



2013 Washington State Enhanced State Hazard Mitigation Plan

*Introduction*¹

Washington is one of the Pacific states of the United States of America. It is bounded on the north by the Canadian province of British Columbia, on the east by Idaho, on the south by Oregon, and on the west by the Pacific Ocean.

A series of marine channels in the northwest – the Strait of Juan de Fuca, Haro Strait, and the Strait of Georgia – separate the state from Canada's Vancouver Island. Puget Sound deeply indents the northwestern part of the state. These bodies of water contain numerous islands that form part of the state. The Columbia River forms much of the southern boundary.

The terrain of the state is extremely varied, including mountain ranges, forests, plateaus, lowlands, and small islands. The Cascade Range runs north to south bisecting the state. From the Cascades westward, the state has a predominately marine west coast climate while east of the Cascades has a relatively dry climate.

Formerly known primarily for its agricultural and forestry products, by the early 1990s Washington State had developed a highly diversified economy. Although the state remained a leading national producer of products such as apples, wheat, and timber, manufacturing had become a leading sector of the economy. Tourism and other services also were important; the state's diverse scenic wonders attract hundreds of thousands of visitors annually. The largest employers in the state include the U.S. military, Boeing, Microsoft, University of Washington, and the state government.

The state is comprised of 39 counties. George Washington is the state's namesake; the state's nickname is the Evergreen State.

The following sections provide a summary of the state's profile on key indicators hinting at the state's subjective ability to weather a disaster and bounce back. This is not a formal capability assessment or a resiliency methodology but it does inform the risk assessment done in the hazard profiles listed later. The summary starts with the geography, moves to economic considerations, and ends with the state's demographics.

Overall, Washington State's geography provides some significant benefits like diverse landscapes, abundant recreational opportunities, ample natural resources, and deep water ports. However, the state's geology and location exposes it to significant natural hazards. Nonetheless, the state's economic activities and demographics put it into the top 15 states in the country on various ranking methodologies. However, just in time inventory processes using an infrastructure system with multiple chokepoints where single point failures occur, can have detrimental if not disastrous consequences on the economic vitality of the state. As a result, people in the state may be more vulnerable to a disaster's impact than a quick scan of the statistics.



Figure 1. State of Washington Topographic Map



State Economic Profile

Requirement 44 CFR §201.4(c)(2): Overview. [The plan must include] risk assessments that provide the factual basis for activities proposed in the strategy portion of the mitigation plan. Statewide risk assessments must characterize and analyze natural hazards and risks to provide a statewide overview. This overview will allow the State to compare potential losses throughout the State and to determine their priorities for implementing mitigation measures under the strategy, and to prioritize jurisdictions for receiving technical and financial support in developing more detailed local risk and vulnerability assessments.

All things economic have their roots in the geography of the area.

Geography

Washington State's 66,582 square miles make it the 20th largest state in the country. The state is roughly half the area of Japan, three quarters the size of Great Britain, and about 40 percent the area of California. It is roughly rectangular, with dimensions of 235 miles from north to south and 345 miles



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from east to west. Elevations range from sea level to 14,410 feet at the summit of Mount Rainier. Washington's coastline on the Pacific Ocean is 157 miles.

The western section of Washington is part of the Coast Range region. In the southwest, the mountains, known locally as the Willapa Hills, form the lowest segment of the Pacific Coast range; the highest elevation here is about 3,110 feet. By contrast, the Olympic Mountains, which lie north of the Chehalis River valley, have some of the highest elevations in the Pacific mountain system. Mount Olympus, the highest peak, reaches 7,954 feet. With their deep glacial valleys and snowcapped summits, the Olympic Mountains offer some of the most spectacular scenery of the Coast Range.

To the east is the Puget Lowland, a structural depression that extends the length of the state. The maximum elevation is about 500 feet, and the surface is generally flat, although in places marked by hummocky glacial deposits. Puget Sound penetrates more than half of the basin's length.

The rugged, geologically complex Cascade Range lies east of the Puget Lowland. From the vicinity of Mount Rainier southward, the Cascade Range is a volcanic tableland, studded with cones including Mount Adams and Mount St. Helens. The northern section of the range is primarily a granitic mass that includes the most extensive valley glaciers in the lower 48 states; the state's two other volcanoes, Mount Baker and Glacier Peak, are found here. The 1980 eruption and subsequent activity of Mount St. Helens demonstrates continued mountain building in the volcanic Cascades.

Further east, the Columbia Plateau dominates the southeastern part of the state. Vast lava flows formed this huge basin. The Columbia and Snake rivers have cut deep trenches in the Columbia Plateau. The Palouse Hills in the southeast section of the plateau is one of the state's most important agricultural regions. In the extreme southeast corner are the relatively low-lying Blue Mountains at 6,000 feet.

Part of the Rocky Mountains crosses the northeastern corner of Washington; several peaks have elevations exceeding 7,000 feet.

Rivers and Lakes

The Columbia River, the largest river in the western United States, drains the eastern half of Washington State. The river provides vast hydroelectric power to the region. The Columbia's principal tributaries include the Snake, Spokane, Wenatchee, and Yakima rivers. Many smaller rivers flow west from the Cascade Range and the Coast Ranges. The most important of these is the Chehalis River, which rises in the Willapa Hills and flows north and west to Grays Harbor, an inlet of the Pacific Ocean. Other rivers include the Cowlitz, Nisqually, and Skagit rivers.

Puget Sound, about one-fifth the size of Lake Erie, is an inlet of the Pacific Ocean; with its numerous arms, it is the state's most significant body of water. Lake Chelan, a long, narrow glacial lake in the Cascade Range, is the largest natural lake in Washington. Dams on the Columbia River have created large artificial lakes. Among these are Franklin D. Roosevelt Lake (behind Grand Coulee Dam) and Banks Lake (behind Dry Falls Dam).

Climate

Washington's climate varies greatly from west to east. A moist and mild maritime climate predominates in the western part of the state, and a cooler dry climate prevails east of the Cascade Range. The



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average annual temperature ranges from 51° F on the Pacific coast to 40° F in the northeast. The recorded low and high temperatures in the state have ranged from -48° F in 1968 to 118° F in 1961.

A wet, marine West Coast climate predominates in Western Washington; it is mild for its latitude due to the presence of the warm North Pacific Current offshore and the relatively warm maritime air masses. The region has frequent cloud cover, considerable fog, and long-lasting drizzles; summer is the sunniest season.

The western side of the Olympic Peninsula receives as much as 150 inches of precipitation annually, making it the wettest area of the lower 48 states. Weeks may pass without a clear day. Portions of the Puget Sound area, on the leeward side of the Olympic Mountains, are less wet, although still humid, at 50 inches of precipitation annually.

The western slopes of the Cascade Range receive some of the heaviest annual snowfall in the country, in some places more than 200 inches. In the rain shadow east of the Cascades, the annual precipitation is only six inches. Precipitation increases eastward toward the Rocky Mountains, however.

The climate east of the Cascade Mountains has characteristics of both continental and marine climates. Summers are warmer, winters are colder, and precipitation is less than in western Washington. Extremes in both summer and winter temperatures generally occur when air from the continent influences the inland basin.

Annual precipitation ranges from seven to nine inches near the confluence of the Snake and Columbia Rivers in the Tri-Cities area to 15 to 30 inches along the eastern border. During July and August, four to eight weeks can pass with only a few scattered showers. Thunderstorms and a few damaging hailstorms are reported each summer. During the coldest months, freezing drizzle occasionally occurs, as does a Chinook wind that produces a rapid rise in temperature.

Economy

Before its settlement in the mid-19th century, the region that is now Washington State was important for its fur-trapping industry. Agriculture and lumbering gradually developed around Puget Sound and in some outlying areas. A major stimulus to the development of these embryonic economies was the construction of transcontinental and north-south railroads in the late 19th century. By the end of the century, shipping had become important. In the 20th century, the construction of dams on the Columbia River provided irrigation water for the dry farmlands of the east and furnished cheap electric power. Manufacturing began its rapid growth in the state in the World War II period, when the federal government established defense industries here.

According to the U.S. Bureau of Economic Analysis, the top 5 employment industries in Washington, Government, Health Care and Social Assistance, Retail Trade, Manufacturing, and Professional, Scientific, and Technical Services, made up more than fifty percent of the state employment (3,828,602 persons) as of 2011 (see Table 2, below). With the exception of government, all of these areas experienced slight growth over a twelve month period. Not only were these industries top employers in the state, all 5 were also in the top 10 industries contributing to Washington's gross domestic product (GDP). Washington State ranked 14th in state GDP and 11th in state GDP growth for 2011 per US BEA statistics.



Table 1. Washington Key Employment Industries, 2011

WA Industry	WA 2011 Employment	WA Gross Domestic Product (GDP)	% WA GDP
Government	625,354	\$52,757,000,000	14.90%
Manufacturing	285,924	\$44,135,000,000	12.40%
Real Estate and Rental and Leasing	180,007	\$43,123,000,000	12.10%
Information	115,125	\$31,283,000,000	8.80%
Professional, Scientific, and Technical Services	281,428	\$25,490,000,000	7.20%
Retail Trade	385,483	\$25,057,000,000	7.10%
Health Care and Social Assistance	389,696	\$24,798,000,000	7.00%
Wholesale Trade	134,801	\$19,633,000,000	5.50%
Finance and Insurance	159,338	\$17,317,000,000	4.90%
Construction	192,146	\$12,883,000,000	3.60%
Administrative and Waste Management Services	191,508	\$10,403,000,000	2.90%
Accommodation and Food Services	245,567	\$10,104,000,000	2.80%
Transportation and Warehousing	110,649	\$9,724,000,000	2.70%
Other Services, Except Government	198,003	\$8,023,000,000	2.30%
Agriculture, Forestry, Fishing, and Hunting	120,346	\$6,393,000,000	1.80%
Management of Companies and Enterprises	35,373	\$5,042,000,000	1.40%
Utilities	5,260	\$3,416,000,000	1.00%
Arts, Entertainment, and Recreation	91,264	\$2,700,000,000	0.80%
Educational Services	73,244	\$2,094,000,000	0.60%
Mining	8,086	\$710,000,000	0.20%
Washington State	3,828,602	\$355,083,000,000	100%

Source: Bureau of Economic Analysis, Regional Data, GDP & Personal Income, 2011: Total Full-time and Part-time Employment by Industry, Gross Domestic Product.

International Trade²

Washington has over 75 public deep-water ports, 139 airports, more than 7,000 miles of highways, and 3,600 miles of railways, making it one of the top trade hubs in the world. In 2011, Washington exports reached \$64.6 billion (a 21 percent increase from the previous year). In 2010, the top export markets for Washington State were Mainland China (accounting for the largest share at more than \$10 billion), followed by Canada at \$7 billion. Additional top trade partners include Japan, Korea, Indonesia, Taiwan, Germany, and Ireland. Washington is the largest U.S. exporter on a per capita basis.

Leading exports included aircraft, engine, and parts, agricultural products, electronic components and parts, fur, and special industry machinery. Leading imports included crude oil and other similar



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products, parts for airplanes or helicopters, motor vehicles, live cattle, coffee, wood products, and televisions and other video and gaming equipment.³

Ports are extremely important to Washington trade. In 2011, more than \$145 billion in goods moved through the state's ports (imports and exports/domestic and international). The top ports were the Ports of Seattle (\$43 billion) and Tacoma (nearly \$28 billion) handling the bulk of the waterborne freight.

Agriculture

As for 2011, the food and agricultural industry was a \$46 billion industry in the state, making up 13 percent of the state's economy and employing approximately 160,000 people. The state leads in the nation in production of eleven crops including apples, sweet cherries, pears, raspberries, and hops, and produces over 300 crops in all. Some of the top grossing commodities include milk, wheat, potatoes, hay, cattle, cherries, nurseries, and grapes. Washington State was ranked 14th in the country in agricultural receipts per 2004 statistics (last year available before state-level statistics were suspended by the USDA Economic Research Service).

As of the 2007 Census of Agricultural, the state had over 36,000 farms (a 9 percent increase since 2002), which average 381 acres. Agriculture is concentrated in the Puget Sound area and the somewhat isolated valleys to the south, in the dry-farmed holdings of the eastern two-thirds of the state, and in the irrigated land on the upper Columbia, Snake, and lesser rivers. Crops make up about two-thirds of the yearly farm income. Wheat, grown primarily in the east, is the state's leading field crop. Fruits, nuts, and berries account for more than one-third of the value of the crops produced in the state.

Livestock products account for about one-third of annual agricultural income. Dairy farming is concentrated in the Puget Sound region and in valleys of the southwest. Cattle and sheep are raised in the drier, eastern part of the state.

The fishing industry is significant, although it is a small part of the state's economy. Ports on Puget Sound and the Pacific Ocean handle almost all landings. According to the National Marine Fisheries Service, in 2011, clam and crab each accounted for about one-quarter of the value of the catch of commercial fishery landings for Washington, followed by oyster, salmon, tuna, and sablefish. Other commercial fish products caught include hake, shrimp, halibut, mussel, and sea cucumber.⁴

Agricultural, forestry, fishing, and hunting (reported as a combined industry) made up 1.8 percent of the Washington's 2011 state gross domestic product.⁵

Forestry

Forestry is a major industry in Washington, second in the nation to Oregon. According to the Washington Timber Harvest 2011 report, about 95 percent of harvested wood is softwood, primarily Douglas fir and western hemlock. Nearly all of the harvest is in the moist valleys of the Cascade Range and to the west. More than 54 percent of the harvest becomes lumber, almost 27 percent exported as round wood, and the remainder used for pulp and plywood.²



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Mining

Metallic mineral resources are primarily in the mountains in the northeastern part of the state. Lead, zinc, magnesium, and gold are present here. Coal deposits are in the western Cascades; sand and gravel are in many areas. The mining industry accounts for less than 1 percent of the annual gross state product in Washington (2011). Leading mineral products include coal, Portland cement, sand and gravel, and stone. Other minerals produced include diatomite, crude gypsum, lime, magnesium, olivine, and silver.

Manufacturing

Manufacturing accounts for 12.4 percent of the annual gross state product in Washington (2011), according to the U.S. Bureau of Economic Analysis. The leading manufactured products include transportation equipment, primarily aircraft and aerospace equipment; computer and electronic products (including microchips); lumber and wood products; paper; food products; industrial machinery; primary metals; printed materials; and precision instruments. Most industry is concentrated in the urbanized corridor along Puget Sound between Bellingham in the north and Olympia in the south. Seattle and Tacoma are the primary industrial centers of the state. The processing of commodities from forestry, farming, and fishing tends to be located near the sources of raw materials. The state is 2nd in manufacturing in the country.



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Tourism⁶

Tourism is an important state industry. Spending had been climbing steadily but took a hit due to the national recession in 2008. Total direct travel spending last peaked in 2008 at approximately \$13.3 billion. This amount fell to below \$12.5 billion in 2008 and has steadily rebounded to about \$13.9 billion in 2011. Travel spending showed a 5.0 percent increase from 2010-2011 (mostly due to increase in hotel costs). However, there has also been a slight increase in the employment indicating potential for real growth in the industry.

Between 2007 and 2010, a majority of visitors (66 percent) were from outside of the Washington, including 11 percent international.

The state's major attractions are both rural and scenic, including three national parks – Mount Rainier, Olympic, and North Cascades – three national recreation areas – Lake Chelan, Coulee Dam/Lake Roosevelt, and Ross Lake – two natural monuments – Mount St. Helens National Volcanic Monument and Hanford Reach National Monument - and extensive areas of national forests including Olympic National Forest and Gifford Pinchot National Forest. In addition, the state maintains a system of 110 parks developed for recreational use. Seattle is the leading urban tourist attraction; its Space Needle and monorail, built for the Century 21 Exposition, the world's fair of 1962, are still in use.

Accommodations and food services as well as arts, entertainment, and recreation made up a combined 3.5 percent of the state's gross domestic product in 2011.

Transportation

Washington has a network of about 87,500 miles of federal, state, and local roads. This figure includes 764 miles of interstate highways, 7,000 miles of state routes, and 40,000 miles of county roads that cross the state from north to south and from east to west. The road system is densest in the heavily populated Puget Sound region. Twenty-three railroads serve Washington with over 3,215 miles of track. Washington is 20th in the nation in miles of rail.

Seattle, Tacoma, Kalama, Longview, and Bellingham are the most important of Washington's ports. Although most ports are located on Puget Sound or the Pacific coast, several are located on the upper Columbia River; oceangoing and river barges can navigate upstream by a 24-foot deep channel as far as the Tri-Cities (Kennewick, Pasco, and Richland). Ferries connect key points on Puget Sound with one another and with Victoria, British Columbia and Alaska. Washington State has the largest ferry system in the nation. A crude-oil pipeline reaches Puget Sound from Alberta; natural-gas pipelines extend from British Columbia to Spokane and from Alberta through Spokane to Oregon and California.

Washington has 135 airports according to the Washington State Department of Transportation. The Seattle-Tacoma and Spokane International airports dominate air traffic in the state. The former is also an important terminus for trans-pacific flights. The Bellingham, Grant County, William R. Fairchild, and Jefferson County airports are also international,

Transportation (which includes warehousing) made up 2.7 percent of the state's gross domestic product in 2011 according to the U.S. Bureau of Economic Analysis.



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Energy

There are 96 energy producing plants in Washington that have a total installed capacity of 24,098 megawatts and produces about 904 trillion Btu of electricity each year.⁷ Washington leads the nation in both installed capacity and annual production of hydroelectricity. The state produces 29 percent of the nation's net electricity but is 21st overall in energy production. The Grand Coulee, Chief Joseph, and John Day Dams are the key units in a system that includes six major dams on the Columbia River, four on the Snake River, and others on lesser rivers. The Grand Coulee is the largest hydroelectric power producer in the United States.

Hydroelectric facilities produce about three-quarters of the annual output of electricity, with conventional thermal installations, wind turbines, and one nuclear power station producing the rest. The state ranks sixth in the Nation for wind energy generation. The State of Washington's Energy Independence Act requires large electric utilities to obtain 15 percent of their electricity from new renewable energy resources by 2020.⁸

Given its ability to produce large amounts of energy, often in excess of need, the state exports some electricity during various times of the year.

Government^{9, 10}

A Constitution adopted in 1889 and amended since then governs Washington State. The Constitution prevents a strong centralized state government. There are six statewide elected positions besides the governor that administer state agencies. Additionally, several state agencies are run by appointed commissions instead of reporting to the governor. Local governments provide basic services within counties and incorporated cities and towns, with special purpose districts allowed to provide services outside of cities and towns when the county was unable to do so.

The home-rule philosophy of government in Washington State focuses on people maintaining control of government services and actions at the lowest local level. This fosters a multitude of government organizations and results in more collegial intergovernmental interactions rather than the state directing or managing governmental activities.

Washington has 39 counties, most of which are governed by popularly elected three-member Boards of Commissioners. Other elected county officials included the Assessor, Auditor, Treasurer, Coroner, Clerk, Sheriff, and Prosecuting Attorney. Larger counties, including King, Pierce, and Snohomish Counties, have an elected County Executive and a larger elected County Council. Most of the state's 268 towns and cities have a mayor-council form of government. Some cities have a city manager-council form of government, with an elected council that hires a city manager or administrator to run day-to-day operations.

The state has a bicameral Legislature, with popularly elected Senate and House of Representatives. The 49 members of the Senate serve four-year terms, and the 98 members of the House of Representatives serve two-year terms. Two Representatives and one Senator represent each of the state's 49 legislative districts.



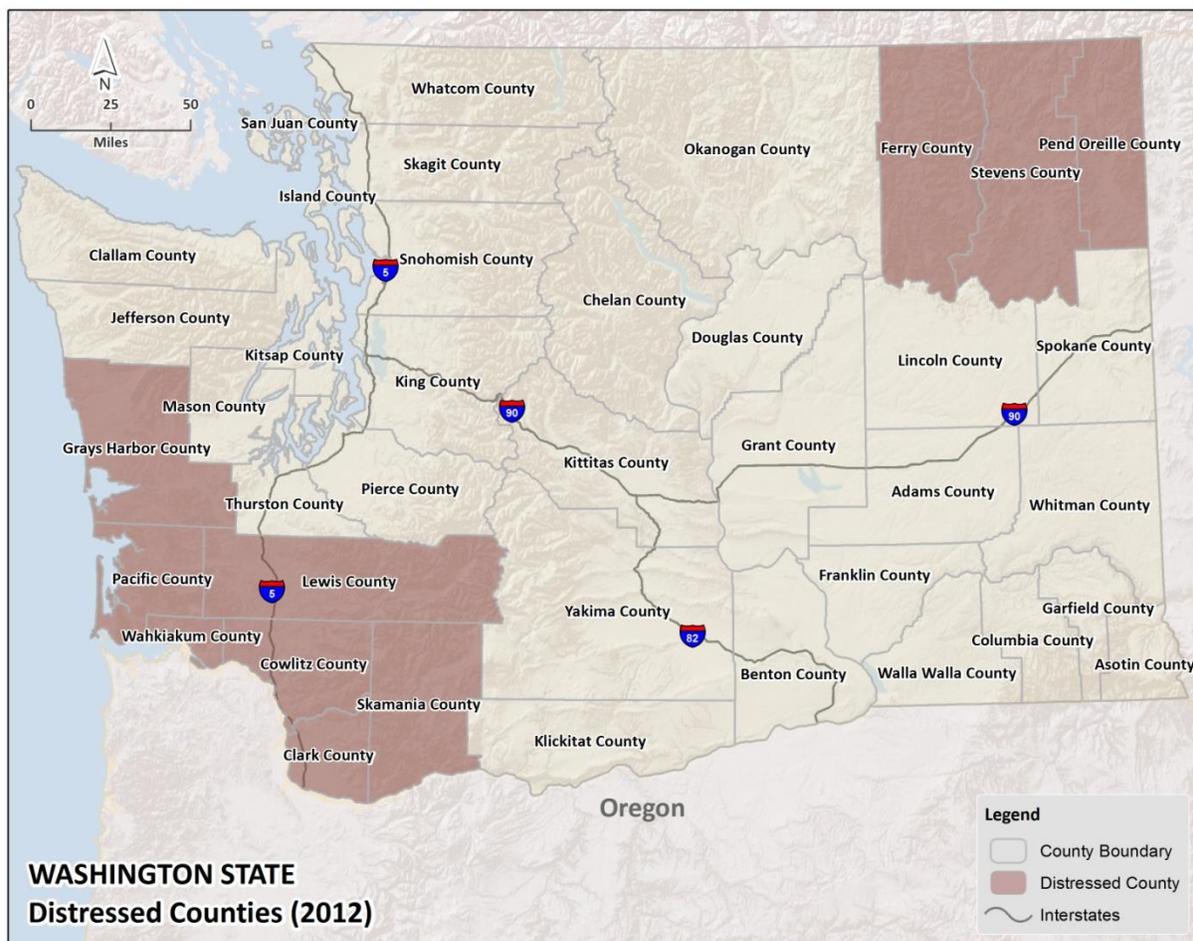
Washington's Supreme Court has a chief justice and eight associate justices. The intermediate appellate court is the 22-member Court of Appeals, and the major trial courts are the Superior Courts of the counties, which have 147 judges. Voters elect the judges of all these courts on nonpartisan ballots.

Government jobs made of 14.9 percent of the state's gross domestic product in 2011 according to the U.S. Bureau of Economic Analysis.

Unemployment Rates and Distressed Areas in Washington¹¹

Figure 1 below identifies all counties with a three-year average (January 2009 – December 2011) unemployment rate equal to or greater than 120 percent of the statewide unemployment rate. For the period from January 2009 to December 2011, Washington had a three year average of 9.5 percent. A distressed county indicator would be a value of 11.4 percent or greater. As of 2012, ten counties were identified as distressed. This is a decreased of eight counties from the 2009 data, though the statewide unemployment rate has also increased dramatically (up from 4.9 percent).

Figure 2. Washington State Distressed Counties (January 2009 - December 2012)



Source: [Washington State Employment Security Department](#)¹²



State Demographic Profile

Approximately half of Washington’s total population lives in the Seattle metropolitan area (Seattle, King County, Snohomish County, and Pierce County) located along the Puget Sound. This area is the center of transportation, business, and industry and is the fastest growing region in the state.

State of Washington has a population of over 6.8 million, which is expected to continue to increase in the coming decades. Understanding population is critical in order to understand where vulnerabilities are and how to best mitigate those vulnerabilities. It is also helpful to understand populations in order to know how to stage response equipment and where recovery efforts may need to be concentrated.

Since 2000, the population in Washington has become more racially and ethnically diverse. Minority residents primarily live in metropolitan counties, such as King, Pierce, Snohomish, and Yakima counties. The population is also growing older each year, and the elderly population in the state continues to rise. The counties with largest elderly populations, proportional to county size, include Jefferson, Wahkiakum, Pacific, Clallam, and San Juan counties.¹³

Population

As of April 1, 2012, the population of Washington was estimated at 6,817,770. This is an increase of nearly 50,000 persons from the previous year. The state’s population grew 15.7 percent from 2000. The population is projected to rise another 9 percent by 2020 and then increase slightly over the 30-year forecast (projected to over 8 million by 2040) according to the State Office of Financial Management Forecasting Division. Washington State is the 13th most populous state in the country.

According to the April 1, 2012 estimates by the State Office of Financial Management, the 10 largest cities in the state (2012 estimates) and their growth since the 2000 Census are shown in Table 1 below:

	City	2000 Population	2012 Population	Change 2000-2012
1.	Seattle	563,376	616,500	9.4%
2.	Spokane	195,629	210,000	7.4%
3.	Tacoma	193,556	199,600	3.1%
4.	Vancouver	143,560	163,200	13.7%
5.	Bellevue	109,827	124,600	13.5%
6.	Kent	79,524	119,000	49.6%
7.	Everett	91,488	103,300	12.9%
8.	Renton	50,052	93,910	87.6%
9.	Yakima	71,845	91,930	28.0%
10.	Spokane Valley*	82,985 (2003 population)	90,550	9.1%
* Incorporated in 2003. Percent change value represents 2003-2012 population.				

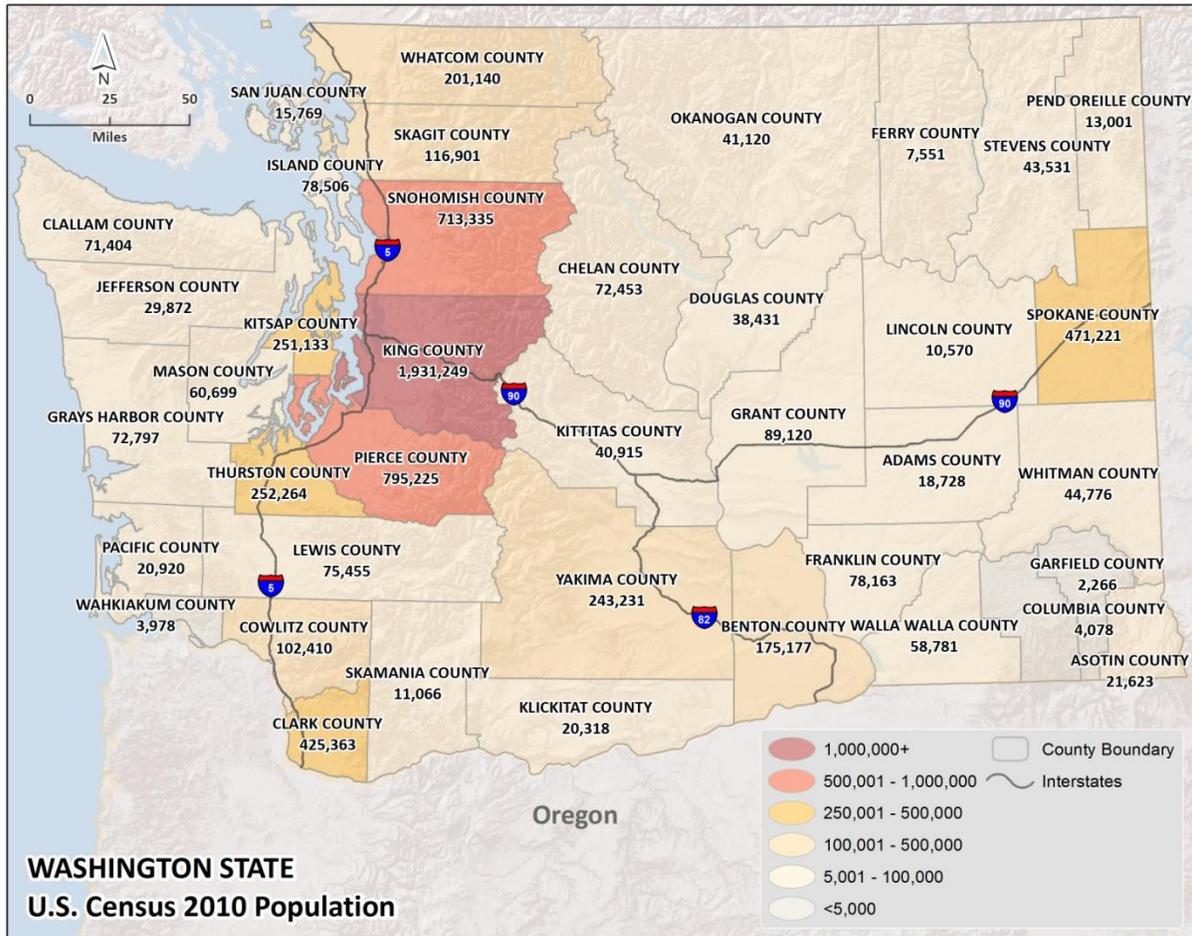
Figure 3 below shows the actual population numbers of counties throughout the state. Table 3, below, shows the population growth of the state and counties from 2000 to 2012 as well as the projected rate of growth through the year 2025. Lastly, Figure 4 below shows the population throughout the state.



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Franklin County was the fastest growing county from 2000 to 2012, and it is expected to remain the fastest growing county through the year 2025. Adams, Benton, Clark, Douglas, Franklin, Grant, Kittitas, Mason, Snohomish, Thurston, and Whatcom counties also had populations that grew faster than the state as a whole. Conversely, Garfield County had the greatest population loss during the same period, and it is projected to see additional loss through the year 2025. Pacific County also experienced a decline in population from 2000 to 2012.

Figure 3. 2010 Population by County





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Table 3. Population Growth

	2000 Population	2010 Population	% Change '00 to '10	Est. 2012 Population	% Change '00 to '12	2025 Pop. Projection	Est. % Change '12 to '25
Adams	16,428	18,728	14.0%	19,050	16.0%	22,964	20.5%
Asotin	20,551	21,623	5.2%	21,700	5.6%	22,196	2.3%
Benton	142,475	175,177	23.0%	180,000	26.3%	210,803	17.1%
Chelan	66,616	72,453	8.8%	73,200	9.9%	81,885	11.9%
Clallam	64,179	71,404	11.3%	72,000	12.2%	75,022	4.2%
Clark	345,238	425,363	23.2%	431,250	24.9%	508,124	17.8%
Columbia	4,064	4,078	0.3%	4,100	0.9%	3,968	-3.2%
Cowlitz	92,948	102,410	10.2%	103,050	10.9%	111,706	8.4%
Douglas	32,603	38,431	17.9%	38,900	19.3%	46,662	20.0%
Ferry	7,260	7,551	4.0%	7,650	5.4%	7,751	1.3%
Franklin	49,347	78,163	58.4%	82,500	67.2%	115,142	39.6%
Garfield	2,397	2,266	-5.5%	2,250	-6.1%	2,210	-1.8%
Grant	74,698	89,120	19.3%	91,000	21.8%	112,525	23.7%
Grays Harbor	67,194	72,797	8.3%	73,150	8.9%	75,529	3.3%
Island	71,558	78,506	9.7%	79,350	10.9%	85,073	7.2%
Jefferson	26,299	29,872	13.6%	30,175	14.7%	33,678	11.6%
King	1,737,046	1,931,249	11.2%	1,957,000	12.7%	2,196,202	12.2%
Kitsap	231,969	251,133	8.3%	254,500	9.7%	289,265	13.7%
Kittitas	33,362	40,915	22.6%	41,500	24.4%	47,949	15.5%
Klickitat	19,161	20,318	6.0%	20,600	7.5%	21,225	3.0%
Lewis	68,600	75,455	10.0%	76,300	11.2%	82,924	8.7%
Lincoln	10,184	10,570	3.8%	10,675	4.8%	10,800	1.2%
Mason	49,405	60,699	22.9%	61,450	24.4%	71,929	17.1%
Okanogan	39,564	41,120	3.9%	41,425	4.7%	43,978	6.2%
Pacific	20,984	20,920	-0.3%	20,970	-0.1%	21,261	1.4%
Pend Oreille	11,732	13,001	10.8%	13,100	11.7%	13,977	6.7%
Pierce	700,818	795,225	13.5%	808,200	15.3%	923,912	14.3%
San Juan	14,077	15,769	12.0%	15,925	13.1%	16,606	4.3%
Skagit	102,979	116,901	13.5%	117,950	14.5%	136,410	15.7%
Skamania	9,872	11,066	12.1%	11,275	14.2%	12,014	6.6%
Snohomish	606,024	713,335	17.7%	722,900	19.3%	857,939	18.7%
Spokane	417,939	471,221	12.8%	475,600	13.8%	537,428	13.0%
Stevens	40,066	43,531	8.7%	43,700	9.1%	46,447	6.3%
Thurston	207,355	252,264	21.7%	256,800	23.8%	307,930	19.9%
Wahkiakum	3,824	3,978	4.0%	4,025	5.3%	3,830	-4.8%
Walla Walla	55,180	58,781	6.5%	59,100	7.1%	63,368	7.2%
Whatcom	166,826	201,140	20.6%	203,500	22.0%	241,138	18.5%
Whitman	40,740	44,776	9.9%	45,950	12.8%	49,346	7.4%
Yakima	222,581	243,231	9.3%	246,000	10.5%	282,057	14.7%
Washington	5,894,143	6,724,540	14.1%	6,817,770	15.7%	7,793,173	14.3%



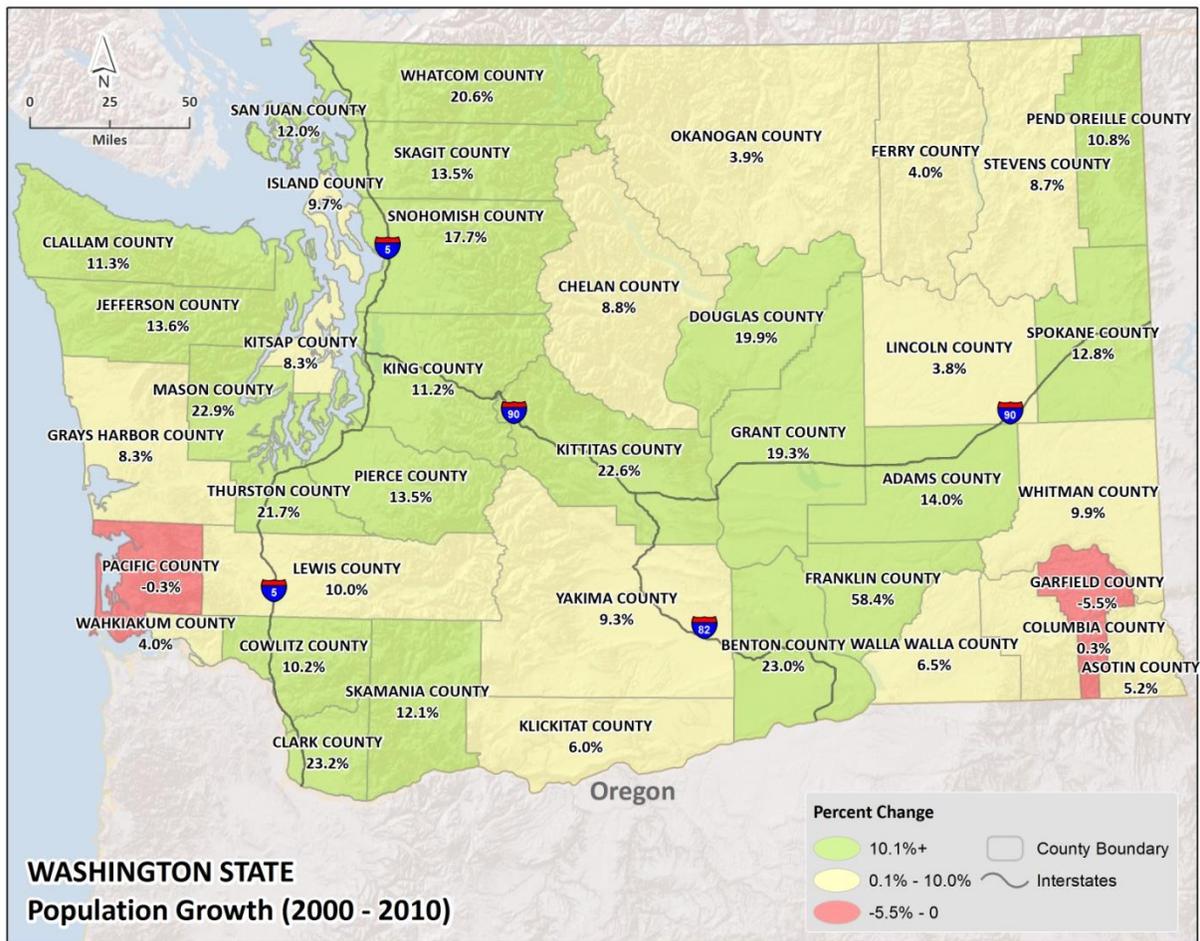
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Table 3. Population Growth

	2000 Population	2010 Population	% Change '00 to '10	Est. 2012 Population	% Change '00 to '12	2025 Pop. Projection	Est. % Change '12 to '25
State							

Source: Population and Components of Population Change by County: April 1, 200 to April 1, 2010, State of Washington Office of Financial Management, Forecasting Division, September, 2013; Population and Components of Population Change by County: April 1, 2010 to April 1, 2012, State of Washington Office of Financial Management, Forecasting Division, September, 2013; Washington State County Growth Management Population Projections: 2010 to 2040, Medium Series Projections, State of Washington Office of Financial Management, Forecasting Division, August 2012.

Figure 4. Population Change by County (2000 to 2010)





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Table 4 and Figure 5, below, shows the urban and rural population distribution the counties, state, and nation. As a whole, over three-fourths of the state’s population lives in densely settled urbanized areas. The most heavily urbanized counties are King, Pierce, Asotin, Benton, and Snohomish counties while the rural counties are Ferry, Garfield, Lincoln, San Juan, Skamania, and Wahkiakum. It should be noted that some of the aforementioned counties, such as Asotin, are not urban in nature but do have a majority of the its population living in urbanized areas. The current growth pattern, both urban and rural, affects how agencies prepare for emergencies as changes in the population and development can increase the risks associated with certain hazards.

Table 4. Urban/Rural Populations, 2010

	Urban	Rural
Adams	11,207	7,521
Asotin	20,184	1,439
Benton	156,659	18,518
Chelan	52,728	19,725
Clallam	46,089	25,315
Clark	366,797	58,566
Columbia	2,681	1,397
Cowlitz	73,068	29,342
Douglas	28,210	10,221
Ferry	0	7,551
Franklin	67,741	10,422
Garfield	0	2,266
Grant	54,587	34,533
Grays Harbor	43,596	29,201
Island	41,690	36,816
Jefferson	12,705	17,167
King	1,869,311	61,938
Kitsap	209,089	42,044
Kittitas	24,526	16,389
Klickitat	8,084	12,234
Lewis	29,688	45,767
Lincoln	0	10,570
Mason	22,036	38,663

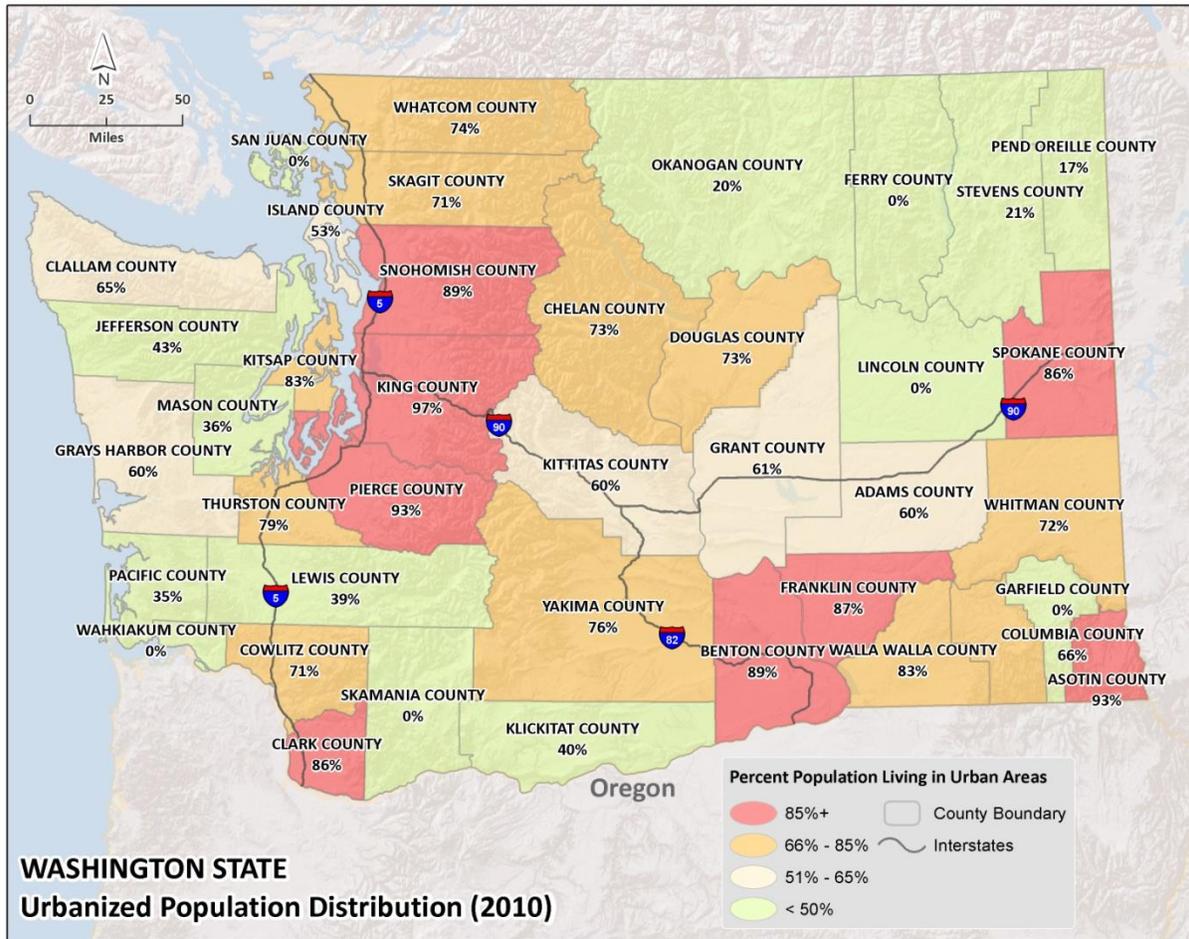
Table 4. Urban/Rural Populations, 2010

	Urban	Rural
Okanogan	8,229	32,891
Pacific	7,370	13,550
Pend Oreille	2,196	10,805
Pierce	742,814	52,411
San Juan	0	15,769
Skagit	82,975	33,926
Skamania	0	11,066
Snohomish	636,156	77,179
Spokane	406,797	64,424
Stevens	9,052	34,479
Thurston	199,317	52,947
Wahkiakum	0	3,978
Walla Walla	48,715	10,066
Whatcom	149,098	52,042
Whitman	32,449	12,327
Yakima	186,025	57,206
Washington State	5,651,869	1,072,671
Percentage	84.0%	16.0%
United States	80.7%	19.3%

Source: U.S. Census Bureau, 2010 Census: Urban and Rural Classification.



Figure 5. Percentage of Population Living in Urban Areas by County (2010)



The ability to prepare for and recover from a disaster varies among population groups. Research on various population groups and disasters found that it took some populations longer to recover from a disaster for a variety of reasons. These population groups include minorities, people with language barriers, the disabled, senior citizens, and those with low income.



Ethnic Groups

People from non-white population groups generally experience longer recoveries due to lower incomes, savings, and insurance; their difficulty accessing insurance; and their using aid and relief organizations differently than was anticipated. Language and cultural differences can pose difficulties in some populations' understanding and implementing preparedness and mitigation actions as well as accessing and using available disaster relief.

Table 5 and Figure 6, below, show state and national figures for the race and ethnicity. Adams, Benton, Chelan, Douglas, Franklin, Grant, Okanogan, Skagit, Walla Walla County, and Yakima counties have significant Hispanic/Latino populations. Additionally, King County has a significant Asian/Pacific Islands population while Ferry County and Okanogan County have significant Native American populations.

Table 5. Population by Ethnic Group

	Hispanic		Asian/Pacific Islander		African American		Native American		% Ethnic Population
	2000	2010	2000	2010	2000	2010	2000	2010	Total (2010)
Adams	47.1%	59.3%	0.6%	0.7%	0.3%	0.6%	0.7%	1.9%	62.5%
Asotin	2.0%	3.0%	0.5%	0.7%	0.2%	0.4%	1.3%	1.4%	5.5%
Benton	12.5%	18.7%	2.3%	2.8%	0.9%	1.3%	0.8%	0.9%	23.7%
Chelan	19.3%	25.8%	0.8%	0.9%	0.3%	0.3%	1.0%	1.0%	28.0%
Clallam	3.4%	5.1%	1.3%	1.5%	0.8%	0.8%	5.1%	5.1%	12.5%
Clark	4.7%	7.6%	3.6%	4.7%	1.7%	2.0%	0.8%	0.9%	15.2%
Columbia	6.3%	6.2%	0.4%	0.9%	0.2%	0.3%	1.0%	1.4%	8.8%
Cowlitz	4.6%	7.8%	1.4%	1.7%	0.5%	0.6%	1.5%	1.5%	11.6%
Douglas	19.7%	28.7%	0.6%	0.8%	0.3%	0.3%	1.1%	1.1%	30.9%
Ferry	2.8%	3.4%	0.4%	0.8%	0.2%	0.3%	18.3%	16.7%	21.2%
Franklin	46.7%	51.2%	1.7%	1.9%	2.5%	1.9%	0.7%	0.7%	55.7%
Garfield	2.0%	4.0%	0.7%	1.7%	0.0%	0.0%	0.4%	0.3%	6.0%
Grant	30.1%	38.3%	1.0%	1.0%	1.0%	1.1%	1.2%	1.2%	41.6%
Grays Harbor	4.8%	8.6%	1.3%	1.7%	0.3%	1.1%	4.7%	4.6%	16.0%
Island	4.0%	5.5%	4.6%	4.9%	2.4%	2.2%	1.0%	0.8%	13.4%
Jefferson	2.1%	2.8%	1.3%	1.8%	0.4%	0.8%	2.3%	2.3%	7.7%
King	5.5%	8.9%	11.3%	15.4%	5.4%	6.2%	0.9%	0.8%	31.3%
Kitsap	4.1%	6.2%	5.2%	5.8%	2.9%	2.6%	1.6%	1.6%	16.2%
Kittitas	5.0%	7.6%	2.3%	2.1%	0.7%	0.9%	0.9%	1.0%	11.6%
Klickitat	7.8%	10.7%	0.9%	0.7%	0.3%	0.2%	3.5%	2.4%	14.0%
Lewis	5.4%	8.7%	0.9%	1.1%	0.4%	0.5%	1.2%	1.4%	11.7%
Lincoln	1.9%	2.3%	0.3%	0.4%	0.2%	0.3%	1.6%	1.6%	4.6%
Mason	4.8%	8.0%	1.5%	1.6%	1.2%	1.1%	3.7%	3.7%	14.4%
Okanogan	14.4%	17.6%	0.5%	0.7%	0.3%	0.4%	11.5%	11.4%	30.1%
Pacific	5.0%	8.0%	2.2%	2.1%	0.2%	0.4%	2.4%	2.3%	12.8%
Pend Oreille	2.1%	3.0%	0.8%	0.7%	0.1%	0.4%	2.9%	3.8%	7.9%
Pierce	5.5%	9.2%	5.9%	7.3%	7.0%	6.8%	1.4%	1.4%	24.7%
San Juan	2.4%	5.4%	1.0%	1.2%	0.3%	0.3%	0.8%	0.7%	7.6%
Skagit	11.2%	16.9%	1.7%	2.0%	0.4%	0.7%	1.9%	2.2%	21.8%



Table 5. Population by Ethnic Group

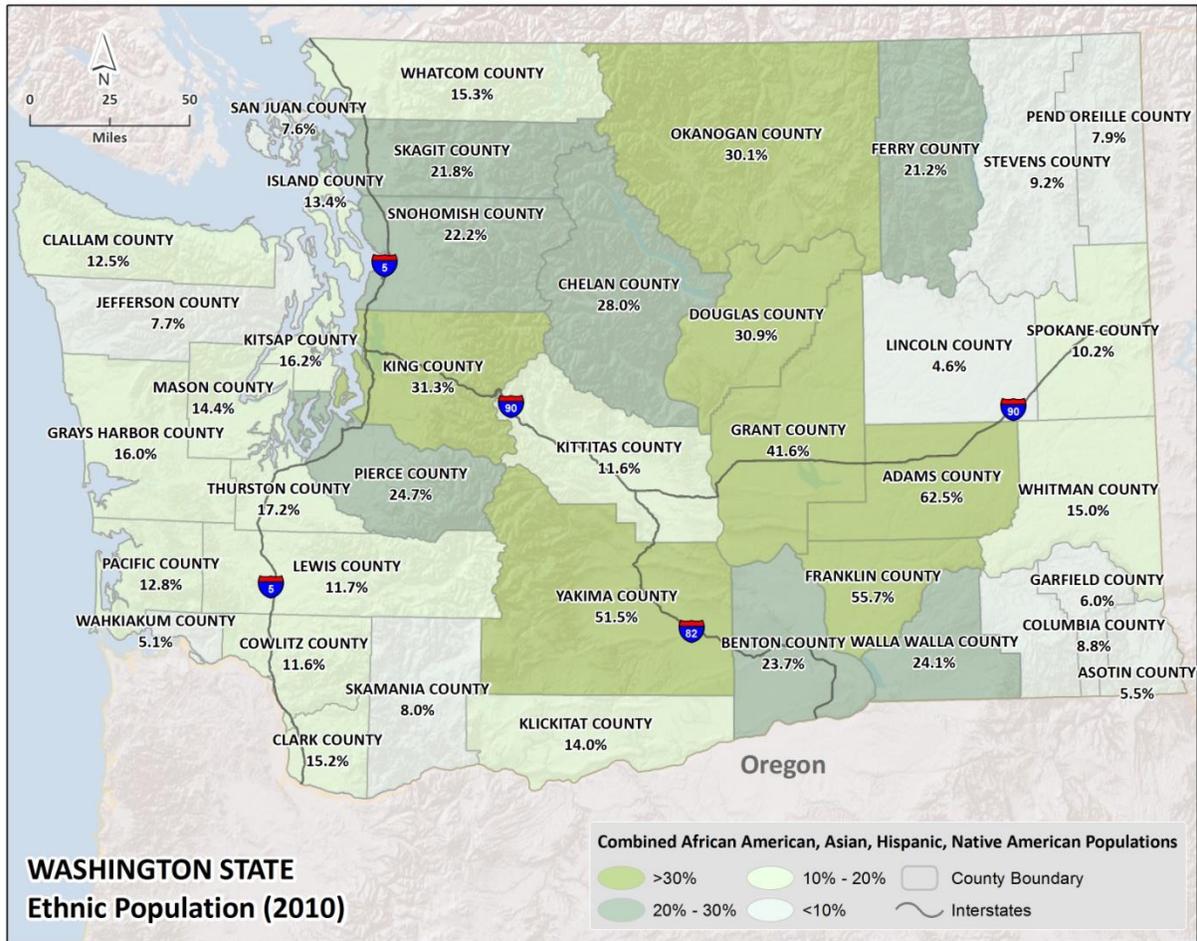
	Hispanic		Asian/Pacific Islander		African American		Native American		% Ethnic Population
	2000	2010	2000	2010	2000	2010	2000	2010	Total (2010)
Skamania	4.0%	5.0%	0.7%	1.0%	0.3%	0.4%	2.2%	1.6%	8.0%
Snohomish	4.7%	9.0%	6.1%	9.3%	1.7%	2.5%	1.4%	1.4%	22.2%
Spokane	2.8%	4.5%	2.1%	2.5%	1.6%	1.7%	1.4%	1.5%	10.2%
Stevens	1.8%	2.7%	0.7%	0.7%	0.3%	0.3%	5.7%	5.5%	9.2%
Thurston	4.5%	7.1%	4.9%	6.0%	2.4%	2.7%	1.5%	1.4%	17.2%
Wahkiakum	2.6%	2.7%	0.6%	0.8%	0.3%	0.3%	1.6%	1.3%	5.1%
Walla Walla	15.7%	19.7%	1.3%	1.6%	1.7%	1.8%	0.8%	1.0%	24.1%
Whatcom	5.2%	7.8%	2.9%	3.7%	0.7%	1.0%	2.8%	2.8%	15.3%
Whitman	3.0%	4.6%	5.8%	8.0%	1.5%	1.7%	0.7%	0.7%	15.0%
Yakima	35.9%	45.0%	1.1%	1.2%	1.0%	1.0%	4.5%	4.3%	51.5%
Washington State	7.5%	11.2%	5.9%	7.8%	3.2%	3.6%	0.7%	1.5%	24.1%
United States	12.5%	16.3%	3.7%	5.0%	12.3%	12.6%	0.9%	0.9%	34.8%

Source: U.S. Census Bureau, 2000 and 2010 Census: Profile of General Population and Housing Characteristics.



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Figure 6. State of Washington Ethnic Population (2010)





Limited English Proficiency

Nearly twenty percent of the state’s population does not speak English as its primary language at home and nearly ten percent speaks English less than very well, as shown in Table 6 and Figure 7, below.

This means that a significant segment of the population may have a language barrier that prevents them from preparing for a disaster, responding to an event, or applying for assistance after a disaster.

The Table 6 below reports information for each county during the period from 2006 to 2010.

Table 6. Primary Language Spoken at Home

	Language Other Than English	English Less Than Very Well	Spanish	English Less Than Very Well	Other Indo-European	English Less Than Very Well	Asian-Pacific Islander	English Less Than Very Well
Adams	48.6%	25.9%	46.9%	25.1%	0.9%	0.1%	0.6%	0.5%
Asotin	3.7%	0.8%	2.0%	0.3%	1.2%	0.2%	0.5%	0.3%
Benton	17.9%	10.4%	13.3%	6.6%	2.0%	0.7%	2.2%	1.0%
Chelan	21.6%	48.4%	19.9%	9.8%	1.2%	0.3%	0.2%	0.2%
Clallam	7.5%	3.4%	3.5%	1.8%	2.3%	0.8%	1.3%	0.7%
Clark	13.8%	6.3%	4.5%	2.1%	5.6%	2.6%	3.1%	1.5%
Columbia	2.7%	0.8%	2.4%	0.8%	0.2%	0.0%	0.2%	0.0%
Cowlitz	7.8%	3.5%	5.0%	2.2%	1.3%	0.5%	1.3%	0.7%
Douglas	25.7%	12.4%	23.8%	12.2%	1.2%	0.2%	0.5%	0.1%
Ferry	4.3%	1.1%	2.0%	0.4%	1.3%	0.0%	0.7%	0.7%
Franklin	48.4%	30.2%	44.0%	27.9%	2.5%	1.3%	1.6%	1.6%
Garfield	6.1%	3.1%	4.2%	2.3%	1.1%	0.0%	0.3%	0.3%
Grant	32.3%	17.1%	29.4%	15.9%	2.0%	0.7%	0.7%	0.5%
Grays Harbor	8.8%	3.7%	6.2%	2.8%	0.9%	0.3%	1.3%	0.6%
Island	7.7%	2.1%	2.9%	0.6%	1.7%	0.2%	3.0%	1.2%
Jefferson	5.5%	1.6%	2.5%	0.6%	2.2%	0.7%	0.6%	0.2%
King	24.3%	11.0%	6.3%	3.1%	5.7%	5.1%	10.5%	5.1%
Kitsap	9.5%	3.3%	3.4%	1.3%	1.8%	0.4%	4.0%	1.6%
Kittitas	9.0%	3.3%	5.5%	2.1%	1.8%	0.3%	1.5%	0.8%
Klickitat	9.1%	3.3%	8.0%	3.1%	0.5%	0.0%	0.3%	0.2%
Lewis	8.3%	3.7%	6.2%	3.1%	1.4%	0.2%	0.5%	0.2%
Lincoln	3.2%	0.7%	2.1%	0.5%	1.0%	0.1%	0.2%	0.1%
Mason	7.5%	3.7%	5.4%	3.7%	1.0%	0.3%	1.0%	0.4%
Okanogan	15.7%	6.6%	14.0%	6.1%	1.1%	0.4%	0.4%	0.1%
Pacific	9.0%	4.6%	6.4%	3.6%	0.8%	0.1%	1.6%	0.8%
Pend Oreille	3.6%	1.0%	1.8%	0.4%	0.7%	0.1%	0.7%	0.4%
Pierce	13.7%	5.7%	5.4%	2.2%	2.7%	0.9%	5.2%	2.5%
San Juan	5.6%	2.4%	3.5%	2.0%	1.3%	0.2%	0.5%	0.2%
Skagit	15.2%	6.3%	11.5%	5.2%	2.1%	0.4%	1.4%	0.6%
Skamania	4.3%	1.1%	2.9%	0.7%	0.5%	0.1%	0.5%	0.1%



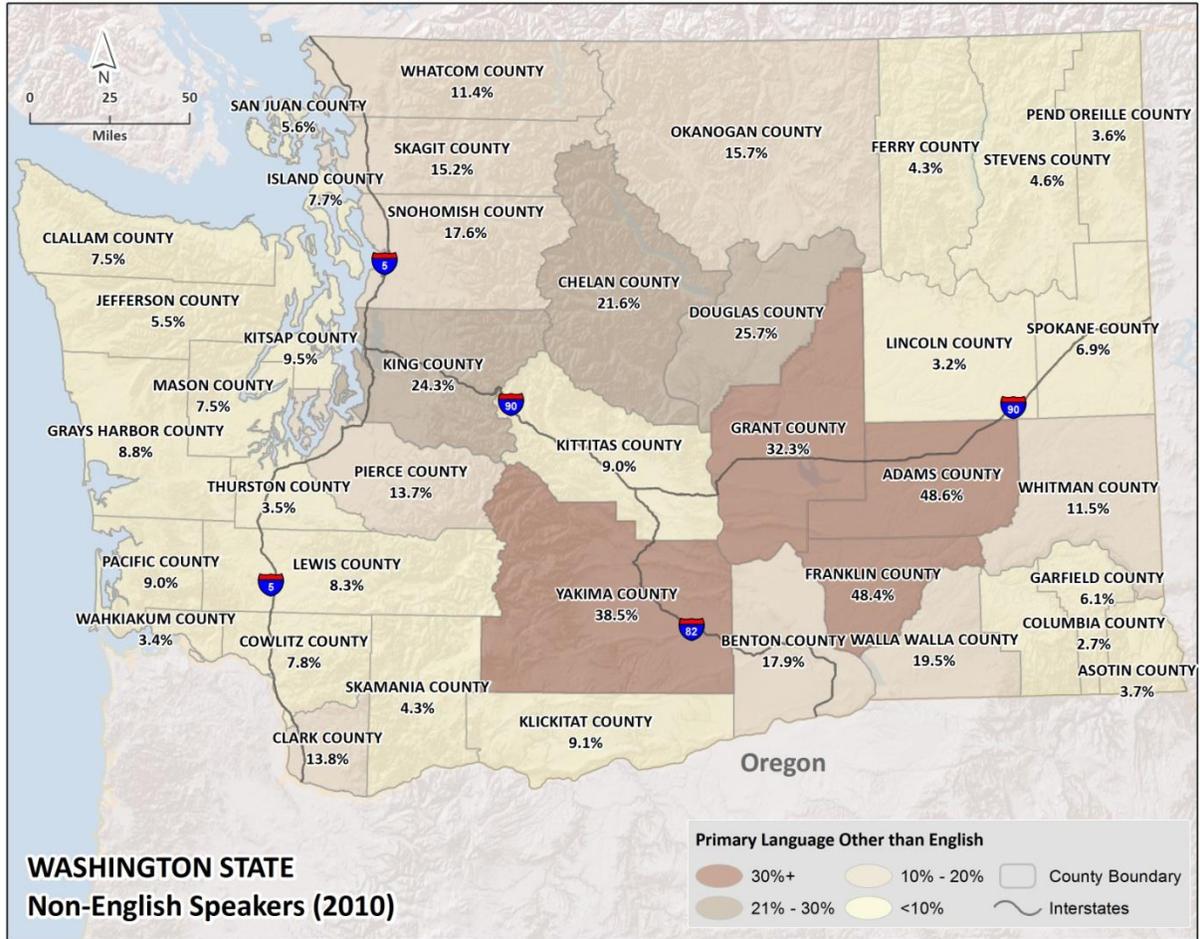
Table 6. Primary Language Spoken at Home

	Language Other Than English	English Less Than Very Well	Spanish	English Less Than Very Well	Other Indo-European	English Less Than Very Well	Asian-Pacific Islander	English Less Than Very Well
Snohomish	17.6%	7.9%	6.0%	2.9%	3.9%	1.5%	6.7%	3.2%
Spokane	6.9%	2.8%	2.3%	0.7%	2.6%	1.0%	1.6%	0.9%
Stevens	4.6%	1.1%	1.4%	0.3%	2.3%	0.7%	0.3%	0.0%
Thurston	3.5%	3.5%	3.6%	1.1%	2.0%	0.3%	4.1%	2.0%
Wahkiakum	3.4%	0.8%	1.5%	0.2%	1.4%	0.4%	0.0%	0.0%
Walla Walla	19.5%	8.7%	16.5%	8.1%	1.5%	0.1%	1.4%	0.4%
Whatcom	11.4%	4.8%	4.9%	2.0%	3.9%	1.6%	2.1%	0.9%
Whitman	11.5%	3.5%	2.1%	0.4%	2.7%	0.7%	5.0%	2.0%
Yakima	38.5%	18.8%	36.6%	18.3%	0.7%	0.2%	0.6%	0.3%
Washington State	17.5%	7.9%	7.8%	3.7%	3.6%	1.2%	5.3%	2.9%
United States	20.1%	8.7%	12.5%	5.8%	3.7%	1.2%	3.1%	1.5%

Source: U.S. Census Bureau, 2006-2010 American Community Survey: Selected Social Characteristics (population over 5 years of age).



Figure 7. Non-English Speakers (2010)





Disabled People

People with disabilities often do not participate in community preparedness activities for a disaster. They have complex challenges because of hearing, sight, mobility, or mental impairments. Additionally, a significant percentage of working-age people with disabilities do not work. These factors make it difficult for the disabled to prepare in advance of a disaster. Further, disabled people face additional challenges when trying to evacuate or flee a disaster area. Understanding where these folks reside can help the state better prepare.

The State of Washington has over 780,000 non-institutionalized civilians with a disability. Just twenty percent of this population is employed (indicating that targeted preparedness and response efforts may be needed).

Table 7 and Figure 8, below, shows the state and national figures for disabled persons during the period from 2008 to 2010, as well as the counties in the state when available. About 40 percent of retirement-age people have a disability.

Table 7. Non-Institutionalized Disabled Population

	Total disabled (non-institutionalized)	% of population	% of Population 18 to 64 years	% of Population 65 years and older	% Employed with a Disability
Adams	(X)	(X)	(X)	(X)	(X)
Asotin	3,659	17.2%	13.3%	45.0%	9.5%
Benton	18,914	11.1%	9.9%	34.8%	23.2%
Chelan	9,162	12.8%	10.6%	38.7%	21.9%
Clallam	13,092	19.10%	15.5%	38.1%	15.4%
Clark	50,276	12.0%	10.7%	37.5%	21.5%
Columbia	(X)	(X)	(X)	(X)	(X)
Cowlitz	19,935	19.6%	18.1%	45.6%	18.3%
Douglas	5,465	14.5%	13.4%	37.9%	25.9%
Ferry	(X)	(X)	(X)	(X)	(X)
Franklin	6,917	9.3%	10.0%	37.4%	20.5%
Garfield	(X)	(X)	(X)	(X)	(X)
Grant	10,683	12.3%	9.9%	50.3%	17.2%
Grays Harbor	14,173	20.3%	19.5%	42.9%	19.1%
Island	10,057	13.7%	12.2%	29.5%	26.0%
Jefferson	5,311	18.5%	13.8%	34.9%	19.9%
King	173,950	9.2%	7.2%	35.3%	22.6%
Kitsap	32,921	13.9%	12.8%	36.0%	23.9%
Kittitas	4,498	11.1%	8.7%	38.1%	18.9%
Klickitat	3,469	17.2%	15.0%	42.5%	14.0%
Lewis	14,795	20.0%	17.6%	46.1%	17.7%
Lincoln	(X)	(X)	(X)	(X)	(X)
Mason	11,874	20.2%	17.7%	44.8%	18.7%
Okanogan	6,081	15.0%	13.2%	38.3%	14.1%
Pacific	5,054	24.3%	21.8%	43.8%	16.6%
Pend Oreille	(X)	(X)	(X)	(X)	(X)



Table 7. Non-Institutionalized Disabled Population

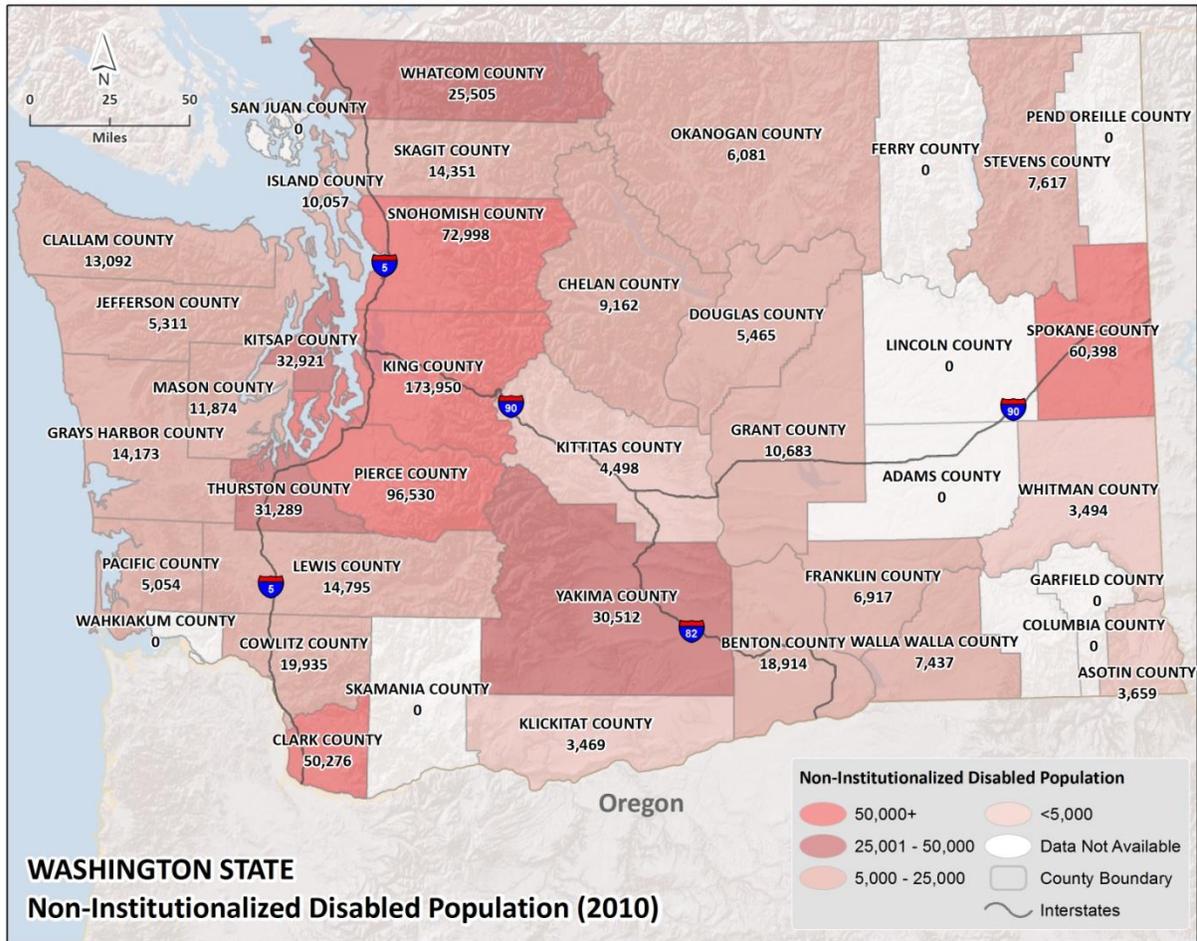
	Total disabled (non- institutionalized)	% of population	% of Population 18 to 64 years	% of Population 65 years and older	% Employed with a Disability
Pierce	96,530	12.70%	11.4%	39.9%	21.6%
San Juan	(X)	(X)	(X)	(X)	(X)
Skagit	14,351	12.5%	9.8%	36.0%	14.9%
Skamania	(X)	(X)	(X)	(X)	(X)
Snohomish	72,998	10.5%	9.1%	37.6%	24.5%
Spokane	60,398	13.2%	11.0%	39.3%	18.4%
Stevens	7,617	17.5%	16.0%	39.1%	11.7%
Thurston	31,289	12.9%	11.2%	36.6%	23.2%
Wahkiakum	(X)	(X)	(X)	(X)	(X)
Walla Walla	7,437	13.2%	10.6%	40.2%	16.8%
Whatcom	25,505	12.9%	10.7%	35.5%	24.0%
Whitman	3,494	7.9%	5.9%	33.9%	20.1%
Yakima	30,512	12.9%	11.7%	45.0%	17.6%
Washington State	783,920	12.0%	10.2%	38.0%	21.1%
United States	36,180,124	12.0%	10.0%	37.2%	18.8%

(X) indicates that the estimate is not available.

Source: U.S. Census Bureau, 2008-2010 American Community Survey: Selected Social Characteristics, Employment Status by Disability Status.



Figure 8. Non-Institutionalized Disabled Population (2010)





Senior Citizens

Senior citizens have circumstances that warrant attention in preparedness and recovery activities; their age could lead them to have trouble after a disaster, perhaps having limited mobility to leave a disaster area, not qualifying for loans, or becoming disabled as a result of the disaster.

Table 8 and Figure 9, below, shows at least one of every five people living in Clallam, Columbia, Garfield, Jefferson, Lincoln, Pacific, San Juan, and Wahkiakum counties is age 65 or older.

Table 8. Population Age 65 or Older

	% of Total Population
Adams	10.2%
Asotin	19.3%
Benton	11.8%
Chelan	15.4%
Clallam	24.1%
Clark	11.5%
Columbia	23.0%
Cowlitz	15.4%
Douglas	14.2%
Ferry	18.9%
Franklin	7.3%
Garfield	22.3%
Grant	11.8%
Grays Harbor	16.3%
Island	18.4%
Jefferson	26.3%
King	10.9%
Kitsap	13.3%
Kittitas	12.7%
Klickitat	17.8%
Lewis	17.3%
Lincoln	20.8%

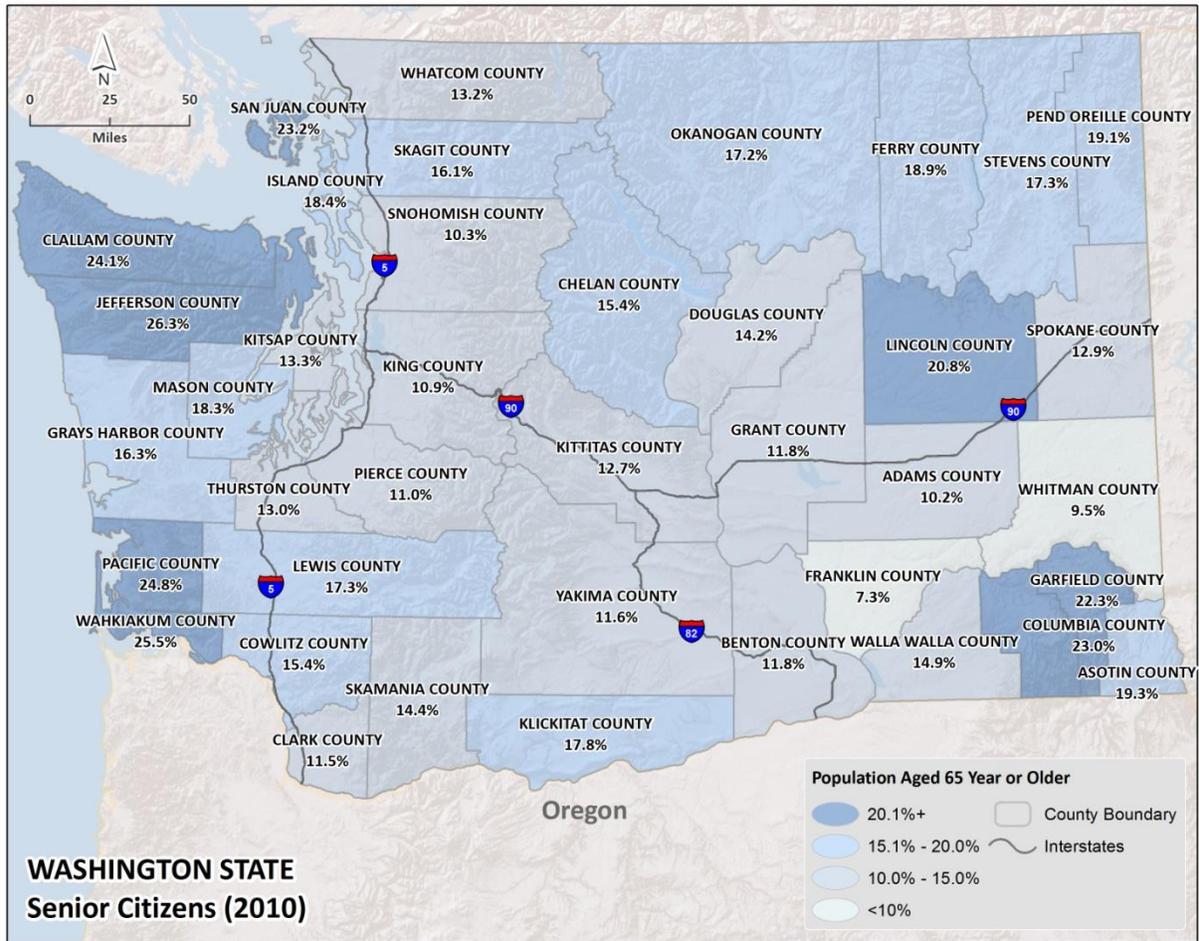
Table 8. Population Age 65 or Older

	% of Total Population
Mason	18.3%
Okanogan	17.2%
Pacific	24.8%
Pend Oreille	19.1%
Pierce	11.0%
San Juan	23.2%
Skagit	16.1%
Skamania	14.4%
Snohomish	10.3%
Spokane	12.9%
Stevens	17.3%
Thurston	13.0%
Wahkiakum	25.5%
Walla Walla	14.9%
Whatcom	13.2%
Whitman	9.5%
Yakima	11.6%
Washington State	12.3%
United States	13.0%

Source: U.S. Census Bureau, Census 2010: Profile of General Population and Housing Characteristics.



Figure 9. Senior Citizen Population (2010)





Poverty

The amount of money people have influences what type of housing they live in, whether they can engage in mitigation actions, and how long it takes them to recover. Income is based on a number of factors, including the individual, the economy, availability of jobs, educational opportunity, among others. Expenses can vary by location – rural places are cheaper to live but have fewer jobs, while urban areas can be costly, even for renters.

Table 9 and Figure 10, below, shows that the State of Washington had a smaller percentage of people living in poverty than the nation as a whole during the period from 2006 to 2010. The percent of people living in poverty is also shown for the counties. At least one of every five people living in Adams, Ferry, Franklin, Grant, Kittitas, Klickitat, Okanogan, Whitman, and Yakima counties is living below poverty level.

Table 9. Poverty Rates

	% of Total Population	Children Under 18	Over Age 65
Adams	25.1%	36.6%	12.6%
Asotin	13.5%	21.1%	6.7%
Benton	12.7%	19.3%	6.1%
Chelan	11.5%	16.8%	9.0%
Clallam	14.3%	21.4%	6.0%
Clark	10.9%	14.9%	7.2%
Columbia	16.4%	19.7%	10.9%
Cowlitz	16.9%	23.3%	7.1%
Douglas	14.3%	22.0%	3.7%
Ferry	20.8%	24.3%	12.4%
Franklin	19.9%	25.6%	13.7%
Garfield	15.7%	22.1%	6.6%
Grant	20.4%	28.4%	7.2%
Grays Harbor	16.1%	23.1%	7.9%
Island	8.0%	12.1%	4.0%
Jefferson	13.5%	20.8%	7.4%
King	10.2%	12.5%	8.6%
Kitsap	9.4%	11.8%	5.3%
Kittitas	21.2%	19.8%	7.0%
Klickitat	19.5%	33.9%	9.4%
Lewis	13.3%	18.2%	8.6%
Lincoln	12.1%	21.5%	6.0%
Mason	15.6%	21.0%	9.0%
Okanogan	19.5%	27.3%	9.2%

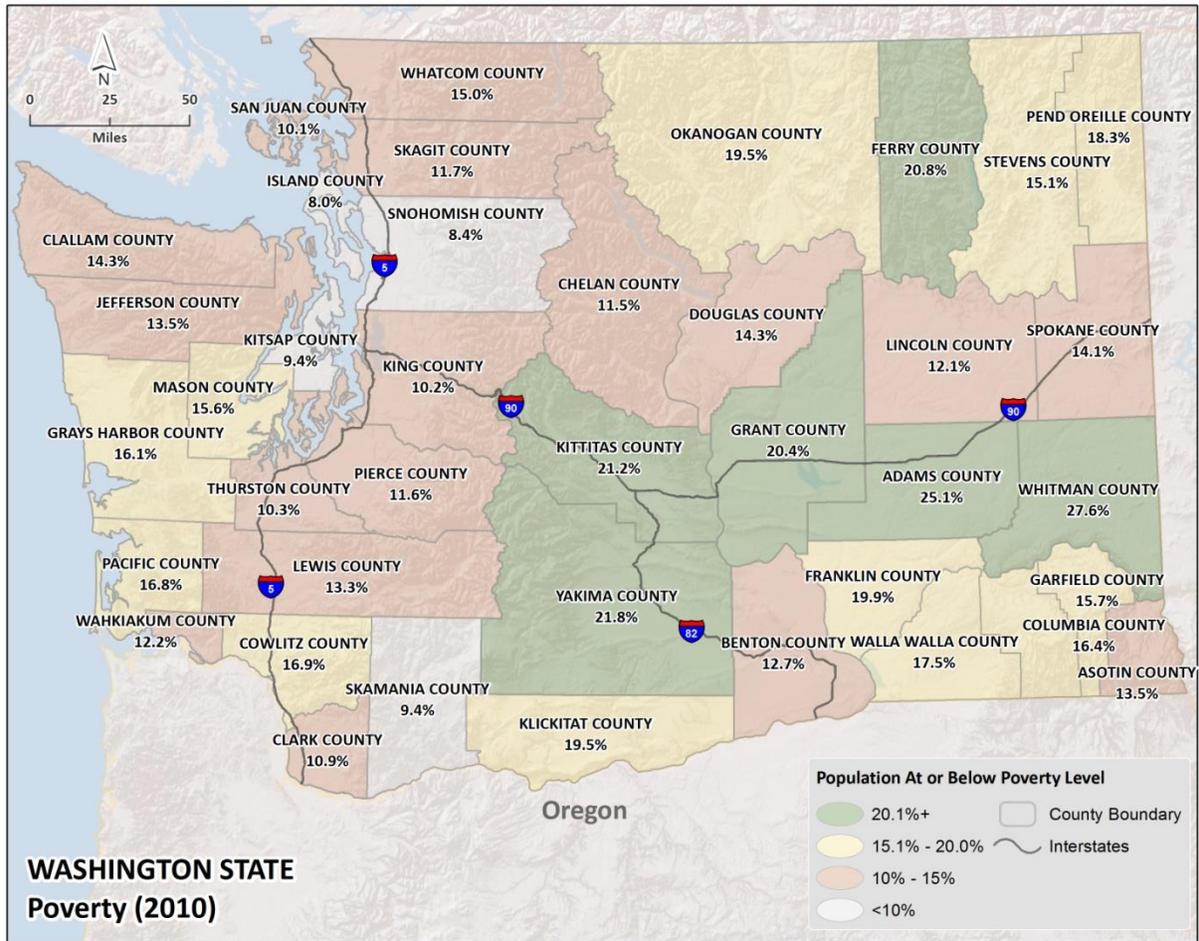
Table 9. Poverty Rates

	% of Total Population	Children Under 18	Over Age 65
Pacific	16.8%	20.4%	9.9%
Pend Oreille	18.3%	25.2%	13.3%
Pierce	11.6%	15.0%	8.2%
San Juan	10.1%	13.3%	5.2%
Skagit	11.7%	16.0%	6.2%
Skamania	9.4%	10.4%	5.3%
Snohomish	8.4%	10.8%	7.3%
Spokane	14.1%	17.0%	8.5%
Stevens	15.1%	21.1%	9.3%
Thurston	10.3%	13.0%	5.9%
Wahkiakum	12.2%	14.5%	10.7%
Walla Walla	17.5%	24.6%	9.2%
Whatcom	15.0%	14.9%	7.1%
Whitman	27.6%	13.3%	5.7%
Yakima	21.8%	31.9%	11.9%
Washington State	12.1%	16.0%	7.9%
United States	13.8%	19.2%	9.5%

Source: U.S. Census Bureau, 2006-2010 American Community Survey: Selected Economic Characteristics.



Figure 10. Poverty Levels (2010)





School Aged Children

While children overall are captured in figures elsewhere in this profile, the number of children attending school is a concern because many of the school buildings they spend considerable time in each day are older and potentially more vulnerable to the effects of disaster. Table 10 and Figure 11, below, show the population of school-age children in the state, counties, and nation during the period from 2006 to 2010; it does not show the number that are in potentially vulnerable buildings.

In 2013, the Washington Office of Superintendent of Public Instruction completed a thorough study to indicate which buildings were vulnerable to earthquake, flood, and wildfire hazards. Additional information, such as potential dollar losses, was also investigated. This information will be used to help inform decision on school retrofit and safety projects.

Table 10. School Enrollment – Kindergarten through High School

	Total*	Kindergarten	Elementary	High School
Adams	4,542	3.9%	56.1%	25.9%
Asotin	4,645	7.1%	41.9%	25.1%
Benton	44,036	5.2%	46.6%	25.0%
Chelan	16,551	5.7%	48.9%	26.7%
Clallam	13,644	4.3%	41.5%	27.3%
Clark	109,600	5.3%	45.8%	23.5%
Columbia	810	4.9%	47.4%	29.9%
Cowlitz	25,054	6.9%	42.6%	23.8%
Douglas	9,632	4.6%	47.1%	25.5%
Ferry	1,690	5.3%	45.2%	29.8%
Franklin	20,893	7.2%	49.0%	23.9%
Garfield	463	7.6%	42.5%	31.3%
Grant	23,009	5.2%	49.7%	26.8%
Grays Harbor	16,076	4.4%	43.2%	27.9%
Island	16,857	4.3%	43.9%	23.4%
Jefferson	4,909	4.4%	44.4%	26.4%
King	461,310	4.9%	37.4%	20.0%
Kitsap	59,581	4.2%	42.8%	24.4%
Kittitas	14,311	1.7%	25.5%	11.9%
Klickitat	4,418	3.9%	49.5%	23.8%
Lewis	17,172	7.4%	44.0%	27.7%
Lincoln	2,251	3.6%	49.9%	28.8%
Mason	12,674	5.6%	42.1%	25.9%
Okanogan	8,661	6.5%	45.3%	29.6%
Pacific	3,818	3.5%	41.4%	28.5%
Pend Oreille	2,549	4.4%	52.9%	30.1%
Pierce	201,178	5.3%	42.6%	23.3%
San Juan	2,289	3.8%	50.0%	27.0%
Skagit	26,262	5.8%	44.4%	25.4%
Skamania	2,435	4.5%	48.7%	27.1%
Snohomish	174,667	5.5%	42.9%	24.1%



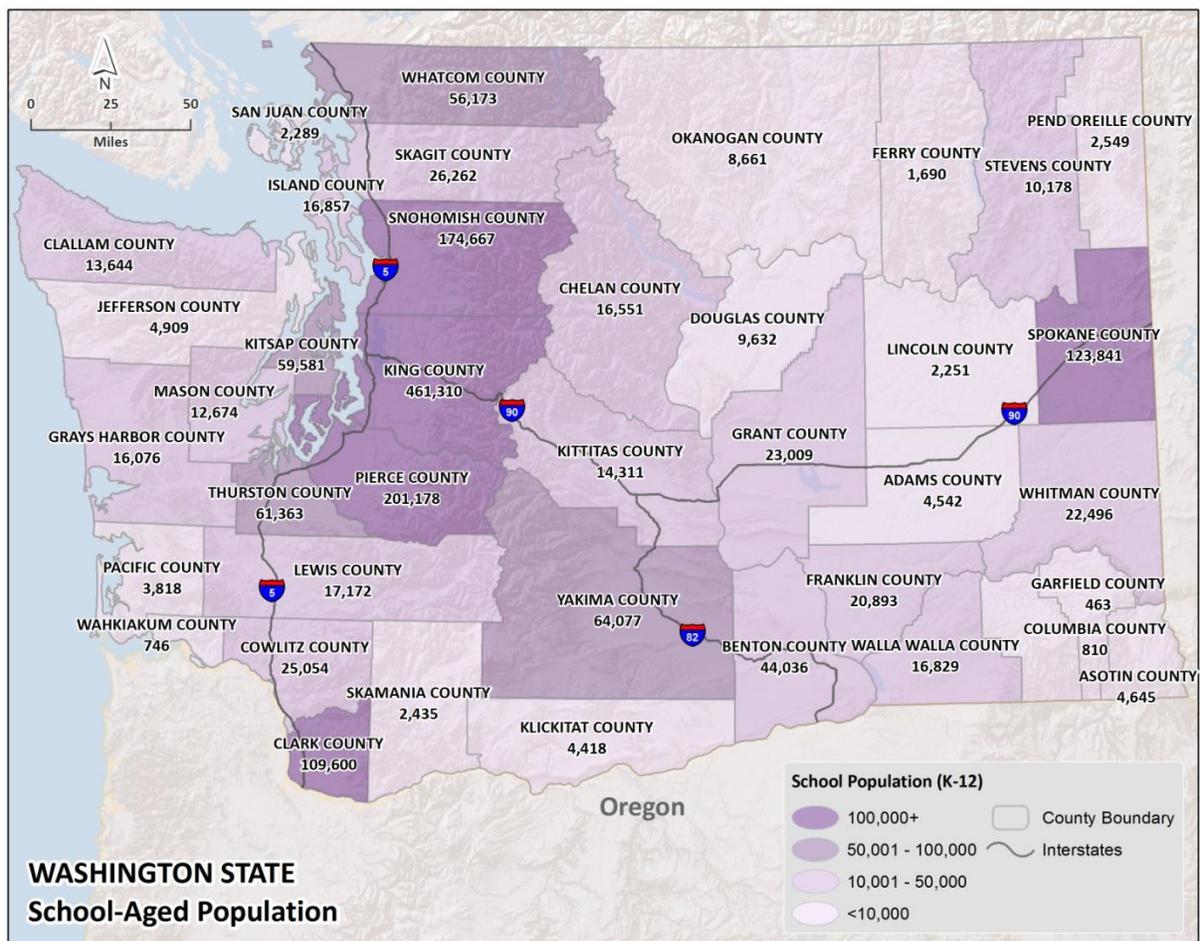
Table 10. School Enrollment – Kindergarten through High School

	Total*	Kindergarten	Elementary	High School
Spokane	123,841	4.1%	38.4%	21.2%
Stevens	10,178	4.3%	49.9%	28.1%
Thurston	61,363	4.6%	40.9%	22.8%
Wahkiakum	746	2.4%	47.7%	33.5%
Walla Walla	16,829	3.6%	36.1%	21.1%
Whatcom	56,173	3.1%	33.8%	18.3%
Whitman	22,496	1.2%	13.1%	6.6%
Yakima	64,077	7.3%	47.9%	25.4%
Washington State	1,661,690	5.0%	40.9%	22.4%
United States	80,939,002	5.1%	40.3%	21.7%

*population 3 years and over enrolled in school.

Source: U.S. Census Bureau, 2006-2010 American Community Survey: Selected Social Characteristics.

Figure 11. State of Washington School-Aged Population (2010)





Housing

Washington’s Growth Management Act encourages local jurisdictions to direct population growth into urban growth areas, where urban services support growth and higher densities. It also requires communities to incorporate mitigation by protecting critical areas and restricting development in areas such as those that are frequently flooded or subject to geologic hazards. Eliminating or limiting development in hazard-prone areas can reduce vulnerability to hazards and the potential loss of life and injuries and property damage.

Table 11 and Figure 12, below, provide a breakdown by county of various housing characteristics during the period from 2006 to 2010.

Table 11. Housing Development

	Single-Family	Multi-Family	Mobile Homes	Other
Adams	63.2%	15.4%	21.1%	0.3%
Asotin	67.0%	18.6%	12.7%	1.7%
Benton	63.9%	25.1%	10.8%	0.2%
Chelan	67.8%	19.9%	12.2%	0.1%
Clallam	72.8%	13.5%	13.2%	0.5%
Clark	67.6%	27.4%	4.8%	0.2%
Columbia	74.6%	7.7%	17.2%	0.5%
Cowlitz	68.1%	20.3%	11.4%	0.2%
Douglas	63.9%	15.9%	19.8%	0.4%
Ferry	75.3%	4.9%	19.6%	0.2%
Franklin	66.1%	20.2%	13.5%	0.2%
Garfield	74.6%	6.3%	18.3%	0.8%
Grant	54.5%	17.7%	27.6%	0.2%
Grays Harbor	68.9%	16.4%	14.4%	0.3%
Island	77.3%	13.3%	9.3%	0.1%
Jefferson	72.1%	12.3%	13.8%	1.8%
King	55.7%	42.1%	2.1%	0.1%
Kitsap	68.4%	22.8%	8.6%	0.2%
Kittitas	64.9%	24.9%	10.0%	0.2%
Klickitat	68.0%	11.2%	20.8%	0.0%
Lewis	69.9%	12.4%	17.0%	0.7%
Lincoln	80.2%	4.9%	13.4%	1.5%
Mason	75.3%	5.6%	18.6%	0.5%
Okanogan	70.9%	10.5%	18.4%	0.2%
Pacific	72.3%	10.9%	16.2%	0.6%
Pend Oreille	72.0%	7.0%	20.9%	0.1%
Pierce	64.3%	28.9%	6.6%	0.2%
San Juan	82.4%	8.9%	8.3%	0.4%
Skagit	70.0%	19.2%	10.4%	0.4%
Skamania	75.2%	5.8%	18.3%	0.7%
Snohomish	63.9%	29.9%	6.0%	0.2%
Spokane	66.3%	27.5%	6.1%	0.1%



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The year housing was built is important for mitigation. The older a home is, the greater the risk of damage from natural disasters. Homes built after 1980 are more likely to be built to current standards for hazards such as floods, high winds, snow loads, and earthquake.

Table 12, below, shows when housing was built throughout the state during the period from 2006 to 2010. Figure 13 shows the housing stock built before 1990.

Clark, Island, Jefferson, Kitsap, Mason, San Juan, Skagit, Snohomish, Thurston, and Whatcom counties have the newest housing stock, with at least half of their housing built since 1980.

Table 12. Housing – Year Built

	Pre-1939 – 1959	1960 – 1979	1980 – 1999	2000 or later
Adams	31.9%	37.3%	19.5%	11.1%
Asotin	32.5%	31.5%	28.8%	7.2%
Benton	22.3%	33.9%	26.1%	17.8%
Chelan	29.6%	27.4%	33.3%	9.7%
Clallam	21.0%	32.0%	34.2%	12.8%
Clark	13.5%	26.7%	40.4%	19.4%
Columbia	51.1%	27.5%	14.1%	7.3%
Cowlitz	34.9%	31.7%	22.5%	10.8%
Douglas	22.3%	31.9%	32.8%	13.1%
Ferry	22.4%	36.0%	33.0%	8.4%
Franklin	20.8%	30.0%	19.1%	30.1%
Garfield	61.6%	19.3%	17.1%	1.9%
Grant	28.7%	25.2%	34.1%	11.9%
Grays Harbor	37.9%	31.4%	22.2%	8.6%
Island	15.8%	29.6%	38.8%	15.8%
Jefferson	15.8%	28.5%	40.3%	15.4%
King	29.4%	28.6%	29.8%	12.2%
Kitsap	20.9%	27.9%	39.5%	11.7%
Kittitas	25.8%	24.8%	32.7%	16.7%
Klickitat	35.6%	26.0%	27.8%	10.5%
Lewis	32.3%	28.3%	28.4%	11.0%
Lincoln	45.7%	24.3%	24.2%	5.9%
Mason	14.9%	30.4%	39.9%	14.7%
Okanogan	33.2%	32.2%	29.7%	4.8%
Pacific	32.0%	26.7%	35.3%	6.0%
Pend Oreille	29.6%	28.7%	33.2%	8.4%
Pierce	22.8%	27.8%	33.0%	16.3%
San Juan	14.3%	27.5%	46.3%	12.0%
Skagit	26.8%	23.2%	33.4%	16.5%
Skamania	21.2%	34.2%	34.1%	10.7%
Snohomish	15.0%	27.7%	39.7%	17.5%
Spokane	36.7%	27.1%	24.5%	11.7%
Stevens	21.4%	30.9%	36.0%	11.8%



Household Income

Median household income can be an indicator of economic stability. It compares economic areas as a whole, and generally shows the distribution of income among the population. Median household income indicates that point where half of all households have a higher income, and half have a lower income.

Table 13 and Figure 14, below, show the median county incomes compared to the state and national figures. Washington State has a value slightly above the national median household income. Figures from 2000 and 2010 were presented to show the continued rise among the top counties. Just seven counties overall had incomes higher than the national median income value. These counties typically are experiencing rises in high wage manufacturing which can be attributed to above average rates. Often lower paying trade and service jobs can contribute to low median household income values. Whitman, Okanogan, and Ferry Counties have the lowest 2010 median household income in the states ranging from \$31,000 to \$37,000. Those counties most aligned to the state median income value are Thurston, Pierce, Kitsap, Clark, and Skagit counties.

Table 13. Median Household Income

	2000	2010
Adams	\$35,292	\$40,656
Asotin	\$32,590	\$39,820
Benton	\$49,389	\$60,070
Chelan	\$39,439	\$45,478
Clallam	\$30,866	\$38,397
Clark	\$49,320	\$54,581
Columbia	\$37,360	\$38,474
Cowlitz	\$35,246	\$40,867
Douglas	\$39,789	\$46,159
Ferry	\$31,175	\$36,712
Franklin	\$38,755	\$53,355
Garfield	\$38,507	\$43,915
Grant	\$37,278	\$42,799
Grays Harbor	\$36,410	\$39,452
Island	\$42,237	\$53,754
Jefferson	\$33,565	\$43,814
King	\$53,937	\$65,383
Kitsap	\$48,387	\$54,804
Kittitas	\$34,206	\$41,321
Klickitat	\$33,588	\$42,782
Lewis	\$32,968	\$37,947
Lincoln	\$37,188	\$43,632

Table 13. Median Household Income

	2000	2010
Mason	\$42,907	\$47,273
Okanogan	\$28,659	\$34,915
Pacific	\$33,263	\$36,914
Pend Oreille	\$33,513	\$37,005
Pierce	\$42,555	\$55,531
San Juan	\$44,568	\$53,041
Skagit	\$42,972	\$54,426
Skamania	\$40,389	\$50,862
Snohomish	\$50,870	\$62,034
Spokane	\$39,401	\$46,320
Stevens	\$33,370	\$40,008
Thurston	\$48,457	\$60,038
Wahkiakum	\$40,628	\$44,492
Walla Walla	\$34,533	\$44,117
Whatcom	\$37,044	\$49,294
Whitman	\$24,596	\$31,062
Yakima	\$34,630	\$40,802
Washington State	\$44,120	\$54,888
United States	\$41,186	\$54,442

Source: Washington State Office of Financial Management, February 2013



Average Pay

Average annual pay is another indicator of economic stability. A higher income level is associated with increased living standards and may be a sign of more productive workers.

Table 14 and Figure 15, below, show the county average annual pay in 2010. King County, Benton County, and Snohomish County have highest average annual pay in the state.

Table 14. Average Annual Pay

	Annual Pay
Adams	\$31,854
Asotin	\$29,039
Benton	\$49,463
Chelan	\$32,314
Clallam	\$33,897
Clark	\$41,716
Columbia	\$34,018
Cowlitz	\$39,336
Douglas	\$28,904
Ferry	\$33,384
Franklin	\$32,616
Garfield	\$35,567
Grant	\$32,902
Grays Harbor	\$33,527
Island	\$33,221
Jefferson	\$32,131
King	\$60,743
Kitsap	\$43,439
Kittitas	\$32,105
Klickitat	\$40,165
Lewis	\$33,681
Lincoln	\$30,850

Table 14. Average Annual Pay

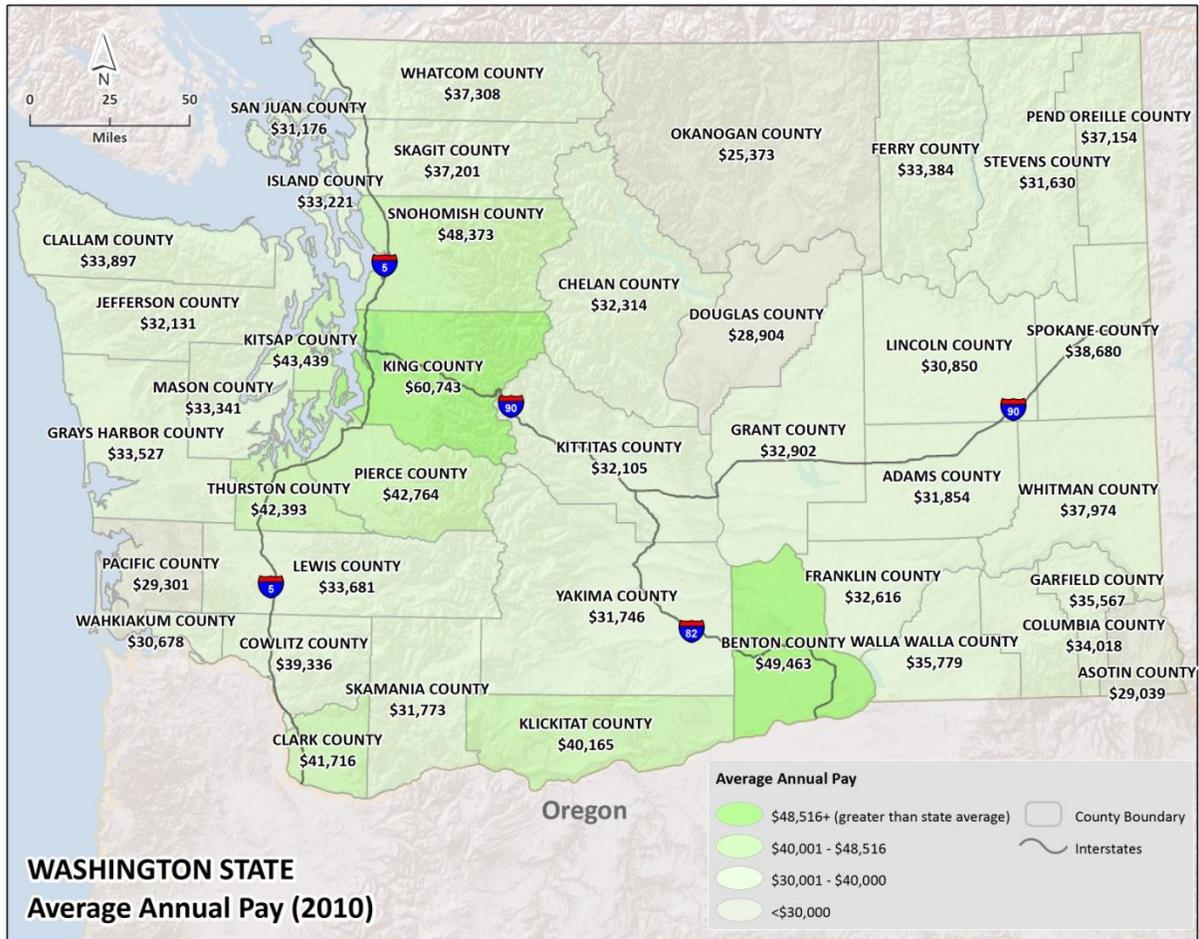
	Annual Pay
Mason	\$33,341
Okanogan	\$25,373
Pacific	\$29,301
Pend Oreille	\$37,154
Pierce	\$42,764
San Juan	\$31,176
Skagit	\$37,201
Skamania	\$31,773
Snohomish	\$48,373
Spokane	\$38,680
Stevens	\$31,630
Thurston	\$42,393
Wahkiakum	\$30,678
Walla Walla	\$35,779
Whatcom	\$37,308
Whitman	\$37,974
Yakima	\$31,746
Washington State	\$48,516
United States	\$46,751

Source: U.S. Bureau of Labor Statistics, Census of Employment and Wages: 2010.



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Figure 15. Average Annual Pay (2010)





State Facilities Summary

Requirement 44 CFR §201.4(c)(2)(iii): State Facilities Losses. The State shall estimate the potential dollar losses to State owned or operated buildings, infrastructure, and critical facilities located in the identified hazard areas.

Data from the Washington State Office of Financial Management (OFM) was utilized for the state facility analysis. This was a 2012 dataset of state leased and owned facilities throughout the state that were self-reported by agency to the OFM. Procedures to best determine at-risk buildings were employed based on hazard and described in each hazard section. It should be noted that all buildings have some risk to earthquake. Where the earthquake occurs, its magnitude, depth, and other factors dictate the potential damage structures may incur. Several scenarios were run and are detailed in the earthquake section.

Table 15 below shows the total number of state operated facilities as well as a summary of at-risk state facilities by hazard.

Table 15. State Owned and Leased Facilities

STATEWIDE TOTAL			
	Total Number	Replacement Value	Total Square Feet
Owned	8,893	\$11,858,700,000	93,425,000
Leased	1,082	\$1,504,528,000	11,635,000
TOTAL	9,975	\$13,363,228,000	105,060,000



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Table 15. State Owned and Leased Facilities
AT-RISK BUILDINGS (Assessed for the 2013 Update)

EARTHQUAKE							
	Number	At-Risk Building Replacement Value (000)	Average At-Risk Building Replacement Value (000)	At-Risk Square Feet (000)	Average At-Risk Square Feet	Building Loss (000)	Contents Loss (000)
Owned	8,893	\$11,858,700,	\$1,333,	93,425,	11,000	N/A	N/A
Leased	1,082	\$1,504,528,	\$1,391,	11,635,	11,000	N/A	N/A
TOTAL	9,975	\$13,363,228,	\$1,362,	105,060,	11,000	N/A	N/A

FLOOD							
	Number	At-Risk Building Replacement Value (000)	Average At-Risk Building Replacement Value (000)	At-Risk Square Feet (000)	Average At-Risk Square Feet	Building Loss (000)	Contents Loss (000)
Owned	851	\$1,156,065,	\$1,358,	9,024,	11,000	\$400,208,	\$953,194,
Leased	164	\$119,975,	\$732,	913,	6,000	\$24,844,	\$79,956,
TOTAL	1,015	\$1,276,040,	\$1,045,	9,937,	8,500	\$425,052,	\$1,033,150,

WILDFIRE							
	Number	At-Risk Building Replacement Value (000)	Average At-Risk Building Replacement Value (000)	At-Risk Square Feet (000)	Average At-Risk Square Feet	Building Loss (000)	Contents Loss (000)
Owned	1,585	\$2,061,826,	\$1,301,	16,154,	10,000	N/A	N/A
Leased	102	\$39,106,	\$383,	306,	3,000	N/A	N/A
TOTAL	1,687	\$2,100,932,	\$842,	16,460,	6,500	N/A	N/A



Table 15. State Owned and Leased Facilities
AT-RISK BUILDINGS (Not Assessed for the 2013 Update)

LANDSLIDE							
	Number	At-Risk Building Replacement Value	Average At-Risk Building Replacement Value	At-Risk Square Feet	Average At-Risk Square Feet	Building Loss	Contents Loss
Owned							
Leased							
TOTAL							
TSUNAMI							
	Number	At-Risk Building Replacement Value	Average At-Risk Building Replacement Value	At-Risk Square Feet	Average At-Risk Square Feet	Building Loss	Contents Loss
Owned							
Leased							
TOTAL							
VOLCANO							
	Number	At-Risk Building Replacement Value	Average At-Risk Building Replacement Value	At-Risk Square Feet	Average At-Risk Square Feet	Building Loss	Contents Loss
Owned							
Leased							
TOTAL							

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