

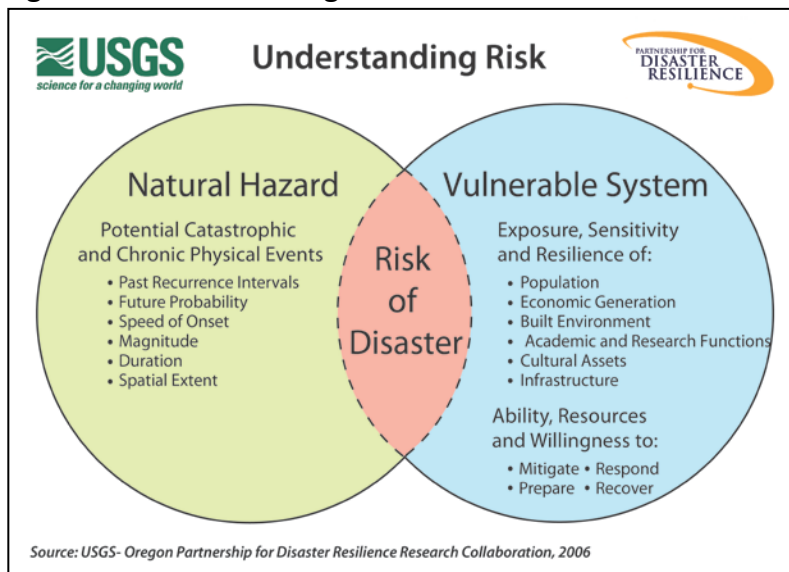
# Community Profile

The following section describes Sherman County from a number of perspectives in order to help define and understand the sensitivity and resilience to natural hazards. Sensitivity and resilience indicators are identified through the examination of community attributes which include natural environment, socio-demographic capacity, regional economy, physical infrastructure, community connectivity and political capital.

Sensitivity factors can be defined as those community assets and characteristics that may be impacted by natural hazards (e.g., special populations, economic factors and historic and cultural resources). Community resilience factors can be defined as the community's ability to manage risk and adapt to hazard event impacts by way of the governmental structure, agency missions and directives, as well as through plans, policies, and programs.

The information in this section represents a snapshot in time of the current sensitivity and resilience factors in the County when the plan was developed. The information documented below, along with the hazard assessments located in *Section 3: Hazard Assessment Updates*, should be used as the local level rationale for the risk reduction action items identified in *Appendix B*. The identification of actions that reduce the Sherman County's sensitivity and increase its resilience assist in reducing overall risk, or the area of overlap in Figure C.1 below.

**Figure C.1 Understanding Risk**



Source: Oregon Partnership for Disaster Resilience

## Why Plan for Natural Hazards in Sherman County?

Natural hazards impact citizens, property, the environment and the economy of Sherman County. Droughts, earthquakes, flooding, landslides, volcanoes, wildfires, windstorms and winter storms have exposed Sherman County residents and businesses to the financial and emotional costs for recovering after natural disasters. The risk associated with natural hazards increases as more people move to areas affected by natural hazards. The inevitability of natural hazards and activity within the county create an urgent need to develop strategies, coordinate resources and increase public awareness to reduce risk and prevent loss from future natural hazard events. Identifying risks posed by natural hazards and developing strategies to reduce the impact of a hazard event can assist in protecting life and property of citizens and communities. Local residents and businesses should work together with the county to keep the Natural Hazards Mitigation Plan updated. The Natural Hazards Mitigation Plan addresses the potential impacts of hazard events and allows the county to apply for certain funding from FEMA for pre and post disaster mitigation projects that would otherwise not be available if the county did not have a Natural Hazards Mitigation Plan.

## Natural Environment Capacity

### Geography

Sherman County is located in north central Oregon and is the eighth smallest county by size in the state. The county claims approximately 831 square miles and ranges in elevation from 185 feet on the Columbia River to 3,600 feet on the plateau in the south.<sup>1</sup> Frequently referred to as the “Land Between the Rivers,” Sherman County is situated between the John Day River on the east and the Deschutes River on the west, each forming the boundaries with neighboring Gilliam and Wasco Counties.<sup>2</sup> The Columbia River forms the northern boundary with the State of Washington, and a majority of the southern boundary is defined by the canyons of Buck Hollow, a tributary of the Deschutes River.

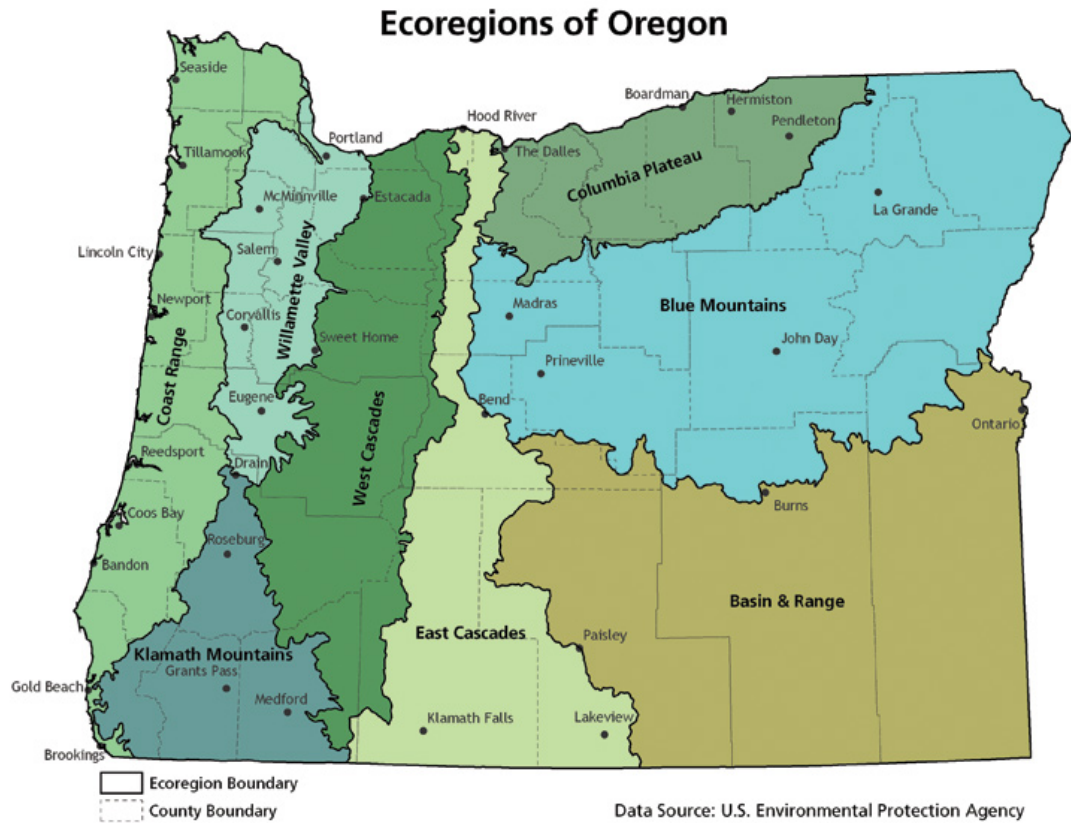
Rolling hills and steep narrow canyons define the landscape of the county. The soil is mostly loess (wind-blown glacial silt) over residual soil from the underlying basalt with interspersed layers of volcanic ash.<sup>1</sup> Sherman County is the only county in Oregon without natural forestation.<sup>2</sup>

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<sup>1</sup> Sherman County Website. “About Sherman County.” [http://www.sherman-county.com/about\\_sherman\\_county.asp](http://www.sherman-county.com/about_sherman_county.asp)

<sup>2</sup> Oregon State University. Extension Service. “What is Sherman County?” <http://extension.oregonstate.edu/sherman/county-facts#facts>

Figure C.2: Ecoregions in Oregon



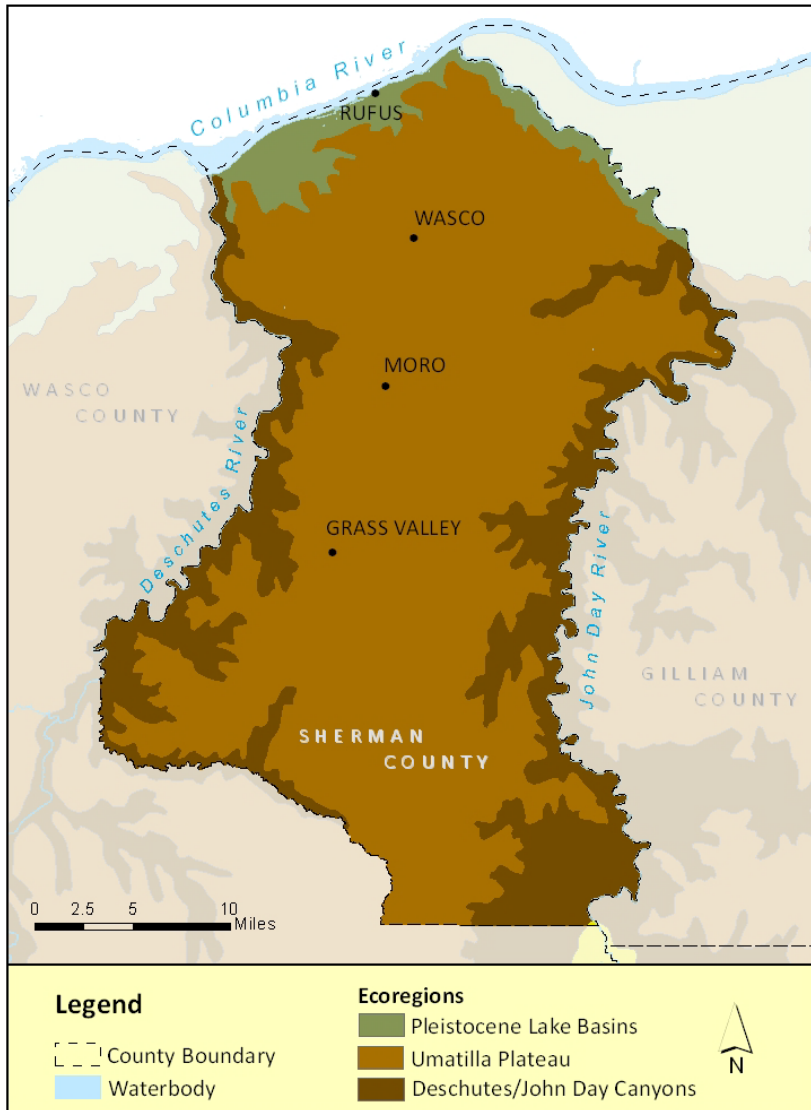
**COLUMBIA PLATEAU**

Sherman County is mainly within the Columbia Plateau ecoregion. The Columbia Plateau is predominantly a volcanic province covering approximately 63,000 square miles in Oregon, Washington and Idaho.<sup>3</sup> The plateau is surrounded on all sides by mountains, the Okanogan Highlands to the north, the Cascade Range to the west, the Blue Mountains to the south, and the Clearwater Mountains to the east. Almost 200 miles long and 100 miles wide, the Columbia Plateau merges with the Deschutes basin lying between the High Cascades and Ochoco Mountains. The province slopes gently northward toward the Columbia River with elevations up to 3,000 feet along the south and west margins down to a few hundred feet along the river.<sup>3</sup> There are three ecoregions within the Columbia Plateau located in Sherman County; the Pleistocene Lake Basing, the Deschutes/John Day Canyons, and the Umatilla Plateau. Figure C.3 identifies the ecoregions within the county.

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<sup>3</sup> Western Oregon University. Oregon Physiographic Provinces. "Deschutes-Columbia Plateau". 1999. [http://www.wou.edu/las/phyci/taylor/eisi/orr\\_orr2.PDF](http://www.wou.edu/las/phyci/taylor/eisi/orr_orr2.PDF).

**Figure C.3: Ecoregions in Sherman County**



Source: Map Created by Garrett Jensen, Resource Assistance for Rural Environments (RARE)

**Pleistocene Lake Basins**<sup>4</sup>: the Pleistocene Lake Basins once contained vast temporary lakes that were created by flood waters from glacial lakes Missoula and Columbia. In Oregon, the flood waters accumulated from the eastern entrance of the Columbia River Gorge upstream to the Wallula Gap to form ancient Lake Condon. Today, the region is the driest and warmest part of the Columbia Plateau with mean annual precipitation varying from seven to 10 inches. Native vegetation consists of bunchgrass and sagebrush. Major irrigation projects provide Columbia River water to this region, allowing the conversion of large areas into agriculture.

<sup>4</sup> Environmental Protection Agency. "Ecoregions of Oregon." [ftp://ftp.epa.gov/wed/ecoregions/or/or\\_front.pdf](ftp://ftp.epa.gov/wed/ecoregions/or/or_front.pdf).

**Umatilla Plateau**<sup>5</sup>: the nearly level to rolling, treeless Umatilla Plateau ecoregion is underlain by basalt and veneered with loess deposits. Areas with thick loess deposits are farmed for dry land winter wheat, or irrigated alfalfa and barley. In contrast, rangeland dominates more rugged areas where loess deposits are thinner or nonexistent. Mean annual precipitation is nine to 15 inches and increases with increasing elevation. In uncultivated areas, moisture levels are generally high enough to support grasslands of bluebunch wheatgrass and Idaho fescue without associated sagebrush.

**Deschutes/John Day Canyons**<sup>5</sup>: deeply cut into basalt, the Deschutes/John Day Canyons fragment a lightly populated portion of the Umatilla Plateau. Canyon depths up to 2,000 feet create drier conditions than on the plateau above. In the canyons, bunchgrasses, Wyoming big sagebrush and cheatgrass grow on rocky, colluvial soil. Riparian vegetation in narrow reaches is often limited to a band of white alder at the water line; broader floodplains and gravel bars are dominated by introduced species, such as reed canary grass, sweet clover and teasel. The rivers support Chinook salmon and steelhead runs.

#### **COLUMBIA RIVER BASIN**

The Columbia River Basin is North America's fourth largest, draining a 259,000 square mile basin that includes territory in seven states (Oregon, Washington, Idaho, Montana, Nevada, Wyoming and Utah) and one Canadian province. The river flows for more than 1,200 miles, from the base of the Canadian Rockies in southeastern British Columbia to the Pacific Ocean at Astoria, Oregon, and Ilwaco, Washington. The Columbia River Basin includes a diverse ecology that ranges from temperate rain forests to semi-arid plateaus, with precipitation levels from six inches to 110 inches per year. Furthermore, the Columbia is a snow-charged river that seasonally fluctuates in volume. Its annual average discharge is 160 million acre-feet of water with the highest volumes between April and September and the lowest from December to February. From its source at 2,650 feet above sea level, the river drops an average of more than two feet per mile, but in some sections it falls nearly five feet per mile.<sup>6</sup>

The Columbia River Basin is the most hydroelectrically developed river system in the world.<sup>5</sup> The Federal Columbia River Power System (FCRPS) encompasses the operations of 14 major dams and reservoirs on the Columbia and Snake rivers, operated as a coordinated system. In addition, the U.S. Army Corps of Engineers operates nine of ten major federal projects on the Columbia and Snake rivers. These federal projects are a major source of power in the region, and provide flood

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<sup>5</sup> Environmental Protection Agency. "Ecoregions of Oregon." [ftp://ftp.epa.gov/wed/ecoregions/or/or\\_front.pdf](ftp://ftp.epa.gov/wed/ecoregions/or/or_front.pdf).

<sup>6</sup> Center for Columbia River History. "Columbia River". Written by: Bill Lang Professor of History Portland State University, Former Director, Center for Columbia River History. <http://www.ccrh.org/river/history.htm>.

control, navigation, recreation, fish and wildlife, municipal and industrial water supply, and irrigation benefits.<sup>7</sup>

#### **JOHN DAY RIVER**

The John Day River basin drains nearly 8,100 square miles of central and northeast Oregon. It is one of the nation's longest free-flowing river systems. Elevations range from 265 feet at the confluence with the Columbia River to over 9,000 feet at the headwaters in the Strawberry Mountain Range. The river has no dams to control water flow; therefore flow levels fluctuate widely in relation to snow pack and rainfall. The John Day River system is under designation of two important river preservation programs: the National Wild and Scenic Rivers Act and the Oregon Scenic Waterways Act.<sup>8</sup> Together, these two acts, one a federal program and one a state program, provide protection for the natural, scenic, and recreational values of river environments. The Bureau of Land Management (BLM), in partnership with The Confederated Tribes of the Warm Springs, Oregon Department of State Lands, Oregon Parks and Recreation Department, Oregon Department of Fish and Wildlife, and the John Day Coalition of Counties (making up the John Day River Interagency Planning Team) has responsibility for managing the 147-mile John Day Wild and Scenic River from Service Creek in Wheeler County to Tumwater Falls.<sup>9</sup>

**John Day Scenic Waterway<sup>10</sup>** which includes:

- The John Day River from its confluence with Parrish Creek downstream to Tumwater Falls;
- The North Fork John Day River from the boundary of the North Fork John Day Wilderness (near river mile 76), as constituted on December 8, 1988, downstream to river mile 20.2 (northern boundary of the south one-half of Section 20, Township 8 South, Range 28 East, Willamette Meridian)
- The Middle Fork John Day River from its confluence with Crawford Creek (near river mile 71) downstream to the confluence of the Middle Fork John Day River with the North Fork John Day River; and
- The South Fork John Day River from the Post-Paulina road crossing (near river mile 35) downstream to the northern boundary of the Murderer's Creek Wildlife Area, as constituted on December 8, 1988 (near river mile 6).

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<sup>7</sup> National Oceanic and Atmospheric Administration. Northwest Regional Office. "Columbia/Snake Basin". <http://www.nwr.noaa.gov/Salmon-Hydropower/Columbia-Snake-Basin/>.

<sup>8</sup> U.S. Department of Interior. Bureau of Land Management. "John Day River". <http://www.blm.gov/or/resources/recreation/johnday/>. Public Announcement. John Day River Update, May 2010.

[http://www.blm.gov/or/districts/prineville/plans/files/jdr\\_update\\_may2010.pdf](http://www.blm.gov/or/districts/prineville/plans/files/jdr_update_may2010.pdf).

<sup>10</sup> Oregon Department of State Lands. Wetlands/Waterways Removal-Fill. John Day Scenic Waterway. <http://www.oregon.gov/DSL/PERMITS/scenicwaterways.shtml>.

## DESCHUTES RIVER

The Deschutes River flows approximately 245 miles through central Oregon and is a major tributary to the Columbia River. The Deschutes Basin encompasses roughly 10,700 square miles, making it the second largest river basin in the state.<sup>11</sup> The Deschutes begins in Little Lava Lake in the Cascade Mountains, flows through two reservoirs and the City of Bend, then flows north through a deep gorge.

Groundwater provides 90% of the streamflow to the lower Deschutes River, adjacent to Sherman County, and any changes in water resource use in the upper Deschutes Basin have the potential to affect stream flow in the lower Deschutes River.<sup>12</sup> Oregon water law permits landowners and irrigators to own rights to more water than the rivers actually carry, causing parts of the Deschutes and many other rivers to nearly run dry during the summer months.<sup>13</sup>

**Deschutes Scenic Waterway<sup>14</sup>:** which includes the segments of the Deschutes River from Little Lava Lake downstream to Crane Prairie Reservoir, from the gaging station immediately below Wickiup Dam downstream to General Patch Bridge, from Harper Bridge downstream to the Central Oregon Irrigation District's diversion structure (near river mile 171), from Robert Sawyer Park downstream to Tumalo State Park, from Deschutes Market Road Bridge downstream to Lake Billy Chinook Reservoir (excluding the Cline Falls hydroelectric facility near river mile 145), and from immediately below the existing Pelton reregulating dam downstream to the confluence of the Deschutes River with the Columbia River, excluding the City of Maupin (Wasco County) as its boundaries are constituted on October 4, 1977.

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<sup>11</sup> Oregon Environmental Council. "Deschutes River."  
<http://www.oeonline.org/our-work/rivers/cleaner-rivers-for-oregon-report/deschutes-river>.

<sup>12</sup> Deschutes River Conservancy. "Lower Deschutes."  
[http://www.deschutesriver.org/Our\\_Basin/Lower\\_Deschutes/default.aspx](http://www.deschutesriver.org/Our_Basin/Lower_Deschutes/default.aspx).

<sup>13</sup> Oregon Environmental Council. "Deschutes River."  
<http://www.oeonline.org/our-work/rivers/cleaner-rivers-for-oregon-report/deschutes-river>.

<sup>14</sup> Oregon Department of State Lands. Wetlands/Waterways Removal-Fill. Deschutes Scenic Waterway.  
<http://www.oregon.gov/DSL/PERMITS/scenicwaterways.shtml>.

## Climate

### TEMPERATURE, PRECIPITATION AND SNOWFALL

Situated on the east side of the Cascade Mountains, Sherman County features a hybrid climate, part Mediterranean and part Intermountain Region, meaning four distinct seasons and low annual precipitation.<sup>15</sup> The Columbia Gorge serves as a natural channel for normal eastward migration for air masses from the Pacific. These air masses tend to significantly modify extreme temperatures during both the summer and winter seasons. Rarely do abnormally hot or abnormally cool spells persist for more than a few days at a time. Table C.1 highlights the monthly averages and extremes for temperatures, precipitation and snowfall in the City of Moro. The average maximum temperature (°F) during the summer months tend to reach the low 80s, while the average minimum temperature during the winter months drops down below freezing into the mid-20s.

Strong marine influences also reflect the occurrence of precipitation, more than half of which falls from November through February.<sup>16</sup> From 1981 to 2017, the average precipitation in Moro equaled 11.16 inches per year. Snowfall amounts averaged 17 inches per year with the highest amounts occurring in December and January.

**Table C.1 Monthly Averages and Extremes, Moro, Oregon, 1981 – 2017**

Month	Average Maximum Temperature (deg F)	Extreme Daily Maximum (deg F)	Average Minimum Temperature (deg F)	Extreme Daily Minimum (deg F)	Average Precipitation (inches)	Average Snowfall 1981-2017 (inches)
January	39.5	68	25.7	-14	1.4	5.3
February	44.4	67	27.2	-15	1.07	3.3
March	52.4	73	32.2	3	1.08	0.6
April	58.6	86	36	18	0.91	0
May	66.6	100	42.2	18	0.96	0
June	74.1	105	48.2	31	0.62	0
July	83.2	106	54.1	36	0.23	0
August	83.2	106	53.6	34	0.23	0
September	75	100	46.2	24	0.49	0
October	62.1	88	37.4	7	1	0.1
November	47.2	72	30.7	-9	1.58	1.9
December	38.2	65	24.5	-16	1.63	5.7
Annual	60.3	106	38.2	-16	11.16	17

Source: National Weather Service Forecast Office, Pendleton, Oregon, NOAA Online Weather Data, Applied Climate Information System

<sup>15</sup> Sherman County Website. "About Sherman County." [http://www.sherman-county.com/about\\_sherman\\_county.asp#climate](http://www.sherman-county.com/about_sherman_county.asp#climate).

<sup>16</sup> Sherman County Website. "About Sherman County." [http://www.sherman-county.com/about\\_sherman\\_county.asp#climate](http://www.sherman-county.com/about_sherman_county.asp#climate).



## Land Cover

Oregon, like most of the Western States, is largely owned by the federal government with a vast majority of federal lands administered by the Bureau of Land Management (BLM) and the U.S. Forest Service.<sup>17</sup> However, in Sherman County 90-percent of the land is privately owned (roughly 475,000 acres) whereas only nine-percent of the land is owned by BLM (roughly 50,000 acres).<sup>18</sup> Most of the land owned by BLM is adjacent to the Deschutes and John Day rivers. A majority of the private land in the county is either agricultural or pasture land as well as grasslands.

## Synthesis

This natural environment capacity section is composed of elements known as natural capital. Natural capital is essential in sustaining all forms of life including human life and plays an often under represented role in community resiliency to natural hazards. With four distinct mild seasons, a diverse terrain and the county's proximity to the Columbia Gorge, Sherman County historically has dealt with windstorm and widespread heavy rain and thunderstorm events followed by flash flooding, as well as the occasional brushfire. By identifying these natural capitals such as key river systems, as well as temperature and precipitation patterns, Sherman County can recognize key hazard areas to better prepare, mitigate, and increase the resiliency of each community.

## Socio Demographic Capacity

### Population

According to the U.S. Census Bureau, the population of Sherman County in 2016 equaled 1,705 and averaged 2.1 persons per square mile.<sup>19</sup> While the population in the State of Oregon increased by 16.4 percent from 2000 to 2016, Sherman County experienced an 11.8 percent decline in population during the same time period. The U.S. Census Bureau classifies rural as; "All territory outside of urban areas. This places the upper limit of rural at 2,500, since urban areas must have at least 2,500 people."<sup>20</sup> This definition is widely recognized as the "official" Federal definition of rural. Therefore, Sherman County is classified as rural and is the second least populated in the State of Oregon. It is slightly larger than neighboring Wheeler County, which also experienced a decline in population since 2000. Table C.2 describes the population changes in the region.

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<sup>17</sup> Allan, Stuart et al., *Atlas of Oregon*. Pg. 83.

<sup>18</sup> Allan, Stuart et. al., *Atlas of Oregon*. Pg. 84.

<sup>19</sup> US Census Bureau, 2012-1-2016 ACS Demographic and Housing Estimates.

<sup>20</sup> Oregon, Three rural definitions based on Census Place.

<http://www.ers.usda.gov/data/ruraldefinitions/OR.pdf>. Page 11.

**Table C.2: Population Changes, 2000 – 2016**

County	Population (2016)	Population (2000)	Population Change (2000 - 2016)	Percentage Change (2000 - 2016)	AAGR
<b>Sherman</b>	<b>1,705</b>	<b>1,934</b>	<b>-229</b>	<b>-11.8%</b>	<b>-0.9%</b>
Gilliam	1,915	1,915	0	0.0%	0.0%
Wasco	25,657	23,791	1,866	7.8%	0.6%
Wheeler	1,369	1,547	-178	-11.5%	-0.7%
Oregon	3,982,267	3,421,399	560,868	16.4%	1.1%

Source: US. Census Bureau, 2000 Census, 2016 American Community Survey.

There are four incorporated cities in Sherman County: Grass Valley, Moro, Rufus and Wasco. Of the four cities, only Moro saw an increase in population from 2000 to 2016. Overall, 65.8-percent of the county’s population resides in the four incorporated cities. In fact, a larger portion of the county now resides in the four cities compared to 2000 when only 59.8-percent of the county’s population resided in Grass Valley, Moro, Rufus and Wasco. Table C.3 describes population changes within the cities in Sherman County.

**Table C.3: Population Changes, 2000 – 2016**

City	Population (2016)	Population (2000)	Population Change (2000 - 2016)	Percentage Change (2000 - 2016)	AAGR
Grass Valley	149	171	-22	-12.9%	-0.4%
Moro	380	337	43	12.8%	-0.4%
Rufus	212	268	-56	-20.9%	-0.7%
Wasco	381	381	0	0.0%	0.0%
Sherman County	1,705	1,934	-229	-11.8%	-0.9%

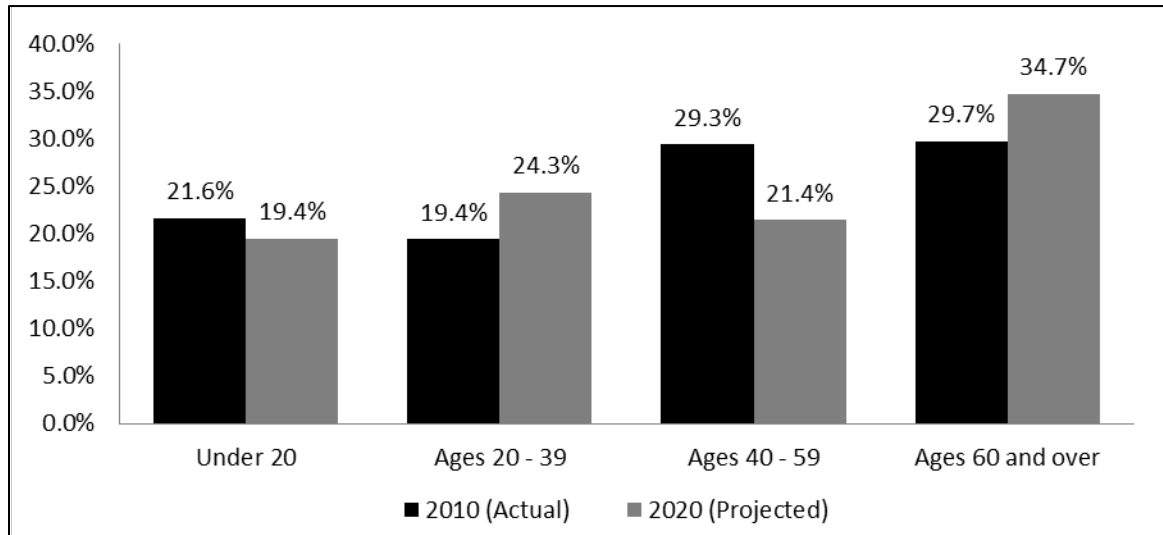
Source: U.S. Census Bureau, 2010 Census, 2016 American Community Survey.

Population size itself is not an indicator of vulnerability. More important is the location, composition and capacity of the population within the community. Research by social-scientists demonstrates that human capital indices such as age, race, education and income can affect the integrity of a community. Therefore, these human capitals can impact community resilience to natural disasters and their ability to recover.

## Age

The age profile of an area has a direct impact both on what actions are prioritized for mitigation and how response to hazard incidents is carried out. Currently, about a third (34.7-percent) of the population in the county is over the age of 60, which is significantly higher compared to 22.7-percent of the population overall in the state. The Office of Economic Analysis long term population forecast from 2010 to 2025 shows a trend toward an older population in the county. Figure C.4 describes the current and projected population groups by age within the county. These numbers suggest that the county may want to consider focusing mitigation techniques that are feasible for elderly populations and provide support to this segment of the population to implement these techniques.

**Figure C.4: Sherman County Population by Age, 2010 and 2020**



Source: 2010 (Actual), U.S. Census Bureau, 2010 Census

Source: Oregon's Long Term County Population Forecast, 2010-2050. Office of Economic Analysis, Department of Administrative Services, 2013.

School age children rarely make decisions about emergency management. Therefore, a larger youth population in an area will increase the importance of outreach to schools and parents on effective ways to teach children about fire safety, earthquake response, and evacuation plans. Children are also more vulnerable to the heat and cold, have few transportation options, and require assistance to access medical facilities.<sup>21</sup> Furthermore, older populations may also have special needs prior to, during, and after a natural disaster. The elderly population may require special consideration due to increased sensitivities to heat and cold, possible reliance upon transportation for medications, and comparative difficulty in making home modifications that reduce risk to hazards. Older populations may also require assistance in evacuation due to limited mobility or health issues and can lack the social and economic resources needed for post-disaster recovery.<sup>22</sup>

Two other important considerations for high risk populations are the number of households where persons 65 or older live alone along with single parent households. Table C.4 describes these two high risk populations within each jurisdiction. Approximately 35-percent of the households in the county are occupied by individuals who are 65 or older, 13.3-percent of which live alone. Additionally, 4.9-percent of the households in the county are occupied by single parents with children under the age of 18. These populations will likely require

<sup>21</sup> State of Oregon Natural Hazards Mitigation Plan, Region 4 Southwest Oregon Regional Profile.

<sup>22</sup> Wood, Nathan. Variations in City Exposure and Sensitivity to Tsunami Hazards in Oregon. U.S. Geological Survey, Reston, VA, 2007.

additional support during a disaster and will inflict strain on the system if improperly managed.

**Table C.4: High Risk Households in Sherman County**

<b>Household Type</b>	<b>Sherman County</b>		<b>Grass Valley</b>		<b>Moro</b>		<b>Rufus</b>		<b>Wasco</b>	
Households with individuals under 18	179	23.0%	17	23.0%	32	21.5%	22	19.1%	37	20.3%
<i>Single householder with own children under 18</i>	38	4.9%	6	8.1%	9	6.0%	3	2.6%	9	4.9%
Households with individuals 65 and over	274	35.3%	35	47.3%	58	39.8%	48	41.7%	69	37.9%
<i>Householder 65 years and over living alone</i>	103	13.3%	15	20.3%	27	18.1%	20	17.4%	24	13.2%
<b>Total households</b>	<b>777</b>	<b>100%</b>	<b>74</b>	<b>100%</b>	<b>149</b>	<b>100%</b>	<b>115</b>	<b>100%</b>	<b>182</b>	<b>100%</b>

Source: U.S. Census Bureau, 2010 Census

## Race

The impact following a disaster in terms of losses and the ability of the community to recover may also vary among minority population groups. Studies have shown that racial and ethnic minorities can be more vulnerable to natural disaster events. This is not reflective of individual characteristics; instead, historic patterns of inequality along racial or ethnic divides have often resulted in minority communities that are more likely to have inferior building stock, degraded infrastructure, or less access to public services. Table C.5 describes the population in Sherman County by race and ethnicity.

**Table C.5: Race and Ethnicity in Sherman County**

Race	Count	Percent
Total Population	1,705	100%
One Race	1,645	96.5%
White	1,593	93.4%
Black or African American	8	0.5%
American Indian or Alaska Native	42	2.5%
Asian	2	0.1%
Native Hawaiian and other Pacific Islander	0	0.0%
Other race	0	0%
Two or more races	60	3.5%

Hispanic or Latino Origin	Count	Percent
Total Population	1,705	
Hispanic or Latino (of any race)	87	5.1%
Not Hispanic or Latino	1618	94.6%

Source: U.S. Census Bureau, 2016 ACS American Fact Finder.

The U.S. Census reports that less than seven-percent of the Sherman County population identifies with a non-white race. Similarly, less than six-percent of the population is of Hispanic or Latino origin. It is important to identify specific ways to support all segments of the community through hazard preparedness and response. Culturally appropriate and effective outreach includes both methods and messaging targeted to this diverse audience. For example, connecting to historically disenfranchised populations through trusted sources or providing preparedness handouts and presentations in the languages spoken by the population can increase community resilience.

## Education

Educational attainment of community residents is also an influencing factor in socio demographic capacity. Compared to the state overall, Sherman County has a smaller percentage of residents who attain a Bachelor’s degree or higher, roughly 14.4-percent less. Table C.6 describes the level of education attained by residents in the county.

**Table C.6: Educational Attainment**

<b>Sherman County</b>	<b>Count</b>	<b>Percentage</b>
Population 25 and over	1308	
High school degree or higher	1216	93.3%
Bachelor's degree or higher	222	17.0%

Source: U.S. Census Bureau, 2012-2016 American Community Survey, 5-Year Estimate

<b>Oregon</b>	<b>Count</b>	<b>Percentage</b>
Population 25 and over	2,755,786	
High school degree or higher	2,480,207	90.0%
Bachelor's degree or higher	865,316	31.4%

Source: U.S. Census Bureau, 2012-2016 American Community Survey, 5-Year Estimate

Educational attainment often reflects higher income and therefore higher self-reliance. Widespread educational attainment is also beneficial for the regional economy and employment sectors as there are potential employees for professional, service and manual labor workforces. An oversaturation of either highly educated residents or low educational attainment can have negative effects on the resiliency of the community.

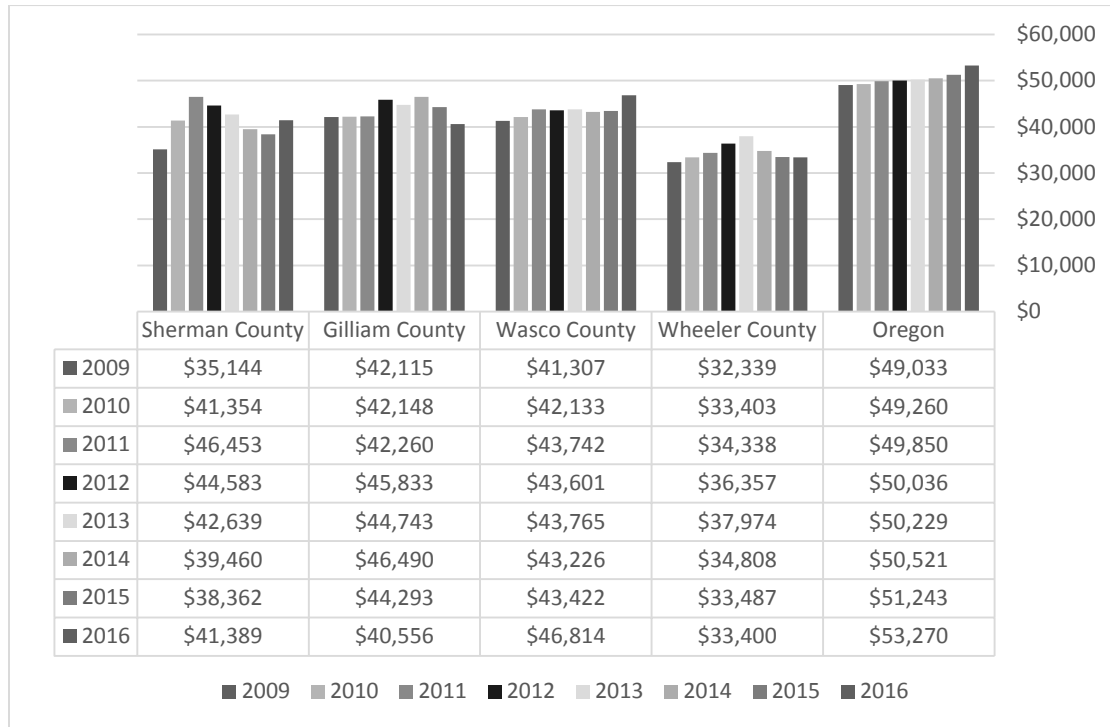
## **Income**

Household income and poverty status levels are indicators of socio demographic capacity and the stability of the local economy. Household income can be used to compare economic areas as a whole, but does not reflect how the income is divided among the residents in the area.<sup>23</sup> In 2016 the median household income across Sherman County equaled \$57,216; this is significantly higher compared to the region and about equal to the state. However, the county's 47-percent growth in income between 2005 and 2016 is much greater than the 33.2-percent growth indicated by the state over the same period of time. Figure C.4 illustrates median household income changes throughout the region.

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<sup>23</sup> State of Oregon Natural Hazards Mitigation Plan, Region 4 Southwest Oregon Regional Profile.

**Figure C.5: Median Household Income, 2005 - 2016**



Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates

Income is a resiliency indicator as higher incomes are often associated with increased self-reliance and ability to prepare oneself if an emergency does occur. Low-income populations may require additional assistance following a disaster because they may not have the savings to withstand economic setbacks, and if work is interrupted, housing, food, and necessities become a greater burden. Additionally, low-income households are more reliant upon public transportation, public food assistance, public housing, and other public programs, all which can be impacted in the event of a natural disaster. Table C.7 identifies both the number and the percentage of individuals living below the poverty level. In 2016 the poverty guideline equaled income levels below \$24,300 for a family of four.<sup>24</sup> It is estimated that 17.7-percent of people and 24.6-percent of children live below the poverty level across the county. However, both of these levels have increased since 2010, with the number of children living below the poverty level increasing by 4.4-percent. The higher the poverty rate, the increased assistance the community will likely need in the event of a disaster in the form of sheltering, medical assistance and transportation.

**Table C.7: Estimate on the Number of Residents Living in Poverty**

<sup>24</sup> *Federal Register*, Vol. 81, No. 15, January 25, 2016, pp. 4036-7.

<b>Count</b>	<b>2005 Poverty All Ages (Estimate)</b>	<b>2010 Poverty All Ages (Estimate)</b>	<b>2016 Poverty All Ages (Estimate)</b>	<b>2005 Poverty Under 18 (Estimate)</b>	<b>2010 Poverty Under 18 (Estimate)</b>	<b>2016 Poverty Under 18 (Estimate)</b>
Sherman County	283	242	272	84	71	67

<b>Percent</b>	<b>2005 Percent Poverty All Ages</b>	<b>2010 Percent Poverty All Ages</b>	<b>2016 Percent Poverty All Ages</b>	<b>2005 Percent Poverty Under 18</b>	<b>2010 Percent Poverty Under 18</b>	<b>2016 Percent Poverty Under 18</b>
Sherman County	16.3%	13.7%	17.7%	23.9%	20.2%	24.6%
Oregon	14.1%	15.8%	15.7%	18.8%	21.7%	20.4%
United States	13.3%	15.3%	15.1%	18.5%	21.6%	21.2%

Source: U.S. Census Bureau, Small Area Estimates Branch, 2005 Estimates, 2010 Estimates, 2016 Estimates

The number of people in the county enrolling in assistance programs has remained relatively steady since 2010. Figure C.6 illustrates the number of Sherman County residents receiving food stamps. As of July 2017, 101 people in the county were receiving Food Stamps; about the same number as in 2010. Furthermore, the number of school children eligible to receive free or reduced lunch has remained in the 48%-57% range over the last decade. Table C.8 describes the status of Oregon's children in terms of the number of children living in poverty and the percent of children eligible to receive free or reduced lunch.

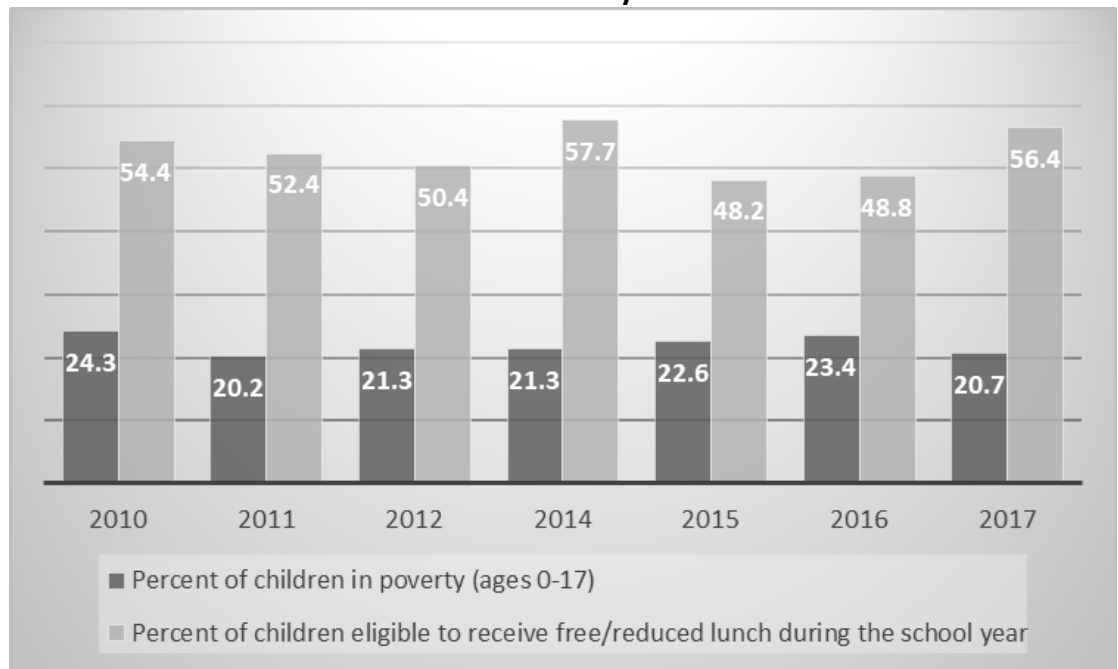


**Figure C.6: Public Assistance in Sherman County**



Source: Children First for Oregon, Status of Oregon's Children, 2010-2017

**Table C.8: Public Assistance in Sherman County**



Source: Children First for Oregon, Status of Oregon's Children, 2010-2017

## Insurance Coverage

Individual and community health play an integral role in community resiliency. It is recognized that those who lack health insurance have higher vulnerability to hazards and will likely require additional community support and resources. Table C.9 identifies health insurance coverage across Sherman County. The Census Bureau estimates in 2016 that the number of uninsured residents in Sherman County under the age of 65 equaled 8.3-percent. This is a dramatic drop from 22.8-percent in 2009.

**Table C.9: Health Insurance Coverage in Sherman County**

		<b>Percent Uninsured - Under Age 65</b>	<b>Margin of Error</b>	<b>Percent Uninsured - Under Age 19</b>	<b>Margin of Error</b>
2012	Sherman County	17.3%	+/-1.7%	8.5%	=/-2.0%
	Oregon	17.4%	+/-0.4%	6.9%	-/+0.7%
2013	Sherman County	19.4%	+/-1.8%	10.5%	+/-2.3%
	Oregon	17.4%	+/-0.4%	6.9%	+/-0.7%
2014	Sherman County	11.3%	+/-1.3%	6.4%	+/-1.6%
	Oregon	11.6%	+/-0.4%	5.1%	+/-0.5%
2015	Sherman County	8.2%	+/-1.0%	6.7%	+/-1.6%
	Oregon	8.4%	+/-0.3%	4.1%	+/-0.5%
2016	Sherman County	8.3%	+/-1.2%	5.1%	+/-1.5%
	Oregon	7.4%	+/-0.3%	3.5%	+/-0.4%

Source: U.S. Census Bureau, Small Area Health Insurance Estimates, 2012-2016

## Synthesis

Socio demographic capacity is a significant indicator of community hazard resiliency. The characteristics and qualities of the community population such as age, race, education, income, health and safety are significant factors that can influence the community’s ability to cope, adapt to and recover from natural disasters. The current status of socio demographic capacity indicators can have long term impacts on the on the economy and stability of the community ultimately affecting future resiliency of the community.

## Regional Economic Capacity

Economic resilience to natural disasters is far more complex than merely restoring employment or income to the local community. Building a resilient economy requires an understanding of how the component parts of employment sectors, workforce, resources and infrastructure are interconnected in the existing economic picture. Once any inherent strengths or systematic vulnerabilities become apparent, both the public and private sectors can take action to increase the resilience of the local economy.

## Regional Affordability

The evaluation of regional affordability supplements the identification of socio-demographic capacity indicators, i.e. median income, and is a critical analysis tool to understanding the economic status of a community. This information can capture the likelihood of individuals' ability to prepare for hazards, through retrofitting homes or purchasing insurance. Regional affordability is a mechanism for generalizing the abilities of community residents to get back on their feet without Federal, State or local assistance.

### Median Income

Median income can be used as an indicator of the strength of a region's economic stability. Table C.10 shows that between 2000 and 2016 the median household income in Sherman County has risen at a slower rate than both the state and nation as a whole, though the County's median income still remains below state and national averages.

**Table C.10: Median Household Income, 2000 and 2010**

	2000*	2010^	2016^	Change (2000- 2016)	Average Annual Growth Rate
Sherman County	\$35,142	\$41,354	\$41,389	\$6,247	1.04%
Oregon	\$40,916	\$46,560	\$53,270	\$12,354	1.77%
United States	\$41,994	\$50,046	\$55,322	\$13,328	1.86%

Source: U.S. Census Bureau, Small Area Estimates Branch, 2005-2010 and 2012-2016 American Community Survey 5-Year Estimates.

## Economic Diversity

Economic diversity is a general indicator of an area's fitness for weathering difficult financial times. One method for measuring economic diversity is through use of the Hachman Index, a formula that compares the composition of county and regional economies with those of states or the nation as a whole. Using the Hachman Index, a diversity ranking of 1 indicates the Oregon County with the most diverse economic activity compared to the state as a whole, while a ranking of 36 corresponds with the least diverse county economy. Sherman County ranked lowest of the 36

counties in the state overall. Table C.11 describes the scores below for Sherman County and the surrounding region.

**Table C.11: County Hachman Index Scores**

County	Hachman Index Score - 2016	Hachman Index Score - 2009	Hachman Index Score - 1999	Percent Change from 2016-1999	State Rank
Sherman	0.035	0.064	0.076	-73.8%	36
Gilliam	0.050	0.066	0.138	-93.6%	35
Wasco	0.357	0.357	0.397	-10.6%	17
Wheeler	0.149	0.148	0.157	-5.2%	29
Clackamas	0.858	0.855	0.802	6.7%	1

Source: Oregon Employment Department

The Hachman Index is based on private sector employment at businesses covered by the unemployment insurance program. That covers most jobs, but it excludes the self-employed, certain types of farmworkers, and certain other workers. It won't capture other forms of economic diversity, such as rents earned from wind turbine leases. The wind farms make Sherman County's economy more diverse in the sense that landowners now generate income from turbine leases in addition to farming or ranching. But wind farms don't directly add a lot of local employment once they've been installed. The Hachman Index for Sherman County showed more diversity in 2009 when the wind farms were being constructed than it did in 2016. This was probably due all the additional construction employment at the time.

The Hachman Index is a relative measure of economic diversity, comparing against other counties and the state as a whole. So a particular county could be improving its diversity, but if it's not diversifying as fast as other areas then its Hachman Index will fall.<sup>25</sup>

## Employment and Wages

Data provided by the U.S. Census Bureau in the 2010 American Community Survey indicate that Sherman County's labor force (defined as the population of 16 and older which are in the labor force) increased from 627 to 760 between 2001 and 2016, a 21.2-percent increase.

There was a decline in unemployment in Sherman County from 2009 to 2017, reflecting national trends, and unemployment dropped as low as 4.8%-percent in 2017 according to the Oregon Employment Department.<sup>26</sup> As of May 2018, total

<sup>25</sup> Oregon Employment Department, email conversation with Nick Beleiciks on 5/31/2018, State Employment Economist, Oregon Employment Department

<sup>26</sup> Oregon Employment Department.

seasonally adjusted non-farm employment for the county was 805 individuals.<sup>27</sup> Table C.12 and Figure C.6 both describe the recent trends in the unemployment throughout the county, region, state and nation.

**Table C.12: Regional Annual Unemployment (Seasonally Adjusted)**

County	2017	2015	2013	2011	2009
Sherman County	4.8%	6.1%	9.3%	11.1%	9.1%
Gilliam County	4.2%	6.4%	9.5%	9.7%	6.9%
Wasco County	4.1%	5.6%	7.6%	8.8%	9.1%
Wheeler County	3.9%	5.2%	6.3%	8.5%	9.1%
Oregon	4.1%	5.6%	7.9%	9.5%	11.3%
United States	4.4%	5.3%	7.4%	8.9%	9.3%

Source: Oregon Employment Department, Labor Force Data, Seasonally Adjusted Data 2009-2017

Employment data from the Oregon Employment Department demonstrate a cyclical employment pattern in Sherman County during the past five years, with the lowest levels of unemployment occurring in the spring and fall seasons (April, May, September and October).<sup>28</sup> These levels typically respond most agricultural operations, and the slowing of the primary tourist season along the Columbia River.

As opposed to measurements of the labor force and total employment, covered employment provides a quarterly count of all employees covered by unemployment insurance. Table C.13 displays the covered employment and payroll figures for Sherman County and neighboring counties in 2017.

**Table C.13: Covered Employment and Payroll, 2017**

County	Number of Employees	Annual Payroll	Average Pay
Sherman County	823	\$37,629,785	\$45,723
Gilliam County	811	\$31,949,324	\$39,395
Wasco County	12,010	\$463,241,517	\$38,571
Wheeler County	311	\$9,030,756	\$29,588
Oregon	1,882,074	\$96,234,570,422	\$51,132

Source: Oregon Employment Department, County Covered Employment and Wages, 2017

<sup>27</sup> Oregon Employment Department – “Current Employment Statistics”, <http://www.qualityinfo.org/olmisj/CES>

<sup>28</sup> Oregon Employment Department, “Local Area Employment Statistics”, <http://www.qualityinfo.org/olmisj/labforce>

## Industry

### MAJOR REGIONAL INDUSTRY

Key industries are those that represent major employers and are significant revenue generators. Different industries face distinct vulnerabilities to natural hazards, as illustrated by the industry specific discussions below. Identifying key industries in the region enables communities to target mitigation activities towards those industries' specific sensitivities. It is important to recognize that the impact that a natural hazard event has on one industry can reverberate throughout the regional economy.<sup>29</sup>

This is of specific concern when the businesses belong to the basic sector industry. Basic sector industries are those that are dependent on sales outside of the local community. The farm and ranch, information, and wholesale trade industries are all examples of basic industries. Non-basic sector industries are those that are dependent on local sales for their business, such as retail trade, construction, and health and social assistance.<sup>30</sup>

### EMPLOYMENT BY INDUSTRY

Economic resilience to natural disasters is particularly important for the major employment industries in the region. If these industries are negatively impacted by a natural hazard, such that employment is affected, the impact will be felt throughout the regional economy.<sup>31</sup> Thus, understanding and addressing the sensitivities of these industries is a strategic way to increase the resiliency of the entire regional economy. Sherman County's economy is based upon agriculture (wheat farming, livestock ranching, barley, etc.), renewable energy production, transportation, and tourism. Sherman County has been a wheat-growing area since it was first settled, with miles of waving grain on rolling hills of wind-blown glacial silt. Self-employment, particularly in agricultural industries, is a major component of the job mix in Sherman County. Furthermore, volunteers provide many important services including rural and city fire protection, rescue and medical response units, local government, youth activities and educational support.

The county's proximity to the Portland area, the Union Pacific railroad line and Interstate 84 provide good opportunities for the transportation of manufactured and agricultural goods. In addition, the region's proximity to the high desert terrain, the Columbia River, the Deschutes River and the John Day River provide year-round sporting and tourism activities.

Table C.14 identifies covered employment in Sherman County by industry. As of 2016, the four industries with the most employees include; government (40.0-percent), trade, transportation and utilities (26.5-percent), transportation, warehousing and utilities (17.0-percent) and leisure & hospitality (14.8-percent).

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<sup>29</sup> Ibid.

<sup>30</sup> Ibid.

<sup>31</sup> Ibid.

**Table C.14: Total Covered Employment by Industry, 2016**

Industry Detail	Employment	Percent of Industry
Total Private Coverage	524	62.0%
Construction	65	7.7%
Education & Health Services	11	1.3%
Professional & Business Services	25	3.0%
Leisure & Hospitality	125	14.8%
Food Service & Drinking Places	106	12.5%
Other Services	25	3.0%
Trade, Transportation. & Utilities	224	26.5%
Wholesale	37	4.4%
Retail	64	7.8%
Gasoline stations	59	7.0%
Transportation, Warehousing & Utilities	144	17.0%
Truck transportation	6	0.7%
Total All Government	321	40.0%
<b>Total Annual Average Nonfarm Employment</b>	<b>845</b>	<b>100.0%</b>

Source: Oregon Employment Department, Sherman County Covered Employment and Wages, 2016

The Oregon Employment Department estimates net employment growth between 2010 and 2016. During this time period, construction and transportation, warehousing & utilities, two of the county's largest industries, experienced growth of 53 employees (441.7-percent) and 67 employees (97.0-percent) respectively. This may reflect the boom in wind turbine construction during this time period. Five industries experienced net losses during the time period: wholesale (-38.3%), truck transportation (-33.3%) retail (-22.9%), education and health services (-15.4%) and leisure and hospitality (-6.6%).<sup>32</sup> This equated to the loss of just 56 jobs however. Notably, government jobs still made up nearly 38 % of the County's nonfarm employment (321 jobs), primarily at the local level.

<sup>32</sup> Oregon Employment Department, Sherman County Covered Employment and Wages. 2011

**Table C.15: Total Nonfarm Employment by Industry, 2010 and 2016**

Industry Detail	Employment 2010	Employment 2016	Change 2001 - 2010		
			Number	Percent Change	AAGR
Total Private Coverage	418	524	106	25.4%	3.8%
Construction	12	65	53	441.7%	32.5
Education & Health Services	13	11	-2	-15.4%	-2.8%
Professional & Business Services	25	N/A	N/A	N/A	N/A
Leisure & Hospitality	136	127	-9	-6.6%	1.1%
Other Services	11	25	14	127.3%	14.7%
Trade, Transportation. & Utilities	219	224	5	2.9%	0.4%
Wholesale	60	37	-23	-38.3%	-7.7%
Retail	83	64	-19	-22.9%	-4.2%
Gasoline stations	47	59	12	25.5%	-3.7%
Transportation, Warehousing & Utilities	77	144	67	87.0%	11%
Truck transportation	9	6	-3	-33.3%	-6.5
Total All Government	306	321	15	4.9%	0.8%
Total Annual Average Nonfarm Employment	724	845	121	16.7%	2.6%

Source: Oregon Labor Market Information System - Current Employment Statistics, accessed June 2018

### Labor and Commute Shed

Most hazards can happen at any time during the day or night. It may be possible to give advance warning to residents and first responders who can take immediate preparedness and protection measures, but the variability of hazards is one part of why they can have such varied impact. A snow storm during the work day will have different impacts than one that comes during the night. During the day, a hazard has the potential to segregate the population by age or type of employment (e.g., school children at school, office workers in downtown areas). This may complicate some aspects of initial response such as transportation or the identification of wounded or missing. Conversely, a hazard at night may occur when most people are asleep and unable to receive an advance warning through typical communication channels. The following labor shed and commute shed analysis is intended to document where county residents work and where people who work in Sherman County reside. As shown in Table C.16, overall the workforce is somewhat mobile between Sherman, Wasco, Multnomah and Umatilla Counties. About a third of Sherman County residents are employed within the county (37.7-percent), there are also a significant number of workers (62.3-percent) who commute to locations outside the county to work. 11.2-percent of workers who live in Sherman County commute to The Dalles, while 7.4% commute to Portland for their job. It is possible



that these workers do not physically commute every day or on a regular basis and instead telecommute or otherwise have remote locations.

Table C.17 below tells the statistical story about where workers live who are employed in Sherman County.

**Table C.16: Home Destination Report, 2015 –  
Where Workers are Employed Who Live in Sherman County**

Location	Number	Percent
Moro	104	15.7%
The Dalles	74	11.2%
Portland	49	7.4%
Biggs Junction	29	4.4%
Rufus	21	3.2%
Wasco City	19	2.9%
Bend	10	1.5%
Pendleton	10	1.5%
Gresham	9	1.4%
Beaverton	7	1.1%
All other locations	329	64.5%
<b>Total primary jobs</b>	<b>510</b>	<b>100%</b>

Source: U.S. Census Bureau, On The Map, Area Profile Analysis in 2015 by Primary Jobs

**Table C.17: Work Destination Report, 2015 –  
Where Workers Live Who are Employed in Sherman County**

Location	Number	Percent
The Dalles	60	8.4%
Wasco City	54	7.6%
Moro	52	7.3%
Rufus	28	3.9%
Grass Valley	23	3.2%
Goldendale	23	3.2%
Bend	20	2.8%
Portland	9	1.3%
Hood River	8	1.1%
Pendleton	7	1.0%
All other locations	430	60.2%
<b>Total primary jobs</b>	<b>714</b>	<b>100.0%</b>

Source: U.S. Census Bureau, On The Map, Area Profile Analysis in 2015 by All Jobs

In summary, the Labor Shed analysis and Commute Shed analysis reveal that there is a great deal of commuting and worker exchange between communities in the region. While 62.3-percent of Sherman County residents maintain employment outside of the county, nearly 65.1-percent of Sherman County workers reside elsewhere.

## Synthesis

Regional economic capacity refers to the present financial resources and revenue generated in the community to achieve a higher quality of life. Forms of economic capital include income equality, housing affordability, economic diversification, employment, and industry. The current and anticipated financial conditions of a community are strong determinants of community resilience, as a strong and diverse economic base increases the ability of individuals, families and the community to absorb disaster impacts for a quick recovery.

While the County has a relatively low unemployment rate, it has a moderately diverse economy and experience a more difficult time in recovering from a natural disaster than other communities with a more diverse economic base.<sup>33</sup> In addition, it is important to consider what might happen to the economy if the largest revenue generators and employers (construction, trade, transportation and utilities and transportation, warehousing and utilities) were heavily impacted by a disaster. To an extent, and to the benefit of Sherman County, these particular industries are a mix of basic and non-basic industries, dependent on both external markets and local residents.

It is imperative however that Sherman County continues to recognize that economic diversification is a long-term issue. More immediate strategies and actions to reduce vulnerability from an economic perspective should focus on risk management for the county's dominant industries (e.g. business continuity planning) as well as the dependence on main transportation arteries.

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<sup>33</sup> State of Oregon Natural Hazards Mitigation Plan, Region 4 Southwest Oregon Regional Profile.

# Built Capacity

## Housing Building Stock

Housing characteristics are an important factor in hazard mitigation planning, as some housing types tend to be less disaster resistant than others, and therefore warrant special attention. Table C.18 identifies the type of housing structures most common throughout Sherman County. Of particular interest are the number of mobile homes and other non-permanent housing structures, which account for 25.8-percent of the housing structures in the county. Mobile structures are particularly vulnerable to certain natural hazards, in particular windstorms, and special attention should be given to securing the structures as they are typically more prone to damage than wood-frame construction.<sup>34</sup> Also, it is important to consider multi-unit structures, as they are more vulnerable to the impacts from natural disasters due to the increased number of people living in close proximity. In short, a structural weakness in a multiunit structure will have an amplified impact on the population. However, only 4.8-percent of the housing units have two or more units.

**Table C.18: Housing Type Summary**

	Number	Percent
1 unit	647	69.0%
2 to 4 units	26	2.8%
5 to 9 units	8	0.9%
10 to 19 units	10	1.1%
Mobile home	226	24.1%
Boat, RV, van, etc.	16	1.7%
Total housing units	939	100.0%

Source: U.S. Census Bureau, 2012-2016 American Community Survey, 5-Year Estimate

Age of housing is another characteristic that influences a structure’s vulnerability to hazards. Generally the older a home is, the greater the risk of damage from natural disasters. This is because stricter building codes have only been implemented in recent decades, following improved scientific understanding of plate tectonics and earthquake risk. In Oregon, many structures built after the late 1960’s began utilizing earthquake resistant designs and construction. Similarly, communities in the northwest began implementing flood elevation ordinances in the 1970’s.<sup>1</sup> In 1990 Oregon again upgraded to stricter seismic standards that included earthquake loading in the building design.<sup>35</sup> Table C.19 shows that less than 17-percent of the

<sup>34</sup> State of Oregon Natural Hazards Mitigation Plan, Region 4 Southwest Oregon Regional Profile.

<sup>35</sup> Wang Yumei and Bill Burns. “Case History on the Oregon GO Bond Task Force: Promoting Earthquake Safety in Public Schools and Emergency Facilities.” National Earthquake Conference. January 2006.

housing stock in Sherman County was built after 1990 when more stringent building codes were put in place, leaving more than 80-percent with questionable seismic stability, and more than 55-percent with very questionable seismic stability (percentage of homes built before 1960).<sup>36</sup> Thus knowing the age of the structure is helpful in targeting outreach regarding retrofitting and insurance for owners of older structures.<sup>37</sup>

**Table C.19: Housing Units, Year Built**

	Number	Percent
2014 or later	0	0.0%
2010 to 2013	19	2.0%
2000 to 2009	90	9.6%
1990 to 1999	45	4.8%
1980 to 1989	74	7.9%
1970 to 1979	126	13.4%
1960 to 1969	69	7.3%
1950 to 1959	95	10.1%
1940 to 1949	74	7.9%
1939 or earlier	347	37.0%
<b>Total housing units</b>	<b>939</b>	<b>100.0%</b>

Source: U.S. Census Bureau, 2012-2016 American Community Survey, 5-Year Estimate

Mitigation and preparedness planning should also consider type of occupancy when developing outreach projects or educational campaigns. Residents who own their own home are more likely to take steps to reduce the impact of natural hazards through mitigation or insurance methods. Renters may be less invested in physical improvements to the unit; as a result outreach around personal preparedness or renters insurance would benefit this population. As demonstrated in Table C.20 below, approximately 33.0-percent of the housing units in Sherman County are renter-occupied.

**Table C.20: Housing Occupancy Summary**

	Number	Percent
Occupied housing units	804	85.6%
Owner-occupied units	494	52.6%
Renter-occupied units	310	33.0%
Vacant housing units	135	14.2%

<sup>36</sup> Source: U.S. Census Bureau, 2005-2009 American Community Survey. B25034 Year Structure Built 5 Year Estimate.

<sup>37</sup> State of Oregon Natural Hazards Mitigation Plan, Region 4 Southwest Oregon Regional Profile.

Total housing units	939	100.0%
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Source: 2012-2016 American Community Survey 5-Year Estimates

## Physical Infrastructure

Physical infrastructure such as dams, roads, bridges, railways and airports support Sherman County communities and economies. Critical facilities are facilities that are critical to government response and recovery activities; however the term may also refer to facilities or infrastructure that could cause serious secondary impacts when disrupted. Many things can be counted as critical infrastructure and facilities depending on the social, environmental, economic and physical makeup of the area under consideration. Some examples include: agriculture and food systems, communications facilities, critical manufacturing, emergency services, energy generation and transmission, government facilities, healthcare and public health facilities, information technology transportation systems; and water. Due to the fundamental role that physical infrastructure plays both in pre and post-disaster, they deserve special attention in the context of creating resilient communities.<sup>38</sup>

### DAMS

Dam failures can occur at any time and are quite common. Fortunately, most failures result in minor damage and pose little or no risk to life safety. However, the potential for severe damage still exists. The Oregon Water and Resources Department has inventoried all dams located in Oregon and Sherman County. The only dam in the county identified with a “high” hazard level is the John Day Dam located on the Columbia River east of Rufus.<sup>39</sup> Construction of John Day Lock and Dam was completed in 1971.<sup>40</sup> It is by far the largest dam in the county. A Periodic Inspection (5-year) was completed in March 2017 and an Annual Inspection was completed in July 2018. Table C.21 identifies the threat potential for the 11 dams in Sherman County.

**Table C.21: Dam Threat Summary**

Threat Potential Level	Number of Dams
High	1
Low	9

Source: Oregon Water Resources Department, Dam Inventory Query

<sup>38</sup> State of Oregon Natural Hazards Mitigation Plan, Region 4 Southwest Oregon Regional Profile.

<sup>39</sup> Oregon Water Resources Department. Dam Inventory Query. Sherman County. [http://apps.wrd.state.or.us/apps/misc/dam\\_inventory/](http://apps.wrd.state.or.us/apps/misc/dam_inventory/).

<sup>40</sup> U.S. Army Corps of Engineers. Portland District. John Day Dam. <http://www.nwp.usace.army.mil/locations/johnday.asp>.

## ROADS AND BRIDGES

Approximately 428 miles of road encompass Sherman County.<sup>41</sup> The region's major expressway is Interstate 84 (I-84). The interstate runs East/West through northern Sherman County and is the main passage for automobiles, buses and trucks traveling along the Columbia River. Other major highways that service the region include:

- U.S. Highway 97 runs north/south and connects Biggs at I-84 with Wasco, Grass Valley, Moro and Kent.
- Oregon Route 206 by and large runs east/west and connects Wasco to Condon in Gilliam County.
- Oregon Route 216 runs east-west connects Grass Valley to Tygh Valley in Wasco County.

Daily transportation infrastructure capacity in the Columbia Gorge region is only moderately stressed by maintenance, congestion and oversized loads; however peak loads and congestion can materialize during holiday seasons and major construction projects, but can also fluctuate by season. Natural hazards tend to further disrupt automobile traffic and create gridlock; this is of specific concern in periods of evacuation during an emergency.<sup>42</sup>

The existing condition of bridges in the region is also a factor that affects risk from natural hazards. Bridge failure can have immediate and long term implications in the response and recovery of a community. Incapacitated bridges can disrupt traffic and exacerbate economic losses due to the inability to transport products and services in and out of the area.<sup>8</sup> Table C.22 represents the condition of the NBI, and highlights the number of distressed bridges in the region. The region encompasses all of Sherman, Wasco and Gilliam Counties. The NBI identifies zero structurally deficient bridges, 13 with some type of other deficiency and 93 bridges that are not distressed. The classification of a distressed bridge does not imply the bridge is unsafe; however in the event of seismic activity these bridges are of higher vulnerability to failure.

**Table C.22: Bridge Deficiency Overview**

Structurally Deficient - Distressed Bridges		Other Deficiency - Distressed Bridges		Not Distressed	
0	0.0%	13	12.3%	93	87.7%

Source: Oregon Department of Transportation, 2017 Bridge Condition Report

## RAILWAYS

Railroads are major providers of regional and national cargo trade flows. A Union Pacific Railroad line runs through Sherman County and is limited to a stretch of

<sup>41</sup> Mark Coles. Sherman County Road Master. January 10, 2012.

<sup>42</sup> State of Oregon Natural Hazards Mitigation Plan, Region 4 Southwest Oregon Regional Profile.

tracks that follow I-84 and the Columbia River on the northern border of the County.<sup>43</sup> Rails are sensitive to icing from winter storms that can occur in the Columbia Gorge region. For industries in the region that utilize rail transport, these disruptions in service can result in economic losses. The potential for rail accidents caused by natural hazards can also have serious implications for the local communities if hazardous materials are involved.<sup>44</sup>

#### **AIRPORTS**

Wasco State Airport serves Sherman County and is owned by Oregon Aeronautics Division.<sup>45</sup> It is located one mile east of Wasco and has an asphalt paved runway that extends 3,450 feet. In 2016 the airport averaged 47 aircraft operations a week (2,444-year), mostly for transient general aviation purposes.<sup>46</sup> Access to these airports faces the potential for closure from a number of natural hazards, including wind and winter storms common to the region.<sup>47</sup>

#### **POWER PLANTS**

The sources of power production in the county are generated through wind energy and hydropower. The John Day Dam is the only hydroelectric dam in the county; it is located on the Columbia River east of Rufus. Construction of the dam was completed in 1971.

#### **John Day Dam:<sup>48</sup>**

<i>Powerhouse:</i>	1,975 ft. long
<i>Total Generating Capacity:</i>	16 generators, 2,200 megawatts
<i>Spillway:</i>	20 gates, 1,228 ft. long
<i>Navigation Lock:</i>	650 ft. long; 86 ft. wide; 113 ft. maximum lift

Sherman County has also experienced a significant growth in the number of wind farms since 2005. There are a total of 560 wind turbines now operating in the county with a total generating capacity of 1,057.3 megawatts of energy. Table C.23 identifies the inventory of wind farm projects in Sherman County. Seven of these projects began operating in 2007 or later, and three more have either been approved or are in the permitting process.

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<sup>43</sup> Oregon Department of Transportation. Oregon Railways. <http://www.oregon.gov/ODOT/TD/TDATA/gis/docs/statemaps/railroads.pdf?ga=t>.

<sup>44</sup> State of Oregon Natural Hazards Mitigation Plan, Region 4 Southwest Oregon Regional Profile.

<sup>45</sup> Sherman County Website. Agri-Business. Wasco, Oregon. [http://www.sherman-county.com/agri\\_business\\_wasco.asp](http://www.sherman-county.com/agri_business_wasco.asp).

<sup>46</sup> Air Nav. Wasco State Airport. <http://www.airnav.com/airport/35S>.

<sup>47</sup> State of Oregon Natural Hazards Mitigation Plan, Region 4 Southwest Oregon Regional Profile.

<sup>48</sup> U.S. Army Corps of Engineers. Portland District. John Day Dam. <http://www.nwp.usace.army.mil/locations/johnday.asp>.

**Table C.23: Wind Farm Inventory**

Project Title	Turbines <sup>49</sup>	Capacity	Developer(s)	Operating Status	Year
Klondike I	16	24 MW	Northwestern Wind	Operating	2001
Klondike II	50	75 MW	Iberdrola	Operating	2005
Biglow Canyon - Phase 1	76	125.4 MW	PGE, Orion	Operating	2007
Klondike III	125	223.6 MW	Iberdrola	Operating	2007
Klondike IIIa	51	76.5 MW	Iberdrola	Operating	2008
Hay Canyon	48	100.8 MW	Iberdrola	Operating	2009
Biglow Canyon - Phase 2	65	149.5 MW	PGE	Operating	2009
Biglow Canyon - Phase 3	76	174.8 MW	PGE	Operating	2010
PãjTu Wind	6	9 MW	Oregon Trail Wind Farm	Operating	2010
Star Point	47	98.7 MW	Iberdrola	Operating	2010
Golden Hills Wind - Phase 1		200 MW	Avangrid, Orion Renewable Energy	Approved	
Golden Hills Wind - Phase 2	125 Phase I & II	200 MW	Avangrid, Orion Renewable Energy	Approved	
<b>Total:</b>	<b>560</b>	<b>1,057.3 MW</b>			

Source: Renewable Northwest Project, Renewable Energy Projects. MW = Megawatts

## Utility Lifelines

Utility lifelines are the resources that the public relies on daily, (i.e., electricity, fuel and communication lines). If these lines fail or are disrupted, the essential functions of the community can become severely impaired. Utility lifelines closely relate to physical infrastructure, (i.e., dams and power plants) as they transmit the power generated from these facilities.

The network of electricity transmission lines running through Sherman County are operated by Pacific Power and Light (PacifiCorp), Bonneville Power Administration and the Wasco Electric Cooperative. These three entities primarily facilitate local energy production and distribution in the area.

### PacifiCorp

PacifiCorp is a regulated utility based in Portland, Oregon and serves 1.9 million customers across 141,000 square miles in Southern Washington, Oregon, Northern California, Eastern Idaho, Utah and Wyoming, including Sherman County and other

<sup>49</sup> The Wind Power. Wind Turbine and Wind Farm Database. Wind Farm List. [http://www.thewindpower.net/windfarms\\_list\\_en.php](http://www.thewindpower.net/windfarms_list_en.php). Updated November 2011.



communities in the Columbia Gorge. PacifiCorp has approximately 64,000 miles of distribution line and 16,500 miles of transmission lines.<sup>50</sup>

The company comprises two business units that generate and deliver safe, reliable electricity to customers at a reasonable price.

**Pacific Power** serves customers in Oregon, Washington and California including the towns of Wasco, Moro, Rufus and Grass Valley in Sherman County.

**Rocky Mountain Power** serves customers in Utah, Wyoming and Idaho.

With its large, diverse portfolio of generating assets, the company is one of the lowest-cost utilities in the U.S. PacifiCorp owns 46,000 acres of lands for wildlife habitat, forestry and recreation.

Wind, hydro and geothermal resources currently make up more than 30 percent of the company's owned generating capacity. To accelerate PacifiCorp's affordable and clean energy vision, the company will significantly expand the amount of wind power serving customers by 2020.

#### **Wasco Electric Cooperative**

The Wasco Electric Cooperative engages in energy transmission and distribution, providing electric service to over 3,000 members with 1,685 miles of lines and ten substations to serve portions of Sherman, Wasco, Jefferson, Gilliam and Wheeler Counties.<sup>51</sup>

#### **Bonneville Power Administrative**<sup>52</sup>

The Bonneville Power Administrative (BPA) is a federal nonprofit agency based in the Pacific Northwest. BPA markets wholesale electrical power from 31 federal hydro projects in the Columbia River Basin, including the John Day Dam, one nonfederal nuclear plant and several other small nonfederal power plants. About 30-percent of the power used in the Northwest comes from BPA.

BPA also operates and maintains about three-fourths of the high-voltage transmission (15,238 circuit miles) in the service territory, which includes California, Idaho, Montana, Nevada, Oregon, Utah, Washington and Wyoming. Several of these lines run through Sherman County.

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<sup>50</sup> PacifiCorp. PacifiCorp Facts.

[http://www.pacificorp.com/content/dam/pacificorp/doc/CCCom\\_Update/2016/May\\_2016/PP-FactSheet-2016-v5.pdf](http://www.pacificorp.com/content/dam/pacificorp/doc/CCCom_Update/2016/May_2016/PP-FactSheet-2016-v5.pdf).

<sup>51</sup> Wasco Electric Cooperative. About Wasco Electric Cooperative.

<https://www.wascoelectric.com/about/>.

<sup>52</sup> Bonneville Power Administration. 2017 BPA Facts.

<https://www.bpa.gov/news/pubs/GeneralPublications/gi-BPA-Facts.pdf>.

## **NATURAL GAS TRANSMISSION**

Gas Transmission Northwest Corporation (GTN), which is operated by TransCanada Corporation, transports natural gas to energy markets along 1,351 miles of pipe from the Canada-Idaho border to the Oregon-California border.<sup>53</sup> A section of this pipeline runs through southeast Sherman County. Twelve compressor stations (#3 through #14) are located along the GTN pipeline system and provide the energy needed to move gas through the pipeline. Compressor Station 10 is located on Wilcox Road eighteen miles south of the city of Grass Valley off Highway 97. Compressor Station 10 contains three gas turbine-driven compressor units. The Station 10 structures include a control building, three compressor buildings which house turbine Units 10-A, 10-B and 10-C, a lubricating oil storage building, a storage building, a motor control center building, a fuel gas building, gas scrubbers, a scrubber-separator, a gas cooler, instrument buildings and valve shelters.<sup>54</sup>

## **Sewage and Landfill**

Each of the four incorporated cities in the county has their own water and waste facilities. Also, in a franchise agreement with Gilliam County, The Dalles Disposal / Waste Connections in Wasco County provides solid waste disposal, recycling opportunities and manages the transfer site on Welk Road.<sup>55</sup>

## **Tri-County Hazardous Waste & Recycling Program**

A permanent household hazardous waste collection facility is located in The Dalles operated by the Tri-County Hazardous Waste & Recycling Program serving Wasco, Sherman & Hood River counties. This facility provides for the safe disposal of hazardous materials from the home. Small business and agricultural hazardous waste is also accepted at events and by appointment. Four public collection days are held at the facility each year. Four more events are held at other sites in Wasco and Sherman Counties.<sup>56</sup>

## **Telecommunications**

A number of telecommunication providers are available in Sherman County. According to Oregon Public Utility Commission, the following companies provide services to the county: CenturyLink, dishNet Satellite Broadband, Futaris, Inc., GCI Communications Corp., Gorge Networks, HughesNet and HughesNet (SAT), LSNetworks, MCI, Mosier WiNet, Sprint, U.S. Cellular, Verizon Wireless and Via Sat Inc.<sup>57</sup>

## **Public-Safety Access Point**

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<sup>53</sup> TansCanada Corp. TransCanada GTN System Overview. <http://tcplus.com/GTN>.

<sup>54</sup> Oregon Department of Environmental Quality. Oregon Title V Operating Permit. May, 2009.

[https://www.oregon.gov/deq/FilterPermitsDocs/280007GasTransmissionNW\\_10\\_R](https://www.oregon.gov/deq/FilterPermitsDocs/280007GasTransmissionNW_10_R)  
R.pdf

<sup>55</sup> <https://www.co.sherman.or.us/waste-management/>

<sup>56</sup> Ibid.

<sup>57</sup> <https://broadband.oregon.gov/StateMap/>

Frontier Regional 911 is a regional dispatch center covering Gilliam, Jefferson, Sherman and Wheeler Counties. It is responsible for answering emergency calls for police, firefighting and ambulance services. The dispatch center is stationed at 135 S. Main Street in Condon (Gilliam County). Frontier Regional 911 also accepts Text-to-911 messages. This service is intended for people that may not be able to speak due to an emergency situation. "Call if you Can, Text if you Can't" is their motto.<sup>58</sup>

## Critical Facilities

Critical facilities are those facilities that are essential to government response and recovery activities (e.g., hospitals, police, fire and rescue stations, school districts and higher education institutions).<sup>59</sup> The interruption or destruction of any of these facilities would have a debilitating effect on incident management. Critical facilities in Sherman County are identified in Table C.24 below.

**Table C.24: Critical Facilities**

Facility Type	County Total
Hospitals (# of beds)	0 (0)
Sheriff's/Police Offices	1
Fire and Rescue Stations	4
Dams	10
Bridges	98
NBI Bridges	10
Non NBI Bridges/ Box Culverts	88
School Districts	1
Airports (public)	1

Source: State of Oregon Natural Hazards Mitigation Plan, Region 4 Southwest Oregon Regional Profile.

### HOSPITAL

There are no hospitals located in Sherman County. The nearest hospitals are located in Goldendale, Washington, and The Dalles, Oregon.

- Klickitat Valley Hospital, Goldendale, Washington – critical access hospital
- Mid-Columbia Medical Center, The Dalles, Oregon – acute care hospital

*Critical access hospital* – a small facility that gives limited outpatient and inpatient hospital services to people in rural areas.

*Acute care hospital* – a hospital that provides short-term patient care.

<sup>58</sup> [http://www.co.gilliam.or.us/residents/frontier\\_regional\\_911/index.php](http://www.co.gilliam.or.us/residents/frontier_regional_911/index.php)

<sup>59</sup> State of Oregon Natural Hazards Mitigation Plan, Region 4 Southwest Oregon Regional Profile.

## POLICE

The Oregon State Police Department and the Sherman County Sherriff's Office serve Sherman County.

## FIRE AND RESCUE

Sherman County has three Rural Fire Protection Districts while the cities of Rufus and Moro each have their own Fire Departments. The districts and fire departments are all served by volunteers. The Moro Fire Department and the Moro Rural Fire District operate essentially as one department and share the same fire chief and fire fighters. The North Sherman County Rural Fire Protection District provides service to about 140,667 acres, Moro Rural Fire Protection District and City of Moro serves about 136,297 acres (Moro RFPD has 135,981 and Moro FD has 316), the City of Rufus provides services to about 869 acres and the South Sherman Fire Protection District serves 251,028 acres.

## **Synthesis**

Built capacity refers to the built environment and infrastructure that supports a community. The various forms of built capital mentioned throughout this section, play significant roles in the event of a disaster. Physical infrastructure, including utility and transportation lifelines, are critical to maintain during a disaster and are essential for proper functioning and response. Community resilience is directly affected by the quality and quantity of built capital and lack of or poor condition of infrastructure can negatively affect a community's ability to cope, respond and recover from a natural disaster. Initially following a disaster, communities may experience isolation from surrounding cities and counties due to infrastructure failure. These conditions force communities to rely on local and immediate resources.

# Community Connectivity Capacity

## Social Organizations

Social systems have the ability to easily reach vulnerable populations, which have a tendency to be more at-risk in the event of a disaster. Social systems can be community organizations and programs that provide social and community-based services for the public. It would be beneficial for the county to work with such programs to help distribute information that will help educate those who do not have the resources to learn about hazard mitigation.

Below are a few methods that social organizations located throughout Sherman County can use to become involved in hazard mitigation.

- Education and Outreach – Organizations can partner with the community to educate the public or provide outreach assistance and materials on natural hazard preparedness and mitigation.
- Information Dissemination – Organizations can partner with the community to provide and distribute hazard-related information to target audiences.
- Plan/Project Implementation – Organizations may have plans and/or policies that may be used to implement mitigation activities or the organization can serve as the coordinating or partner organization to implement mitigation actions.

**Table C.25: Sherman County Social Service Providers**

Name and Contact Information	Description
<p><b>ABC Huskies Child Care</b>            920 Fulton Street            Wasco, Oregon 97065            541-442-5024            Web:  <a href="https://www.abchuskiesdaycare.com/">https://www.abchuskiesdaycare.com/</a></p>	<p>The Sherman County Child Care Foundation, Inc., a 501 (c) (3) non-profit corporation, was established in 1998. Governed by a five member Board of Directors, the Foundation oversees the operation of ABC Huskies Child Care located in Wasco, Oregon. Their mission is to provide dependable, quality child care services at an affordable rate.</p>
<p><b>American Red Cross            N.W. Oregon Chapter</b>            3131 N. Vancouver Ave            Portland, OR 97227            503-284-1234            Web:  <a href="http://www.redcross.org/local/oregon/locations/portland">http://www.redcross.org/local/oregon/locations/portland</a></p>	<p>In the Cascades Region, which covers the vast area of Oregon and Southwest Washington, approximately 2,600 volunteers provide response, relief and recovery services; save lives through health and safety training; provide assistance to active military members, their families and local veterans; and ensure we maintain a safe and stable blood supply for patients in need.</p>
<p><b>Arc of the Mid-Columbia</b>            PO Box 521            The Dalles, OR 97058            Web: <a href="http://arcmidcolumbia.org/">http://arcmidcolumbia.org/</a></p>	<p>The Arc serves individuals with intellectual and developmental disabilities and their families in our communities in Hood River, Wasco, Sherman and Gilliam Counties.</p>
<p><b>Boy Scouts of America            Cascade Pacific Council            Mid-Columbia District</b>            2145 SW Naito Parkway            Portland, OR 97201            503-226-3423            Web: <a href="https://www.cpcbsa.org/midcolumn">https://www.cpcbsa.org/midcolumn</a>  <a href="#">bia</a></p>	<p>The Boy Scouts of America (the BSA) is one of the largest Scouting organizations in the United States of America and one of the largest youth organizations in the United States, with more than 2.4 million youth participants and nearly one million adult volunteers.</p> <p>The BSA’s goal is to train youth in responsible citizenship, character development, and self-reliance through participation in a wide range of outdoor activities, educational programs, and, at older age levels, career-oriented programs in partnership with community organizations.</p> <p>For younger members, the Scout method is part of the program to instill typical Scouting values such as trustworthiness, good citizenship, and outdoors skills, through a variety of activities such as camping, aquatics,</p>

	and hiking.
<p><b>Child Care Partners</b>  400 East Scenic Drive  The Dalles, Oregon 97058  Web: <a href="https://www.cgcc.edu/childcare">https://www.cgcc.edu/childcare</a></p>	<p>Child Care Partners provides high quality training and professional development to our early learning and education work force, supporting them in their journey of continuous quality improvement. They strive to develop strong, supportive relationships and trust with early learning professionals in our communities.</p> <p>As dedicated professionals, they are advocates, coaches and mentors supporting early learning professionals and the children and families they serve.</p>
<p><b>Camp Fire Columbia</b>  1411 SW Morrison St. #300  Portland, OR 97205  Phone: (503) 224-7800  Web: <a href="https://campfirecolumbia.org/">https://campfirecolumbia.org/</a></p>	<p>Camp Fire provides youth development programs for youth in kindergarten through 12<sup>th</sup> grade, as well as family activities.</p>
<p><b>Eastern Oregon Support Service Brokerage</b>  1810 Belmont Ave, Hood River, OR 97031  541-387-3600  Web: <a href="http://new.eossb.org/">http://new.eossb.org/</a></p>	<p>The Eastern Oregon Support Service Brokerage represents and supports people with disabilities in Eastern Oregon to achieve control over their lives and to participate in satisfying lifestyles based on the same aspirations as all citizens.</p>
<p><b>Gorge TransLink</b>  224 Wasco Loop, Hood River, OR 97031  541-386-4202  Web:  <a href="http://www.gorgetranslink.com/index.html">http://www.gorgetranslink.com/index.html</a></p>	<p>Gorge TransLink is an alliance of rural transportation providers, human service organizations and public planning agencies seeking to enhance connectivity and develop a seamless network of transportation services within the Mid-Columbia River Gorge area while linking these services to the metropolitan cities of Portland, Oregon and Vancouver, Washington.</p>
<p><b>Healthy Families Oregon</b>  700 Summer Street NE #350  Salem, Oregon 97301  503-378-6768  Web:  <a href="https://oregonearlylearning.com/healthy-families-oregon">https://oregonearlylearning.com/healthy-families-oregon</a></p>	<p>Healthy Families Oregon (HFO) is a free family support and parent education home visiting program. HFO is voluntary and it focuses on strengthening the parent-child relationship to assure healthy child growth and development. Home visitors support parents in cultivating and strengthening a nurturing, positive relationship with their baby at each visit.</p> <p>Parents receive information on topics like child</p>

	<p>development, infant care and keeping their baby healthy, and learn what is going on in their communities to support new families. Many families are eligible for home visits with a trained home visitor, who coach them as they build their skills as parents and help their baby be safe, healthy and learn.</p>
<p><b>Legal Aid Services of Oregon</b>  520 SW 6th Avenue, Suite 700  Portland, OR 97204  503-224-4086  Web: <a href="https://lasoregon.org/">https://lasoregon.org/</a></p>	<p>Legal Aid Services of Oregon (LASO) is a statewide non-profit organization that provides access to legal help for people to protect their livelihoods, their health, and their families. As a civil legal aid program, LASO assures fairness for all in the justice system, regardless of how much money you have. Through our own staff attorneys and hundreds of volunteers, LASO gives free legal help to thousands of low-income and elderly clients each year in matters relating to their physical safety, access to food and shelter, and other critical legal needs.</p> <p>LASO’s mission is to achieve justice for the low-income communities of Oregon by providing a full range of the highest quality civil legal services.</p>
<p><b>Little Wheats Day Care</b>  409 Dewey St, Moro, OR 97039  541-565-3152  Web:  <a href="https://www.facebook.com/LittleWheatsDaycare/?rf=450560141817715">https://www.facebook.com/LittleWheatsDaycare/?rf=450560141817715</a></p>	<p>Little Wheats Daycare is a non-profit organization in Moro, Oregon with the mission to provide clean, safe and educational care for children in Sherman County.</p>
<p><b>Mid-Columbia Center for Living</b>  302 Scott Street  Main Level  Moro, Oregon 97039  541-296-5452  Web: <a href="http://www.mccfl.org/">http://www.mccfl.org/</a></p>	<p>MCCFL is a comprehensive outpatient behavioral health agency that offers a wide range of services to adults, children and families. Our highly trained staff are here to help you or your family members with issues related to mental health, addictions or developmental disabilities.</p> <p>MCCFL is the designated behavioral health agency for Hood River, Sherman, and Wasco counties, providing services through a variety of programs funded by the State, local government, grants, and third party resources. We are governed by a Tri-County Board comprised of the county commissioners in our area.</p>
<p><b>Mid-Columbia Economic Development District</b></p>	<p>MCEDD serves a bi-state area composed of three counties in Oregon (Hood River, Wasco and Sherman)</p>



<p>515 East Second Street, The Dalles, OR 97058 541-296-2266 Web: <a href="http://www.mcedd.org/">http://www.mcedd.org/</a></p>	<p>and two counties in Washington (Skamania and Klickitat), all bordering the Columbia River. These counties share a common workforce, a common geography and a number of other important factors which tie their economic fates together. Through MCEDD they leverage these regional ties and benefit from better access to economic development loans and grants, pooled technical assistance, and a regional approach to their economic development efforts.</p>
<p><b>Mid-Columbia Housing Authority</b> 500 East 2nd St. The Dalles, OR 97058 541-296-5462 Web: <a href="http://mid-columbiahousingauthority.org/">http://mid-columbiahousingauthority.org/</a></p>	<p>MCHA’s mission is to promote adequate and affordable housing, economic opportunity and a suitable living environment, free from discrimination to those who have barriers due to income or disability. Mid-Columbia Housing Authority also administers housing programs for the Columbia Gorge Housing Authority and provides all staff support for Columbia Cascade Housing Corporation, an affiliated non-profit organization.</p>
<p><b>North Central Education Service District</b> 135 S. Main St Condon, OR 97823 1-800-450-2732 Web: <a href="https://www.ncesd.k12.or.us/">https://www.ncesd.k12.or.us/</a></p>	<p>The goals of North Central Education Service District (NCESD) are to assist component school districts in meeting the requirements of state and federal law, to improve student learning, to enhance the quality of instruction provided to students, to provide professional development to component school district employees, to enable component school districts and the students who attend schools in those districts to have equitable access to resources, and to maximize operational and fiscal efficiencies for component school districts.</p> <p>North Central ESD meets the challenge of its mission by providing services to its constituent districts. Serving about 700 students in a 3,500 square-mile geographically challenging area requires a commitment to education.</p>
<p><b>North Central Public Health District (NCPHD)</b> 419 East 7th Street The Dalles, Oregon 97058 541-506-2600 Web: <a href="http://ncphd.org/">http://ncphd.org/</a></p>	<p>NCPHD is responsible for enforcement and administration of public and environmental health laws of federal, state, and county government. They conduct activities necessary for the preservation of health, prevention of disease, and protection of the public. They do this by following the three core public health functions: assessment, monitoring, and policy development.</p>

<p><b>Oregon Dept. of Human Services District 9</b> 103 S Main Street PO Box 65 Condon, OR 97823 541-384-4252 Web: <a href="https://www.oregon.gov/dhs/pages/index.aspx">https://www.oregon.gov/dhs/pages/index.aspx</a></p>	<p>The Department of Human Services (DHS) is Oregon’s principal agency for helping Oregonians achieve wellbeing and independence through opportunities that protect, empower, respect choice and preserve dignity, especially for those who are least able to help themselves.</p> <p>DHS provides direct services to more than 1 million Oregonians each year. These services provide a key safety net for those in our society who are most vulnerable or who are at a difficult place in their life.</p>
<p><b>Sagewind Manor</b> 302 Dewey St, Moro, OR 97039 541-442-5526 or 541-296-3397</p>	<p>Sagewind Manor is a senior independent living facility in Moro, owned and operated by Mid-Columbia Housing Authority/Cascade Housing Authority. The manor has 12 one-bedroom apartments with air-conditioning, laundry hookup, private patio, and outside storage. Rent includes sewer, water, and garbage services.</p>
<p><b>Sherman County Juvenile Department</b> 500 Court St, Moro, OR 97039 541-565-3461 Web: <a href="https://www.co.sherman.or.us/departments/juvenile-court/">https://www.co.sherman.or.us/departments/juvenile-court/</a></p>	<p>The Sherman County Juvenile Department provides sanctions and services to youth ages 12 to 17 who have been referred by law enforcement for law violations; they conduct intake services and determine dispositions for cases referred. Whether to proceed informally or with formal Juvenile Court action is determined by the Juvenile Director in conjunction with the local district attorney.</p>
<p><b>Sherman County Senior &amp; Community Center &amp; Senior Meals</b> 300 Dewey St, Moro, OR 97039 541-565-3191 Web: <a href="https://www.co.sherman.or.us/departments/senior-center/">https://www.co.sherman.or.us/departments/senior-center/</a></p>	<p>Sherman County Senior &amp; Community Center is a central place for services, activities, and social events for the people of Sherman County, Oregon. Its primary purpose is to enhance the lives of older adults by offering the opportunity for social, recreational, health &amp; wellness, educational, and nutritional services and programs. Additionally, the center is available for the public to rent for social events, meetings, classes, and other activities which benefit our county’s wellbeing.</p> <p><u>Senior Meals</u> Served at noon Monday - Friday \$4 Seniors (60 &amp; over) / \$7 General Public (12 to 60) / \$3 Under 12</p> <p>A limited meals-on-wheels program is growing with delivery of frozen microwavable meals throughout the</p>

	county once a week.
<p style="text-align: center;"><b>Sherman County Medical Clinic</b>  110 Main Street  Moro, OR 97039  541-565-3325  Web: <a href="http://shermancountymedicalclinic.net/">http://shermancountymedicalclinic.net/</a></p>	<p>The purpose of the Sherman County Health District and the Sherman County Medical Clinic is to provide responsive, preventative, high quality primary health care services to people without regard to social or economic status.</p> <p>The Sherman County Medical Clinic is a Rural Health Clinic committed to enhancing the quality of life for the residents of Sherman County and Eastern Oregon. They seek to serve the needs of the rural community by providing affordable, comprehensive, and accessible medical services in a safe, professional, and caring environment. They believe that by putting the needs of the people first, we will gain trust, respect, and compassion for each other. They work to improve the health of our patients by promoting collaboration and education.</p>
<p style="text-align: center;"><b>Special Olympics Oregon  Wasco &amp; Sherman Counties</b>  P.O. Box 462  The Dalles, OR 97058  541-980-0063  Web: <a href="http://www.soor.org/Sub-Page.aspx?Name=Wasco-County&amp;PID=116">http://www.soor.org/Sub-Page.aspx?Name=Wasco-County&amp;PID=116</a></p>	<p>Special Olympics Oregon provides year-round sports training and athletic competition in a variety of Olympic-type sports for children, youth and adults living with intellectual disabilities, giving them continuing opportunities to develop physical fitness, demonstrate courage, experience joy, and participate in a sharing of gifts, skills, and friendship with their families, other Special Olympics athletes, and the community.</p>
<p style="text-align: center;"><b>Women, Infants, and Children (WIC)</b>  419 East 7<sup>th</sup> St., Rm 100  The Dalles, OR 97058  Web:  <a href="http://ncphd.org/programs/women-infants-children-wic/">http://ncphd.org/programs/women-infants-children-wic/</a></p>	<p>Food, nutrition counseling, and access to health services are provided to low-income women, infants, and children under the Special Supplemental Nutrition Program for Women, Infants, and Children, popularly known as WIC.</p> <p>WIC provides Federal grants to States for supplemental foods, health care referrals, and nutrition education for low-income pregnant, breastfeeding, and non-breastfeeding postpartum women, and to infants and children who are found to be at nutritional risk.</p>

## Civic Engagement

Civic engagement and involvement are important indicators of community connectivity. Whether it is engagement through outlets such as volunteerism or through local, state, and national politics, you can gauge the connection people have to their community by the more they are willing to help out.

Those who are more invested in their community may also have a higher tendency to vote in political elections. Below, Table C.26 outlines voter participation and turnout percentages from the 2016 Presidential General Election compared to the 2014 “Mid Term” General Election. The 2016 Presidential General Election resulted in an 84.5-percent voter turnout in the county, while the 2014 “Mid-term” General Election only resulted in a turnout of about 81.2-percent voter participation.<sup>60</sup> These results are higher than the overall voter participation reported in Oregon.<sup>61</sup>

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<sup>60</sup> Oregon Secretary of State, Election History, 2018.

<sup>61</sup> Oregon Secretary of State, Election History, 2018.

**Table C.26: Voter Turnout Percentages**

Jurisdiction	2016 General Election		2014 General Election	
	Sherman County*	Oregon^	Sherman County*	Oregon^
Total – Eligible Voters	1,241	2,553,806	1,148	2,174,763
Total - Ballots Cast	1,049	2,051,448	932	1,541,782
Voter Turnout Percentage	84.5%	80.3%	81.2%	70.9%

Source\*: Oregon Secretary of State, Election History, 2018

## Cultural Resources

Cultural resources provide residents with a sense of belonging and provide a glimpse into the past to teach current residents about the histories and lives of past residents. Historic sites, museums, and libraries are just a few resources that give residents and visitors a sense of cultural connectivity to a place. These resources celebrate history and help define an area that people call *home*.

### HISTORIC PLACES

*The National Register of Historic Places* lists all types of facilities and infrastructure that help define a community. Whether it is first schoolhouse in town or even just the home of a resident who played a vital role in the success of the community, the *Register* lists all types of historic features that characterize the area. Table C.27 summarizes the five National Historic Sites and their location throughout Sherman County.

These places provide current residents, youth, and visitors with a sense of community. Because of the history behind these sites, and their role in defining a community, it is important to protect these *historic sites* from the impacts natural disasters might have on them.

**Table C.27: List of National Register of Historic Places in Sherman County**

Site Name	Location
Columbia Southern Railroad Passenger Station and Freight Warehouse	Wasco
DeMoss Springs Park	Moro (vicinity)
Mack Canyon Archeological Site	Restricted
Moore, John and Helen, House	Moro (vicinity)
Sherman County Courthouse	Moro

Source: National Register of Historic Places, Sherman County, Oregon

## LIBRARIES AND MUSEUMS

Libraries and Museums are other facilities which a community will use to stay connected. Because all but one city within the county operates a public library, these facilities should be considered a common place for the community to gather during a disaster, as well as and serve a critical function in maintaining a sense of community. Below, Table C.28 lists the libraries and museums located in Sherman County.

**Table C.28: List of Libraries and Museums in Sherman County**

Site Name	Location
Wasco City Library	Wasco
Sherman County Public/School Library	Moro
Sherman County Historical Museum	Moro

Source: Sherman County Website

Museums can also function in maintaining a sense of community as they provide residents and visitors with the opportunity to explore the past and develop cultural capacity. As a preservation of history, it is important to also consider museums in the mitigation process for community resilience, as these structures should be protected in critical times, especially disasters.

## **Community Stability**

### RESIDENTIAL GEOGRAPHIC STABILITY

Geographic stability is often a result of feeling connected to one's community and a measure of one's rootedness. A person's place attachment refers to this sense of community and can often underlies ones efforts to help revitalize a community.<sup>62</sup> When looking at the percentage of regional residential stability one can determine that the higher the number of residents who have stayed in a geographic location, the more likely they are to have a place attachment. Regional residential stability is important to consider in the mitigation process as those who have been here awhile are more likely to have a vested interest in the area and should be more willing to help with hazard mitigation efforts. Table C.29 estimates residential stability across the region. It is calculated by the number of people who have lived in the same house and those who have moved within the same county area a year ago, compared to the percentage of people who have not. Sherman County is estimated to have 86.0-percent of its residents live in the same house or moved within the county. The figures of community stability are relatively consistent across the region.

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<sup>62</sup> Susan Cutter, Christopher Burton, and Christopher Emrich, "Disaster Resilience Indicators for Benchmarking Baseline Conditions," *Journal of Homeland Security and Emergency Management* 7, no. 1 (2010): 9.

**Table C.29: Regional Residential Stability**

<b>County</b>	<b>Geographic Stability Estimate</b>
Sherman County	86.0%
Gilliam County	84.9%
Wasco County	87.0%
Wheeler County	89.8%
Oregon	81.9%

Source: U.S. Census Bureau, 2012-2016 American Community Survey. Geographical Mobility in the Past Year 5-Year Estimates

**HOMEOWNERSHIP**

Another measure of community stability and place attachment is homeownership. One does not seek to be a homeowner in a place they don't feel safe and secure. Residents who become homeowners search for a place in which they are happy, protected, and something they can afford. Homeownership is an indicator that residents will return to a community post-disaster, as these people are economically and socially invested in the community. Likewise, homeowners are more likely to take necessary precautions in protecting their property. Table C.30 identifies owner occupied housing units across the region; the remaining households are either renter occupied or are vacant. Sherman County has the lowest percentage of home owners compared to all of its surrounding counties, but is consistent with Oregon as a whole.

**Table C.30: Regional Homeownership**

<b>County</b>	<b>Homeownership Rate</b>
Sherman County	61.4%
Gilliam County	63.6%
Wasco County	63.8%
Wheeler County	74.4%
Oregon	61.4%

Source: U.S. Census Bureau, 2012-2016 American Community Survey.

**Synthesis**

Community connectivity capacity places a strong emphasis on social structure, trust and norms, as well as cultural resources within a community. In terms of community resilience, these emerging elements of social and cultural capital will be drawn upon to stabilize the recovery of the community. Social and cultural capitals are present in all communities; however, it is dramatically different from one town to the next as they reflect the specific needs and composition of the community residents. A community with low residential stability may hinder the full potential social and cultural resources, adversely affecting the community's coping and response mechanisms.

Place attachment can be determined through a variety of outlets. Sherman County has a wide range of resources that range from social organizations, civic engagement, and cultural capital that help support findings that suggest residents are well connected with a sense of community and regional stability. From higher than average voter turnout percentage to high percentages of regional stability and regional homeownership, Sherman County residents are involved. The county should consider investing time to inform and support its residents to build more resilient and better prepared communities, as they are more likely to return in the event of a disaster. Likewise, it is important to consider the roles such services and facilities can, and will, provide to residents during a disaster event.



# Political Capital

## Government Structure

In Sherman County, the administrative office is the office of the County Court. Sherman County is a general law county governed by a three member County Court, consisting of a County Judge and two Commissioners. The County Judge is a nonpartisan, full time position serving a six-year term. The Judge functions as the day-to-day administrator of the county as well as chairman of the board and as Juvenile and Probate Judge. The two Commissioners are partisan positions who serve part time for a four year term. The Commissioners and Judge acting as the County Court, set policy for and represent Sherman County in various forums. The County Court oversees all non-elected departments of the County. Although the County Court shares the actual administration of county affairs with the elective department heads, it is, nevertheless, the focal point for decisions that must be made locally with respect to county affairs. The court is served by a full time appointed court administrator.

Each of the participating cities is governed by a mayor and council form of government and are provided emergency services by a mix of county, private and volunteer services.

All the departments within the governance structure have some degree of responsibility in building overall community resilience. Each plays a role in ensuring that the county functions and normal operations resume after an incident, and the needs of the population are met. Some divisions and departments of Sherman County government that have a role in hazard mitigation include:

- **Sherman County Prevention:** provides educational information to the public and youth regarding unsafe and unhealthy behaviors. The long-term goal of the Sherman County Prevention Program is to decrease youth consumption of alcohol and drugs, to decrease dangerous sexualized behavior, and to increase suicide prevention — all using nationally recognized and recommended strategies. Through the collaborative efforts throughout Sherman County, the Prevention Program submits statistical data gathered through surveys to the State of Oregon to identify areas of concern specific to Sherman County. By building relationships in the community, the Prevention Program aims to foster communication and the ability for Sherman County citizens to ask for help from individuals and families.
- **Emergency Services:** coordinates human and financial resources to provide the citizens of Sherman County and the public at large with the optimum level of emergency services. This department represents Sherman County Emergency Services at the regional, state and federal level when it is necessary to preserve or advance the County's interests. The Director serves as the County Disaster Preparedness Officer, 911 Coordinator and Fire Departments' Administrator, assists in recruitment and retention of volunteers in emergency services, writes grants for additional resources for emergency services, and oversees the operations of Rescue

One. The Emergency Services Advisory Committee provides guidance on policy and budget.<sup>63</sup>

- **Fair Ground Facilities:** The Fairgrounds are located about 1 mile from Highway 97 in Moro, and serves as an entertainment venue but can be considered a staging site for response efforts. Mitigation could include specific actions to ensure the facilities could be used during response; such as extra power should it need to be used as a shelter.
- **Health and Human Services:** The North Central Public Health District serves citizens of Sherman, Gilliam and Wasco Counties, and is responsible for enforcement and administration of public and environmental health laws of federal, state, and county government. The North Central Public Health District conducts activities necessary for the preservation of health, prevention of disease, and protection of the public by following the three core public health functions: assessment, monitoring, and policy development. Furthermore, the Public Health Emergency Preparedness (PHEP) Program develops plans and procedures to better prepare the counties to respond, mitigate, and recover from all public health emergencies.<sup>64</sup>
- **Planning:** performs all functions relating to the principles and practices of Oregon Land Use planning for Sherman County, including processing applications and inquiries regarding Land Use Planning. The goals of this department are to encourage the most appropriate use of land; aid in the provision of county services; conserve and stabilize the value of property; encourage the orderly growth of the County; and, in general, to promote the public health, safety, convenience, and general welfare through the implementation of the County's Comprehensive Land Use Plan..<sup>65</sup>
- **Road Department:** responsible for the planning, maintenance, and construction of county roads in Sherman County. This Department addresses many different issues — from road debris removal to washboards and sometimes wash outs. The Road Department's eight members tackle many different objectives to maintain Sherman County's 484 miles of county roads. Duties range from rock crushing and snow removal to maintaining vegetation along road right-of-ways. The Rural Road Advisory Committee establishes five-year plans directing the work of the Road Department. Rural Road Advisory Committee members make recommendations on new construction projects as well as on modernization projects. They also provide input for road standards on Sherman County roads. The Sherman County Road Department manages 484 miles of road, of which: 134 miles are pavement, 295 miles are gravel, and 55 miles are country dirt roads for resident or field access.

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<sup>63</sup> Sherman County Website. Departments. Emergency Management.  
<https://www.co.sherman.or.us/departments/emergency-services/>.

<sup>64</sup> North Central Public Health District Website. <http://ncphd.org/>.

<sup>65</sup> Sherman County Website. Departments. Planning.  
<https://www.co.sherman.or.us/departments/planning-department/>.

- **Sherman County Community Transit:** provides public bus transportation service throughout Sherman County to The Dalles, Portland, and other cities for shopping, medical appointments, and special events. Sherman County receives Oregon Department of Transportation (ODOT) Special Transportation Funds (STF), Federal 5310 Capital Funds, and State/Federal Discretionary Grant Funding to provide priority transportation to seniors and disabled persons — and public transportation to others as space allows. Veterans also are provided free medical rides by appointment. There are no required fares. All rides must be reserved a minimum of 24 hours to 48 hours in advance.<sup>66</sup>
- **Sheriff's Office:** The mission of the Sherman County Sheriff's Office is to become an integral part of the community by building mutual trust and partnership in an effort to improve the quality of life as a means of preventing crime and resolving issues of mutual concern. The Sheriff is responsible for maintaining the peace within the county and is directly accountable to the people, running for election every four years. Responsibilities are diverse and intensive. Operations run the gamut from law enforcement duties, to the delivery of civil papers, execution of court orders, incarceration of offenders, organizing search and rescue operations, marine patrol, and preparing for and coordinating responses to man-made and natural disasters.<sup>67</sup>
- **Weed Department:** responsible for preventing the establishment and spread of noxious weeds in accordance with County, State and Federal weed laws, and to encourage and assist in organization of noxious weed control and education programs and cooperate with governmental and private agencies and individuals in developing weed control measures and projecting long-term effects on the economic well-being of Sherman County.<sup>68</sup> The department can help to prioritize projects for mitigation and will be a key partner in implementation as well, especially projects related to wildfire prevention.

## Existing Plans & Policies

Communities often have existing plans and policies that guide and influence land use, land development and population growth. Such existing plans and policies can include comprehensive plans, zoning ordinances and technical reports or studies. Plans and policies already in existence have support from local residents, businesses and policy makers. Many land-use, comprehensive and strategic plans get updated regularly, and can adapt easily to changing conditions and needs.<sup>69</sup>

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<sup>66</sup> Sherman County Website. Departments. Transit District  
<https://www.co.sherman.or.us/departments/sherman-transit/>

<sup>67</sup> Sherman County Website. Departments. Sherriff Office.  
<https://www.co.sherman.or.us/departments/sheriff/>

<sup>68</sup> Sherman County Website. Departments. Weed Department.  
<https://www.co.sherman.or.us/departments/weed-district/>

<sup>69</sup> Burby, Raymond J., ed. 1998. Cooperating with Nature: Confronting Natural Hazards with Land-Use Planning for Sustainable Communities.

The Sherman County Natural Hazards Mitigation Plan includes a range of recommended action items that, when implemented, will reduce the county's vulnerability to natural hazards. Many of these recommendations are consistent with the goals and objectives of the county's existing plans and policies. Linking existing plans and policies to the Natural Hazards Mitigation Plan helps identify what resources already exist that can be used to implement the action items identified in the Plan. Implementing the natural hazards mitigation plan's action items through existing plans and policies increases their likelihood of being supported and getting updated, and maximizes the county's resources.

The participating cities each have limited capacity and planning documents. As required by Oregon law each city has a comprehensive plan – Grass Valley (1978), Moro (2003), Rufus (1978) and Wasco (2003) - which provide for orderly development within the cities and account for a limited framework for each city to protect life and property from natural disasters and hazards.

The following are a list of plans and policies already in place in Sherman County:

- North Sherman County Watershed Council Action Plan, 2006
- Sherman County Coordinated Transportation Plan, 2015
- Sherman County Ambulance Service Area Plan, 2011
- Sherman County Community Wildfire Protection Plan, 2009
- Sherman County Comprehensive Land Use Plan, 2007
- Sherman County Emergency Operations Plan, 2010
- Sherman County Zoning, Subdivision, Partitioning and Land Development Ordinance, 2003

**SHERMAN COUNTY COMMUNITY WILDFIRE PROTECTION PLAN**

- Date of Last Revision: 2009
- Author/Owner: Sherman County
- Description: The plan is a result of a county-wide effort initiated to identify and prioritize wildfire hazards and to develop a strategy to reduce those hazards. The plan assists the county, the communities within the county, and the fire districts in making them eligible and securing grants and/or other funding sources to treat hazardous fuel situations and to better prepare residents for wildfires that may occur. It includes a strategy with action projects which, when implemented, will decrease the potential for large wildfires in the county and reduce the potential loss of property values and threat to human life.
- Relationship to the Natural Hazards Mitigation Plan: the Community Wildfire Protection Plan (CWPP) is intended to be adopted for incorporation within the Sherman County Natural Hazards Mitigation Plan. The CWPP contains goals and actions that seek to minimize the risk of wildfire hazards to the county.

**SHERMAN COUNTY COMPREHENSIVE PLAN**

- Date of Last Revision: 2007
- Author/Owner: Sherman County
- Description: The Sherman County Comprehensive Plan is intended to assure that: 1) changes in land use are carefully considered for their short and long

term impacts; 2) rational decisions are made and based upon factual data; 3) the community guides the use of all land; 4) equal and adequate protection is given to the rights of all landowners and citizens; and 5) actions and policies of all levels of government are coordinated. It is a legal document upon which investments for the future, by government and private enterprise, may be based with confidence.

- Relationship to the Natural Hazards Mitigation Plan: Physical Characteristics - Section XI of the Sherman County Comprehensive Plan conforms to meet with Statewide Planning Goal 7, Areas Subject to Natural Hazards. Goals and policies within this section of the plan relate to goals and actions identified in the Natural Hazards Mitigation Plan for the county.

#### **CITY OF MORO COMPREHENSIVE PLAN**

- Date of Last Revision: June 2007
- Author/Owner: City of Moro
- Description: The City of Moro Comprehensive Plan is intended to assure that: 1) changes in land use are carefully considered for their short and long term impacts; 2) rational decisions are made and based upon factual data; 3) the community guides the use of all land; 4) equal and adequate protection is given to the rights of all landowners and citizens; and 5) actions and policies of all levels of government are coordinated. It is a legal document upon which investments for the future, by government and private enterprise, may be based with confidence.
- Relationship to the Natural Hazards Mitigation Plan:

#### **CITY OF RUFUS COMPREHENSIVE PLAN**

- Date of Last Revision: June 2007
- Author/Owner: City of Rufus
- Description: The City of Rufus Comprehensive Plan is intended to assure that: 1) changes in land use are carefully considered for their short and long term impacts; 2) rational decisions are made and based upon factual data; 3) the community guides the use of all land; 4) equal and adequate protection is given to the rights of all landowners and citizens; and 5) actions and policies of all levels of government are coordinated. It is a legal document upon which investments for the future, by government and private enterprise, may be based with confidence.
- Relationship to the Natural Hazards Mitigation Plan:

#### **CITY OF GRASS VALLEY COMPREHENSIVE PLAN**

- Date of Last Revision: June 2007
- Author/Owner: City of Grass Valley
- Description: The City of Grass Valley Comprehensive Plan is intended to assure that: 1) changes in land use are carefully considered for their short and long term impacts; 2) rational decisions are made and based upon factual data; 3) the community guides the use of all land; 4) equal and adequate protection is given to the rights of all landowners and citizens; and 5) actions and policies of all levels of government are coordinated. It is a legal document upon which

investments for the future, by government and private enterprise, may be base with confidence.

- Relationship to the Natural Hazards Mitigation Plan:

#### **CITY OF WASCO COMPREHENSIVE PLAN**

- Date of Last Revision: June 2007
- Author/Owner: City of Wasco
- Description: The City of Wasco Comprehensive Plan is intended to assure that: 1) changes in land use are carefully considered for their short and long term impacts; 2) rational decisions are made and based upon factual data; 3) the community guides the use of all land; 4) equal and adequate protection is given to the rights of all landowners and citizens; and 5) actions and policies of all levels of government are coordinated. It is a legal document upon which investments for the future, by government and private enterprise, may be base with confidence.
- Relationship to the Natural Hazards Mitigation Plan:

#### **SHERMAN COUNTY EMERGENCY OPERATIONS PLAN**

- Date of Last Revision: August 2010
- Author/Owner: Sherman County
- Description: The Emergency Operations Plan (EOP) is an all-hazard plan that describes how Sherman County will organize and respond to emergencies and disasters in the community. It is recognized that response to emergency or disaster conditions in order to maximize the safety of the public and to minimize property damage is a primary responsibility of government. It is the goal of Sherman County that responses to such conditions are conducted in the most organized, efficient, and effective manner possible. To aid in accomplishing this goal, Sherman County has incorporated the principles of the National Incident Management System (NIMS) and Incident Command System (ICS) into emergency operations, plans, and ongoing activities.
- Relationship to the Natural Hazards Mitigation Plan: By in large, the EOP attempts to be all-inclusive in combining the following four phases of emergency management:
  - *Mitigation:* activities that eliminate or reduce the vulnerability to disasters;
  - *Preparedness:* activities that governments, organizations, and individuals develop to save lives and minimize damage;
  - *Response:* activities that prevent loss of lives and property and provide emergency assistance; and
  - *Recovery:* short- and long-term activities that return all systems to normal or improved standards.

#### **SHERMAN COUNTY TRANSPORTATION SYSTEM PLAN**

- Date of Last Revision: 2015
- Author/Owner: Kittleson and Associates/Sherman County
- Description: The Sherman County Transportation System Plan documents the County, Cities, and ODOT's priority programs that are to be carried forward for funding and implementation over the next 20 years. The TSP builds consensus

among the Cities within Sherman County, the County and ODOT on the transportation needs and priority projects for the communities, and is based on input from local citizens, stakeholders, staff and appointed and elected officials. The County has prioritized building livable, connected communities. The TSP is intended to be flexible to respond to changing community needs and revenue sources over the next 20 years.

- Relationship to the Natural Hazards Mitigation Plan: Transportation systems are important is evacuating and responding to natural disasters. Mitigation actions that focus on strengthening transportation systems can be incorporated into the Sherman County Transportation System Plan.

## Synthesis

Political capital is recognized as the government and planning structures established within the community. In terms of hazard resilience, it is essential for political capital to encompass diverse government and non-government entities in collaboration; as disaster losses stem from a predictable result of interactions between the physical environment, social and demographic characteristics and the built environment.<sup>70</sup>

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<sup>70</sup> Mileti, D. 1999. Disaster by Design: a Reassessment of Natural Hazards in the United States. Washington D.C.: Joseph Henry Press.