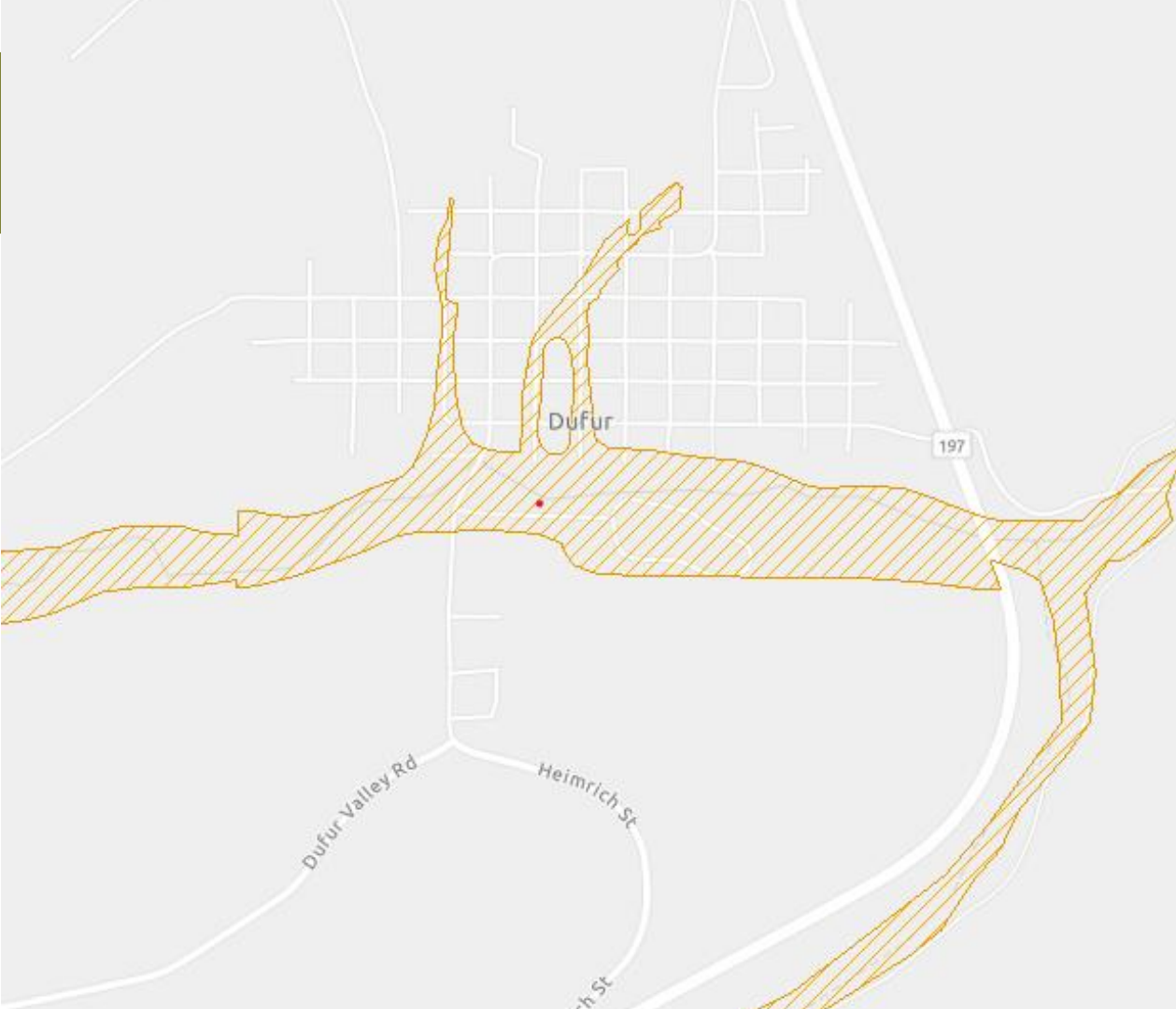
- **Flash flooding:** Sudden rainstorms produce a large amount of rain in a very short period of time.

These types of floods occur in steeply sloping valleys and in small waterways.

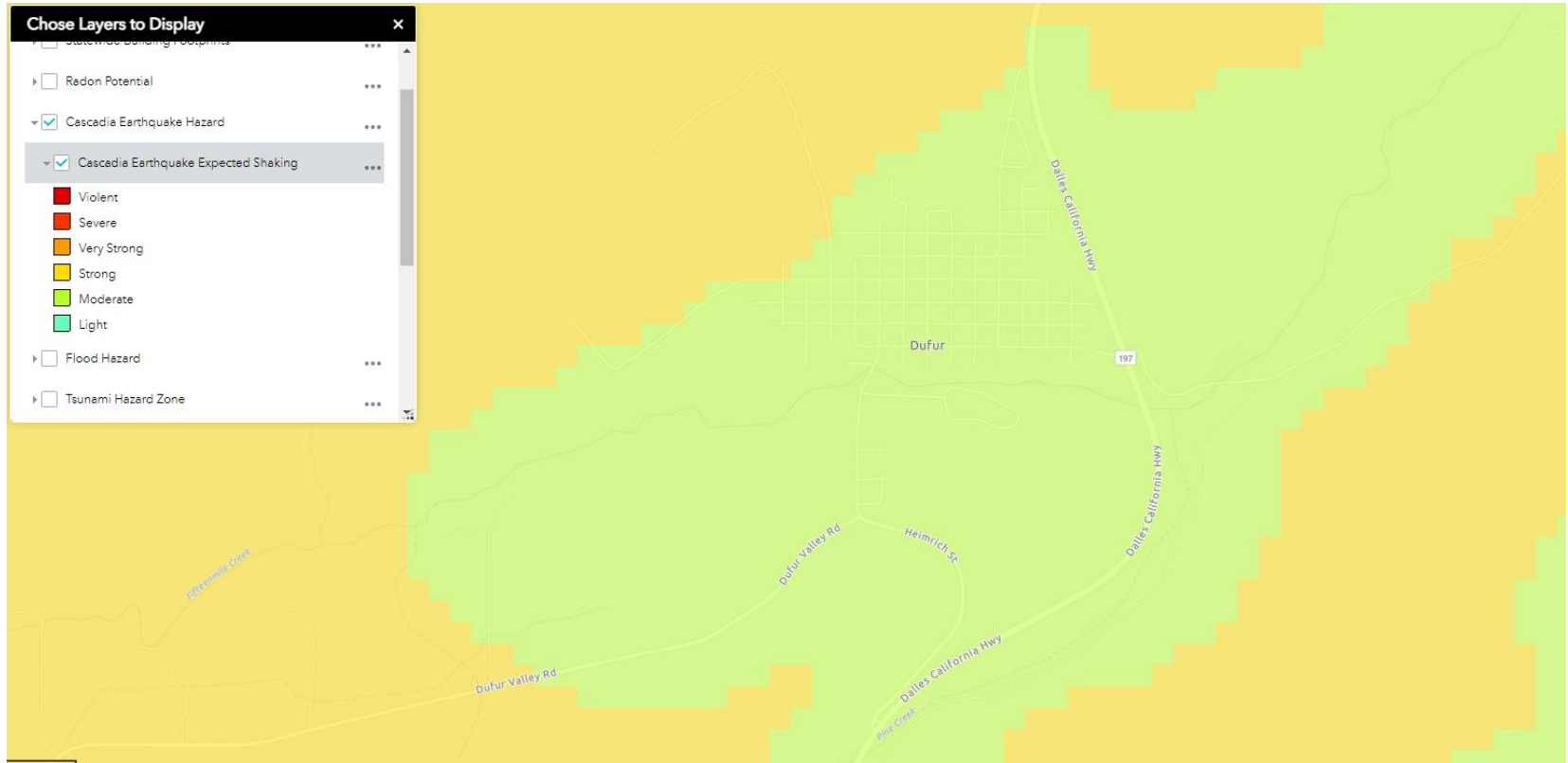
- **Stormwater, or urban flooding:** Runoff from rainfall concentrates in developed areas, drainage, and low lying areas.

Poor drainage, elevated groundwater levels, and ponding are all symptoms of storm water flooding.

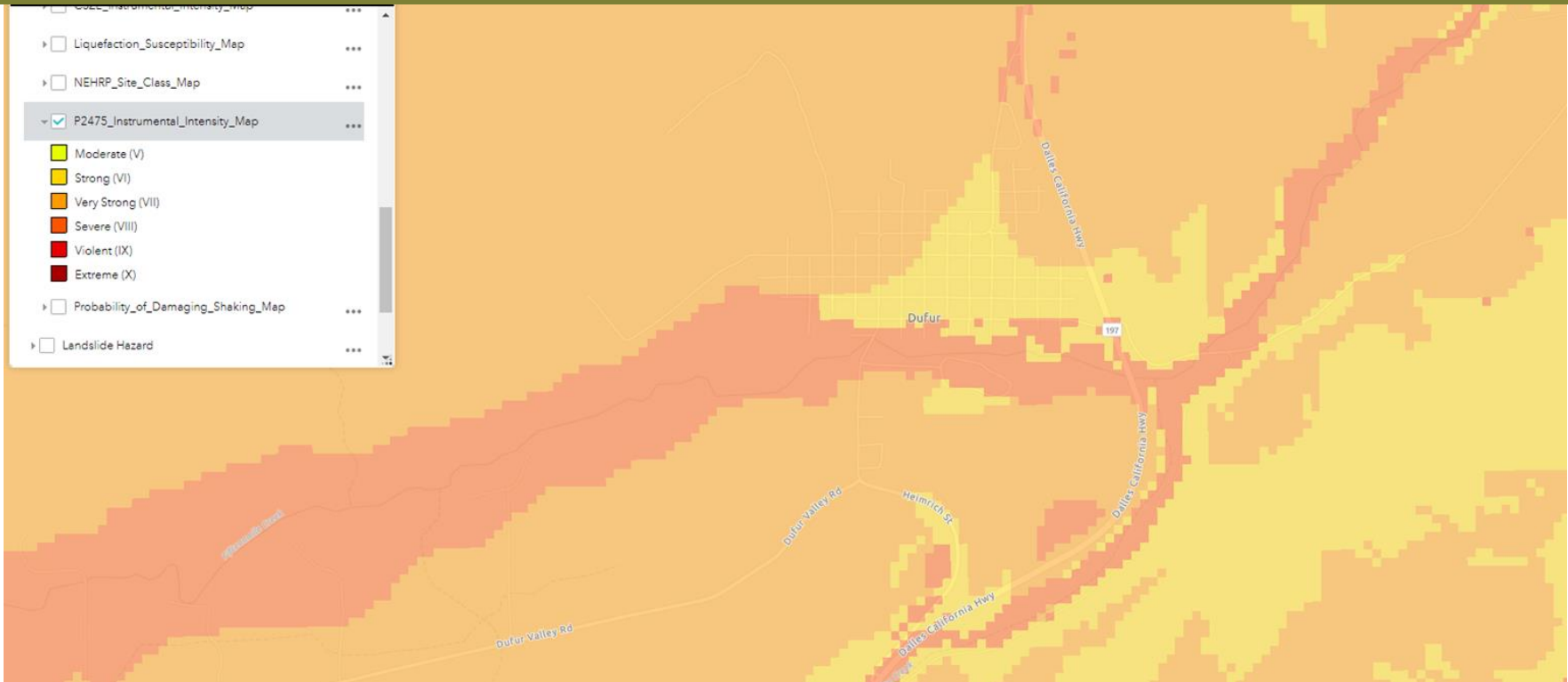
Flood



Earthquake: Cascadia



Earthquake: General



Landslide



Volcano

Important Definitions

A volcano is a vent in the earth's crust through which molten rock, rock fragments, gases or ashes are ejected from the earth's interior.

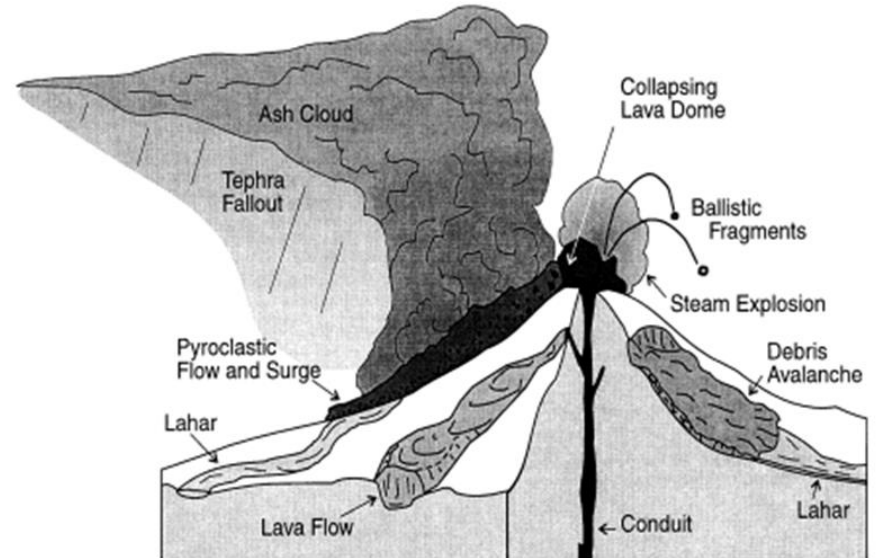
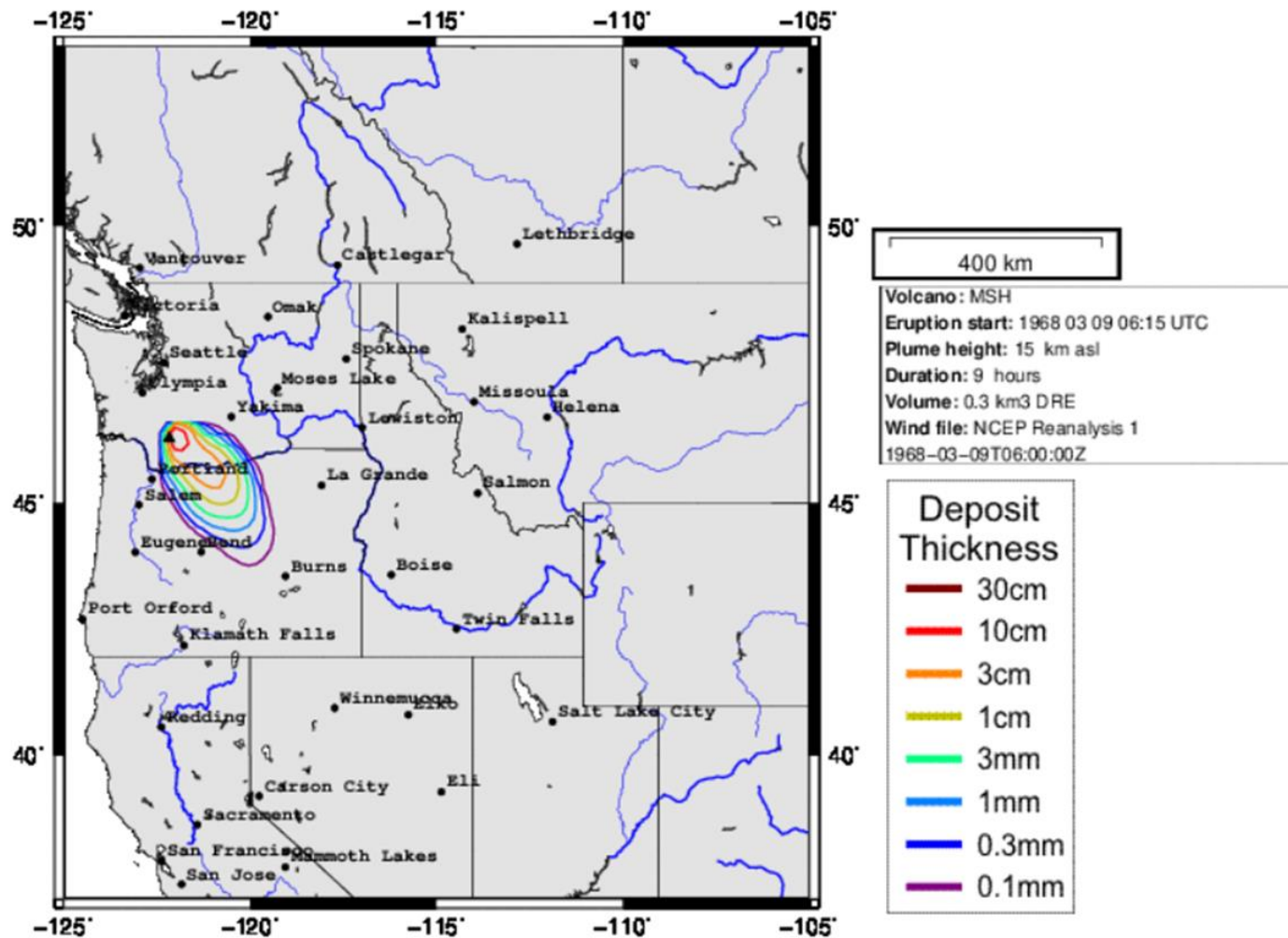


Figure A - Types of volcanic hazards¹

Volcano



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Dufur-Hazards Ranking

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Critical Facilities

"Critical facilities" are defined as those structures from which essential services and functions for victim survival, continuation of public safety actions, and disaster recovery are performed or provided.

Examples: Shelters, emergency operation centers; public health, public drinking water, sewer and wastewater facilities

Current Critical Facilities Listed in the County NHMP

- Dufur High School
- Dufur PUD Station
- Dufur Reservoir
- Dufur City Hall

Potential Critical Facilities-Brainstorm!

- Dufur School
- Dufur PUD Substation
- Dufur Reservoir
- City Wells 1, 2 and 3 (City and South Basin)
- Dufur City Hall
- Dufur Fire Station
- Dufur City Park
- South Basin Reservoir
- Gas Station
- Dufur Valley Rd/USFS Road-44 + 197
- Wasco County Shop (fuel)
- Dufur Christian Church and Dufur Catholic Parish Hall
- ???

Action Item Development

Proposed Action Item:		Alignment with Plan Goals:	
Type of Hazard #1 – Mitigation Proposal Title		Must align with a Wasco County Goal	
Alignment with Existing Plans/Policies:			
List agency and plan that supports the mitigation proposal			
Rationale for Proposed Action Item:			
<ul style="list-style-type: none"> Rationale should be based on studies and data analysis, may or may not be associated with a plan 			
Ideas for Implementation:			
<ul style="list-style-type: none"> Ideas from plan development working groups and public input sessions 			
Coordinating Organization:		City Department that will lead the mitigation effort	
Internal Partners:		External Partners:	
City Departments		Other public and private sector organizations	
Potential Funding Sources:		Estimated cost:	Timeline: (check one)
As identified during plan development		If available	<input type="checkbox"/> Short Term (0-2 years) <input type="checkbox"/> Long Term (2-4+ years)
Form Submitted by:	Author or Department		
Action Item Status:	Track from original submittal year. Example: Submitted July 2006 – Revised 2012 – Revised 2018		

Action Items-Brainstorm!

- Backup power for critical facilities-priorities-wells, City offices, School
- Expand South Basin Reservoir to help address meeting fire needs
- Seismic assessment and improvements for reservoirs (City and South Basin)
- Emergency Preparedness Table at Threshing Bee
 - Seek Implementation Funding for Hazard Resilient Modifications to Critical Infrastructure
- Purchase equipment to address impacts from hazards (ex gravel truck, haul downed trees, etc)
- Explore acquisition and management strategies to preserve parks, trails, and open space in the floodplain
- HVAC + Window Updates to address smoke, extreme heat conditions at critical facilities-School in particular? City Hall for heating system?
- Updating equipment for Fire District-(note coming with specifics)