3.16 Socioeconomics

This Programmatic Environmental Impact Statement (EIS) considers the adverse environmental impacts on socioeconomics that would result from the types of transmission facilities described in Chapter 2, Overview of Transmission Facilities, Development Considerations, and Regulations. This section addresses the following topics related to the new construction, operation and maintenance, upgrade, and modification of high-voltage electric transmission facilities (transmission facilities) in Washington:

- Section 3.16.1 identifies regulatory, siting, and design considerations.
- Section 3.16.2 describes the affected environment.
- Section 3.16.3 describes the adverse environmental impacts.
- Section 3.16.4 describes Mitigation Measures.
- Section 3.16.5 identifies probable significant adverse environmental impacts on socioeconomics.
- Section 3.16.6 provides an environmental sensitivity map and criteria weighting for the siting of transmission facilities as it relates to socioeconomics, based on the identified considerations, adverse environmental impacts, and Mitigation Strategies.

3.16.1 Regulatory, Siting, and Design Considerations

This Programmatic EIS establishes a broad framework for compliance, outlining general laws, regulations, best management practices (BMPs), and design considerations. It is assumed that project-specific applications would be developed within this pre-established regulatory context and comply with existing laws and regulations. Any projects not complying with applicable laws and regulations or failing to adhere to design considerations or BMPs would require additional project-specific

environmental analysis and mitigation. The federal and state laws and regulations that apply to socioeconomics and environmental justice are summarized in **Table 3.16-1**.¹

Table 3.16-1: Laws and Regulations for Socioeconomics

Applicable Legislation	Agency	Summary Information		
42 USC 2000d, Title VI of the Civil Rights Act of 1964, as amended by the Civil Rights Restoration Act of 1987	U.S. Department of Justice	This law prohibits discrimination based on race, color, and national origin in programs and activities that receive federal financial assistance.		
RCW 19.405, Washington Clean Energy Transformation Act	Washington State Department of Commerce ^(a)	This act sets targets for reducing greenhouse gas emissions and establishes energy efficiency standards for buildings and appliances. The act states:		
		It is the policy of the state to eliminate coal- fired electricity, transition the state's electricity supply to one hundred percent carbon-neutral by 2030, and one-hundred percent carbon-free by 2045.		
		This act defines key terms necessary for evaluating impacts on socioeconomics and environmental justice, including "highly impacted community" and "low-income."		
RCW 36.70A, Growth Management – Planning by Selected Counties and Cities	Washington State Department of Commerce ^(a)	Known as the Growth Management Act, this series of state statutes requires counties and cities whose population growth exceeds stated thresholds to develop a comprehensive plan that assists in managing their population growth.		
RCW 70A.02, Environmental Justice	Environmental Justice Council ^(a)	The HEAL Act was passed and enacted in 2021 and is codified at RCW 70A.02. This law was enacted to reduce environmental and health disparities and improve the health of all Washington state residents.		
		This codifies Washington's approach to environmental justice into law through the implementation of Environmental Justice Task Force recommendations. It defines environmental justice and outlines agencies'		

¹ The Draft Programmatic EIS included federal regulations, including several Executive Orders, that have since been rescinded. These Executive Orders include EO 12898, EO 13166, and EO 14096. This table provides an outline of current laws and regulations; therefore, the rescinded Executive Orders have been removed.



Applicable Legislation	Agency	Summary Information
		obligations for completing environmental justice assessments.
		This act defines key terms necessary for evaluating impacts on socioeconomics and environmental justice, including "environmental justice," "environmental harm," "overburdened community," and "vulnerable populations."
RCW 80.28, Gas, Electrical, and Water Companies	Washington Utilities and Transportation Commission	This regulation governs gas, electrical, wastewater, and water companies in Washington. It requires that companies provide safe and efficient services at just and reasonable costs and covers utility tariff regulations. It also allows gas and electric companies to offer discounted rates, grants, and other assistance programs for low-income customers.
Washington State Office of the Chief Information Officer Policy 188	The Washington State Office of the Chief Information Officer ^(a)	This policy outlines the obligations for state agencies to ensure that individuals with disabilities have equal access to information, data, and services compared to those without disabilities, at the minimum levels of compliance (DOC n.d.).
WAC 197-11-448, Relationship of EIS to other considerations	Washington State Department of Ecology ^(a)	This regulation identifies that, while SEPA considers the general welfare, social, and economic standing in decision-making, such socioeconomic impacts are not specifically required to be discussed in an EIS. Moreover, this code identifies that agencies have the option to combine an EIS with additional analyses being used by each agency with jurisdiction, including socioeconomic analyses required for projects regulated by EFSEC.
WAC 463-60-535, Socioeconomic impact	Washington Energy Facility Site Evaluation Council	This requirement identifies the importance of including socioeconomic impact analysis in applications for site certification under consideration by EFSEC.

Applicable Legislation	Agency	Summary Information
WAC 480-80, Utilities General – Tariffs and Contracts	Washington Utilities and Transportation Commission	This regulation outlines tariff regulations for including requirements, content, and formatting, among others, for any public service company that is subject to the jurisdiction of the commission as to rates and services under the provisions of Title 80 RCW.

Notes:

(a) The agency responsible for administering most permits or authorizations for the identified regulation. However, if EFSEC is determined to be the agency responsible for approving a proposal, EFSEC can administer several types of permits at the state and local levels. EFSEC provides a streamlined process for siting and licensing major energy facilities, including transmission facilities in Washington State. EFSEC coordinates all evaluation and licensing steps, specifies the conditions for new construction and operation, and issues a Site Certification Agreement, which assumes the responsibility for issuing individual state or local permits. By consolidating these permits into a single Site Certification Agreement, EFSEC can simplify the regulatory process for energy facility developers. While EFSEC itself does not directly administer federal permits, it works closely with federal agencies to ensure that all necessary federal requirements are met during the evaluation and licensing of energy facilities.

EFSEC = Washington Energy Facility Site Evaluation Council; **EIS** = environmental impact statement; **EO** = Executive Order; **HEAL Act** = Healthy Environment for All Act; **RCW** = Revised Code of Washington; **SEPA** = State Environmental Policy Act; **USC** = United States Code; **WAC** = Washington Administrative Code

The siting of transmission facilities is determined by engineering, technical, environmental, and socioeconomic factors. **Table 3.16-2** summarizes guidance documents and management plans that outline the design considerations and BMPs generally used to avoid or minimize adverse environmental impacts on socioeconomics, vulnerable populations,² and overburdened communities³.

³ Geographic areas where vulnerable populations face combined, multiple environmental harms and health impacts. This includes, but is not limited to, highly impacted communities as defined in RCW 19.405.020.



² Population groups that are more likely to be at higher risk for poor health outcomes in response to environmental harms, due to: (i) Adverse socioeconomic factors, such as unemployment, high housing and transportation costs relative to income, limited access to nutritious food and adequate health care, linguistic isolation, and other factors that negatively affect health outcomes and increase vulnerability to the effects of environmental harms; and (ii) sensitivity factors, such as low birth weight and higher rates of hospitalization.

Vulnerable populations include but are not limited to: (i) Racial or ethnic minorities; (ii) Low-income populations; (iii) Populations disproportionately impacted by environmental harms; and (iv) Populations of workers experiencing

Table 3.16-2: Siting and Design Considerations for Socioeconomics

Siting and Design Consideration	Description
Recommended Siting Practices for Electric Transmission Developers (Americans for a Clean Energy Grid 2023)	This report by Americans for a Clean Energy Grid outlines practices for engaging with landowners, Tribal governments, and local communities. It emphasizes early and consistent engagement, transparent route selection, and respectful treatment of landowners.
Transmission Corridors Work Group: Final Report (EFSEC 2022)	This report outlines principles and best management practices for siting and constructing new or upgraded transmission facilities, emphasizing the transmission impacts and needs of overburdened communities, background findings, geographic needs and considerations, and transmission-related challenges. This report outlines the following necessities:
	 Public engagement Support programs to develop skilled labor Utilization of screening tools Identification of participating agencies and jurisdictions
Recommendations for prioritizing Environmental Justice in Washington State Government (Environmental Justice Task Force 2020)	This report outlines recommendations for addressing environmental health disparities in Washington. It includes goals to reduce these disparities, model policies to prioritize vulnerable communities, and guidance for using the Environmental Health Disparity Map to identify impacted areas. It also offers best practices for meaningful community engagement and emphasizes state agencies' roles in environmental justice issues and developing inclusive strategies to ensure equitable health outcomes for all residents.
Guide to Advancing Opportunities for Community Benefits through Energy Project Development (DOE 2017)	This guide outlines strategies for integrating community benefits into energy projects, emphasizing the importance of engaging local communities in the planning and development processes to ensure that projects not only meet energy needs but also enhance local economies, provide job opportunities, and address social equity.
Transmission Planning for the 21st Century: Proven Practices that Increase Value and Reduce Costs (Brattle Group and Grid Strategies 2021)	This report outlines effective strategies for transmission planning to improve infrastructure, enhance grid reliability, and ensure that customers pay just and reasonable rates.

Siting and Design Consideration	Description
The National Transmission Planning Study (DOE 2024a)	This report examines the current state and future needs of the U.S. transmission system to ensure it can support a reliable and sustainable energy supply. It provides recommendations for improving planning processes, including public and stakeholder engagement, and highlights the necessity for careful consideration of environmental, health, and community impacts.
Federal Energy Regulatory Commission guidelines	FERC revises and approves guidelines for the siting and permitting of interstate electric transmission facilities, including environmental impact assessments and public engagement processes.
Guidelines and Principles for Social Impact Assessment (SIA 1994)	This guideline outlines a framework for evaluating the social implications of proposed projects and policies to ensure that social factors are integrated into the decision-making process. It emphasizes the following principles:
	 Stakeholder engagement Comprehensive data collection Social analysis throughout project lifecycle

DOE = U.S. Department of Energy; **EFSEC** = Washington Energy Facility Site Evaluation Council; **FERC** = Federal Energy Regulatory Commission; **SIA** = The Interorganizational Committee on Guidelines and Principles for Social Impact Assessment

3.16.2 Affected Environment

This section describes socioeconomics within the Study Area (see Chapter 1, Introduction). The analysis of the affected environment incorporates the following:

- Socioeconomics, including population, housing conditions, workforce conditions, and economic conditions
- Environmental Justice, including vulnerable populations, overburdened communities, and environmental harms

3.16.2.1 Socioeconomics

While the Washington Administrative Code (WAC) does not provide a specific definition for socioeconomics, WAC 463-60-535 details the conditions that should be evaluated in a socioeconomic impact analysis for a project submitted to the Washington Energy Facility Site Evaluation Council (EFSEC) for review. The regulation

states that a detailed socioeconomic impact analysis should identify primary, secondary, and positive as well as negative impacts on the socioeconomic environment in the area potentially affected by the project. The analysis should pay particular attention to the adverse environmental impact of the proposed facility on population, workforce, property values, housing, health facilities and services, education facilities, governmental services, and local economy.

For this Programmatic EIS, the socioeconomic analysis considers the components outlined in WAC 463-60-535. The affected environment for the nonproject Programmatic EIS review includes the following key components:

- Population, Growth Rate, and Projections
- Housing Conditions
- Workforce Conditions
- Fiscal and Economic Conditions, including energy burden, taxation, and tariffs
- Environmental Justice, including vulnerable populations, overburdened communities, and environmental harms

Despite the directive in WAC 463-60-535 to identify both positive and negative socioeconomic impacts, positive impacts have not been analyzed in this Programmatic EIS. Positive socioeconomic impacts can be more speculative or variable depending on project design, timing, and local conditions. A brief discussion on the potential benefits of transmission facility development on socioeconomics can be found in Chapter 1, Introduction.

Population, Growth Rate, and Projections

This section provides an overview of the current population estimates, estimated growth rates between 2010 and 2020, as well as projected growth rates through 2050 at the county level. This data was obtained to better understand development patterns and serves as the basis for analyzing adverse environmental impacts on population groups, including environmental justice communities, that could result from the development of transmission facilities.

Population

About 7.7 million people live in Washington, in communities ranging from concentrated urbanized areas to sparsely populated rural areas. The populations of Washington's counties range from about 2,300 in Garfield County to approximately

2.27 million in King County. **Table 3.16-3** presents population data in Washington by county.

Table 3.16-3: 2020 Population Data

County	Population	Percentage of State Population
Adams	20,613	0.3%
Asotin	22,285	0.3%
Benton	206,873	2.7%
Chelan	79,074	1.0%
Clallam	77,155	1.0%
Clark	503,311	6.5%
Columbia	3,952	0.1%
Cowlitz	110,730	1.4%
Douglas	42,938	0.6%
Ferry	7,178	0.1%
Franklin	96,749	1.3%
Garfield	2,286	0.0%
Grant	99,123	1.3%
Grays Harbor	75,636	1.0%
Island	86,857	1.1%
Jefferson	32,977	0.4%
King	2,269,675	29.5%
Kitsap	275,611	3.6%
Kittitas	44,337	0.6%
Klickitat	22,735	0.3%
Lewis	82,149	1.1%
Lincoln	10,876	0.1%
Mason	65,726	0.9%
Okanogan	42,104	0.5%
Pacific	23,365	0.3%
Pend Oreille	13,401	0.2%
	1	1

County	Population	Percentage of State Population		
Pierce	921,130	12.0%		
San Juan	17,788	0.2%		
Skagit	129,523	1.7%		
Skamania	12,036	0.2%		
Snohomish	827,957	10.7%		
Spokane	539,339	7.0%		
Stevens	46,445	0.6%		
Thurston	294,793	3.8%		
Wahkiakum	4,422	0.1%		
Walla Walla	62,584	0.8%		
Whatcom	226,847	2.9%		
Whitman	47,973	0.6%		
Yakima	256,728	3.3%		
Washington State Total	7,705,281	100%		

Source: 2020 Decennial Census, Table P1 Total Population (U.S. Census Bureau 2020)

According to the 2020 U.S. Census Bureau decennial census, approximately 52 percent of Washington's population lives in just three counties: King, Pierce, and Snohomish. The populations of these counties range from about 2.27 million in King County to approximately 827,957 in Snohomish County (see **Table 3.16-3**).

The population distribution in Washington's counties generally aligns with its major urban centers. For example, King County includes Seattle, the state's most populous city, and Bellevue, the state's fifth-largest city. Pierce County, with a population of 921,130, is the second most populous county and includes Tacoma, the third largest city in the state (U.S. Census Bureau 2020).

Population Growth Rate

Population growth can result from either net in-migration or natural increase. Net in-migration occurs when more people move to an area than leave. Natural increase occurs when there are more births than deaths. Since 2010, Washington's population has been growing at an average of over 100,000 persons per year. Between 2011 and

2023, in-migration accounted for 68.7 percent of Washington's population growth, with natural increase accounting for the remaining 31.3 percent (OFM 2024a).

As shown in **Table 3.16-4** below, Washington's population grew by 14.6 percent between 2010 and 2020. Franklin County saw the highest growth rate at 23.8 percent, followed by Clark County at 18.3 percent and Benton County at 18.1 percent. Conversely, Ferry County experienced the largest population decline, with a 4.9 percent decrease, and Columbia County saw a 3.1 percent decrease during the same period.

Table 3.16-4: Population Growth Rate

County	2010 Population	2020 Population	Percentage Increase (2010–2020)
Adams	18,728	20,613	10.1%
Asotin	21,623	22,285	3.1%
Benton	175,177	206,873	18.1%
Chelan	72,453	79,074	9.1%
Clallam	71,404	77,155	8.1%
Clark	425,363	503,311	18.3%
Columbia	4,078	3,952	-3.1%
Cowlitz	102,410	110,730	8.1%
Douglas	38,431	42,938	11.7%
Ferry	7,551	7,178	-4.9%
Franklin	78,163	96,749	23.8%
Garfield	2,266	2,286	0.9%
Grant	89,120	99,123	11.2%
Grays Harbor	72,797	75,636	3.9%
Island	78,506	86,857	10.6%
Jefferson	29,872	32,977	10.4%
King	1,931,249	2,269,675	17.5%
Kitsap	251,133	275,611	9.7%
Kittitas	40,915	44,337	8.4%
Klickitat	20,318	22,735	11.9%
Lewis	75,455	82,149	8.9%

County	2010 Population	2020 Population	Percentage Increase (2010–2020)		
Lincoln	10,570	10,876	2.9%		
Mason	60,699	65,726	8.3%		
Okanogan	41,120	42,104	2.4%		
Pacific	20,920	23,365	11.7%		
Pend Oreille	13,001	13,401	3.1%		
Pierce	795,225	921,130	15.8%		
San Juan	15,769	17,788	12.8%		
Skagit	116,901	129,523	10.8%		
Skamania	11,066	12,036	8.8%		
Snohomish	704,086	827,957	17.6%		
Spokane	471,221	539,339	14.5%		
Stevens	43,531	46,445	6.7%		
Thurston	252,264	294,793	16.9%		
Wahkiakum	3,978	4,422	11.2%		
Walla Walla	58,781	62,584	6.5%		
Whatcom	201,140	226,847	12.8%		
Whitman	44,776	47,973	7.1%		
Yakima	243,231	256,728	5.5%		
Washington State Total	6,715,291	7,705,281	14.7%		

Source: 2020 Decennial Census, Table P1 Total Population (U.S. Census Bureau 2020) and 2010 Decennial Census, Table P1 Total Population (U.S. Census Bureau 2010)

Population Projections

The Washington State Office of Financial Management (OFM) is responsible for preparing county population projections to support planning under Washington's Growth Management Act (GMA). The OFM develops three sets of growth projections for each county: high, middle, and low. The middle-level growth rate projection is considered the most likely scenario, as it is based on assumptions validated by historical and current data. These projections are crucial for long-term planning and resource allocation. The current projections, developed to support the GMA, extend through the year 2050 and provide a comprehensive outlook for future population

trends. **Table 3.16-5** presents projection data based on the OFM's middle-level growth scenario.

Table 3.16-5: Growth Management Act Middle-Level Growth Rate Projections

County	2020 Population	2030 Population Projection	2040 Population Projection	2050 Population Projection	Growth Rate Between 2020 and 2030	Growth Rate Between 2020 and 2040	Growth Rate Between 2020 and 2050
Adams	20,613	22,565	24,387	26,100	9.5%	18.3%	26.6%
Asotin	22,285	23,214	23,815	24,111	4.2%	6.9%	8.2%
Benton	206,873	235,177	262,587	288,887	13.7%	26.9%	39.6%
Chelan	79,141	85,889	91,914	97,195	8.5%	16.1%	22.8%
Clallam	77,155	81,791	85,374	87,800	6.0%	10.7%	13.8%
Clark	503,311	583,307	660,653	735,724	15.9%	31.3%	46.2%
Columbia	3,952	3,806	3,625	3,366	-3.7%	-8.3%	-14.8%
Cowlitz	110,730	118,309	125,320	130,993	6.8%	13.2%	18.3%
Douglas	42,938	47,750	52,256	56,461	11.2%	21.7%	31.5%
Ferry	7,178	7,239	7,169	6,986	0.8%	-0.1%	-2.7%
Franklin	96,749	114,907	132,930	150,970	18.8%	37.4%	56.0%
Garfield	2,286	2,247	2,172	2,061	-1.7%	-5.0%	-9.8%
Grant	99,123	111,367	123,116	134,321	12.4%	24.2%	35.5%
Grays Harbor	75,636	77,203	77,614	76,892	2.1%	2.6%	1.7%
Island	86,857	93,670	99,870	105,250	7.8%	15.0%	21.2%
Jefferson	32,977	36,226	39,170	41,719	9.9%	18.8%	26.5%
King	2,269,675	2,487,380	2,690,851	2,879,176	9.6%	18.6%	26.9%
Kitsap	275,611	297,608	317,694	335,268	8.0%	15.3%	21.6%



County	2020 Population	2030 Population Projection	2040 Population Projection	2050 Population Projection	Growth Rate Between 2020 and 2030	Growth Rate Between 2020 and 2040	Growth Rate Between 2020 and 2050
Kittitas	46,468	52,091	57,521	62,643	12.1%	23.8%	34.8%
Klickitat	22,735	24,511	26,059	27,376	7.8%	14.6%	20.4%
Lewis	82,149	87,746	92,313	95,871	6.8%	12.4%	16.7%
Lincoln	10,876	11,270	11,459	11,496	3.6%	5.4%	5.7%
Mason	65,726	72,981	79,792	85,947	11.0%	21.4%	30.8%
Okanogan	42,104	43,676	44,660	45,101	3.7%	6.1%	7.1%
Pacific	23,365	24,475	25,033	25,183	4.8%	7.1%	7.8%
Pend Oreille	13,401	14,442	15,311	16,009	7.8%	14.3%	19.5%
Pierce	920,393	1,015,395	1,104,062	1,186,146	10.3%	20.0%	28.9%
San Juan	17,788	19,986	22,046	23,957	12.4%	23.9%	34.7%
Skagit	129,523	142,805	155,142	166,281	10.3%	19.8%	28.4%
Skamania	11,604	12,529	13,322	14,006	8.0%	14.8%	20.7%
Snohomish	827,957	935,370	1,039,254	1,138,649	13.0%	25.5%	37.5%
Spokane	539,339	587,377	630,994	669,671	8.9%	17.0%	24.2%
Stevens	46,445	50,215	53,502	56,278	8.1%	15.2%	21.2%
Thurston	294,793	333,783	371,542	407,392	13.2%	26.0%	38.2%
Wahkiakum	4,422	4,713	4,925	5,070	6.6%	11.4%	14.7%
Walla Walla	62,584	64,977	66,695	67,645	3.8%	6.6%	8.1%
Whatcom	226,847	254,158	280,275	304,836	12.0%	23.6%	34.4%



County	2020 Population	2030 Population Projection	2040 Population Projection	2050 Population Projection	Growth Rate Between 2020 and 2030	Growth Rate Between 2020 and 2040	Growth Rate Between 2020 and 2050
Whitman	47,973	49,489	50,698	51,459	3.2%	5.7%	7.3%
Yakima	256,728	271,120	283,351	293,279	5.6%	10.4%	14.2%
Washington State Total	7,706,310	8,502,764	9,248,473	9,937,575	10.3%	20.0%	29.0%

Source: 2022 Growth Management Act Projections (OFM 2024b)

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Between 2020 and 2030, it is projected that the population of Washington will increase by over 10 percent, or more than 796,000 people (OFM 2024b). This percentage suggests that Washington's population growth rate would exceed the national average of 5.5 percent over the same 10-year period. According to the OFM's 2030 projections, Franklin County's population is expected to increase by 18.77 percent, Clark County's by 15.89 percent, and Benton County's by 13.68 percent. In comparison, the only two counties that are expected to experience a decline by 2030 are Columbia County and Garfield County. These two counties are expected to decrease by 3.69 percent and 1.71 percent, respectively.

Housing Conditions

The U.S. Census Bureau defines a housing unit as a house, apartment, mobile home or trailer, group of rooms, or single room occupied or intended to be occupied as separate living quarters (U.S. Census Bureau 2021). **Table 3.16-6** summarizes housing resources in Washington. This data is sourced from the U.S. Census Bureau's American Community Survey (ACS) 5-Year Estimates for 2023.

Table 3.16-6: Housing Characteristics

County	Total Housing Units	Occupied Housing Units	Vacant Housing	Renter Occupied	Rental Vacancy Rates	Median Home Value	Median Rent Cost
Adams	6,844	6,301	543	1,950	4.6%	\$251,300	\$901
Asotin	10,165	9,438	727	2,492	0.0%	\$286,200	\$994
Benton	81,792	76,696	5,096	24,163	5.7%	\$369,400	\$1,256
Chelan	38,129	30,825	7,304	11,304	4.1%	\$454,900	\$1,182
Clallam	38,295	34,377	3,918	9,364	2.6%	\$385,600	\$1,110
Clark	201,114	193,387	7,727	65,348	3.1%	\$487,900	\$1,668
Columbia	2,218	1,892	326	419	0.0%	\$256,100	\$944
Cowlitz	45,884	43,409	2,475	14,693	2.3%	\$367,400	\$1,169
Douglas	17,721	15,708	2,013	4,962	2.6%	\$402,900	\$1,234
Ferry	4,105	3,138	967	765	1.3%	\$274,500	\$703
Franklin	30,488	29,118	1,370	8,713	3.9%	\$345,700	\$1,171
Garfield	1,223	1,052	171	243	12.0%	\$214,200	\$768
Grant	39,496	34,502	4,994	11,853	4.2%	\$275,700	\$1,059

County	Total Housing Units	Occupied Housing Units	Vacant Housing	Renter Occupied	Rental Vacancy Rates	Median Home Value	Median Rent Cost
Grays Harbor	36,568	29,982	6,586	8,212	3.9%	\$279,500	\$1,018
Island	42,398	35,529	6,869	9,008	8.3%	\$535,300	\$1,631
Jefferson	19,359	16,156	3,203	3,281	4.3%	\$495,100	\$1,291
King	988,330	927,817	60,513	407,426	5.0%	\$811,200	\$2,035
Kitsap	115,329	107,264	8,065	32,019	3.9%	\$505,700	\$1,741
Kittitas	24,326	19,601	4,725	7,380	5.9%	\$459,900	\$1,253
Klickitat	10,722	9,774	948	2,391	2.4%	\$388,700	\$1,119
Lewis	36,037	32,314	3,723	8,349	4.2%	\$341,500	\$1,044
Lincoln	5,840	4,659	1,181	1,001	3.6%	\$272,300	\$872
Mason	33,751	25,373	8,378	4,791	4.1%	\$377,400	\$1,205
Okanogan	22,015	17,208	4,807	4,867	2.8%	\$284,200	\$868
Pacific	16,220	10,757	5,463	2,021	3.9%	\$274,000	\$962
Pend Oreille	8,036	5,829	2,207	1,327	5.4%	\$307,800	\$786
Pierce	365,748	346,708	19,040	122,063	4.0%	\$484,400	\$1,722
San Juan	13,951	8,934	5,017	1,983	3.8%	\$726,500	\$1,413
Skagit	56,472	51,518	4,954	15,124	1.1%	\$486,200	\$1,439
Skamania	5,899	4,965	934	964	3.6%	\$472,600	\$1,024
Snohomish	327,893	311,825	16,068	98,566	4.2%	\$644,600	\$1,866
Spokane	228,156	215,879	12,277	77,953	3.5%	\$370,500	\$1,200
Stevens	22,577	18,983	3,594	3,948	0.8%	\$308,000	\$864
Thurston	123,333	117,172	6,161	37,780	3.8%	\$451,500	\$1,634
Wahkiakum	2,207	2,026	181	308	1.9%	\$344,500	\$1,086
Walla Walla	25,219	23,390	1,829	7,966	6.1%	\$375,600	\$1,113
Whatcom	101,928	92,411	9,517	33,703	3.0%	\$536,100	\$1,465
Whitman	21,232	17,952	3,280	9,587	15.2%	\$323,300	\$1,002
Yakima	91,647	86,689	4,958	32,577	2.8%	\$281,100	\$1,068
Washington State Total	3,262,667	3,020,558	242,109	1,090,864	4.3	\$519,800	\$1,682

Source: American Community Survey (2023) 5-Year Estimate Data, Table DP04 (U.S. Census Bureau 2023a)



The estimated median home value in Washington, identified by the U.S. Census Bureau for 2023, was \$519,800, and the median rent was \$1,682. Median home values ranged from \$214,200 in Garfield County to over \$811,200 in King County. Median rent for renter-occupied units ranged from \$703 in Ferry County to \$2,035 in King County (U.S. Census Bureau 2023a).

The 2023 ACS five-year estimate suggests that rental housing is available statewide. An estimated 242,109 units, or over 7 percent of total housing units, were vacant in Washington. The two counties with the highest estimated vacancy rates in 2023 were San Juan County, with over 36 percent, and Pacific County, with over 33 percent. Conversely, the counties with the lowest vacancy rates were Clark County, with 3.8 percent, Franklin County, with 4.5 percent, and Snohomish County, with 4.9 percent (U.S. Census Bureau 2023a).

Rental vacancy rate is the percentage of unoccupied rental units. Generally, rental vacancy rates in Washington ranged from zero percent in Asotin and Columbia County to over 15 percent in Whitman County (U.S. Census Bureau 2023a). A rental vacancy rate of zero percent indicates that there were no unoccupied rental units in the county. In all counties across Washington, aside from rental units, temporary housing is available in the form of hotel and motel rooms, recreational vehicle parks, and campsites.

Workforce Conditions

Transmission facility development can have wide-ranging effects on the workforce and employment in local communities. For areas with highly skilled workforces but lower levels of employment, the new construction of transmission facilities can be a benefit that is felt throughout the local economy. For communities that lack highly skilled laborers, transmission facility projects are an opportunity to develop a more highly skilled workforce. For areas where the workforce lacks the skills necessary to participate in the new construction of a transmission facility, the importation of temporary skilled workers can adversely impact the social cohesion⁴ of a community. This section examines the existing workforce in Washington.

⁴ The strength of relationships and the sense of solidarity among members of a community (U.S. Department of Health and Human Services n.d.[a]).



Washington State's Unemployment Rate by County

The Washington State Employment Security Department publishes a monthly employment report that provides a detailed overview of Washington's job market. It includes the statewide and national unemployment rates, the size of Washington's workforce, and the number of jobs across various industries. **Table 3.16-7** shows unemployment rates by county for June 2025.

Table 3.16-7: June 2025 Unemployment Rate by County

County	Unemployment Rate
Adams	3.4%
Asotin	2.7%
Benton	2.7%
Chelan	3.3%
Clallam	3.7%
Clark	3.7%
Columbia	3.3%
Cowlitz	4.2%
Douglas	3.7%
Ferry	5.5%
Franklin	3.9%
Garfield	3.6%
Grant	4.4%
Grays Harbor	4.7%
Island	3.6%
Jefferson	4.0%
King	4.4%
Kitsap	3.4%
Kittitas	3.5%
Klickitat	3.5%
Lewis	4.5%
Lincoln	4.4%
Mason	4.3%
Okanogan	3.7%

County	Unemployment Rate
Pacific	4.9%
Pend-Orielle	4.4%
Pierce	5.0%
San Juan	2.6%
Skagit	3.8%
Skamania	3.6%
Snohomish	4.6%
Spokane	3.4%
Stevens	4.2%
Thurston	3.5%
Wahkiakum	5.6%
Walla Walla	3.1%
Whatcom	3.5%
Whitman	3.8%
Yakima	4.5%

Source: Monthly Employment Report for June 2025 (ESD 2025)

The unemployment rate in the United States for June 2025 was 4.1 percent (U.S. Department of Labor 2025). The two counties with the lowest unemployment rates were San Juan County (2.6 percent) and Asotin County (2.7 percent), while the two counties with the highest were Wahkiakum County (5.6 percent) and Ferry County (5.5 percent) (ESD 2025).

Workforce Development

Governor Inslee signed, and the Washington State Legislature passed, the Climate and Clean Energy Service Workforce Programs bill, House Bill 1176, in the spring of 2023. This legislation is intended to ensure that workers have access to quality jobs in the clean energy sector. It contains funding for education and training programs that will assist in transitioning employees from the fossil fuel industry to the clean energy sector. The legislation also provides funding to train future employees for a career in the clean energy economy.

Washington's Job Skills Program (JSP) was developed to bridge the skills gap between employers and workers in a rapidly changing economy. The JSP offers customized

training for current Washington workers, helping them adapt to new technologies and economic shifts. The program prioritizes projects that support strategic industry clusters and upgrade employee skills to avoid layoffs and works collaboratively with businesses and educational institutions. The JSP reflects the state's commitment to:

- Fostering collaboration between businesses/industries and educational institutions
- Expanding skills training programs aligned with current employment needs
- Ensuring that skill training programs are regionally accessible and benefit diverse business sectors

Washington has a competitive advantage in the information, forestry, fishing, company and enterprise management, and farming sectors, as well as construction and professional or technical services. Competitiveness is measured by location quotients,⁵ which compare a state's concentration of employment in a specific industry to the national average (BLS 2024a).

According to the state's Economic and Revenue Forecast Council economic forecast, construction employment is predicted to grow at an annual rate of 3 percent or greater between 2025 and 2029. The National Renewable Energy Laboratory estimates that a 20-mile transmission line would generally create 114 construction jobs and two maintenance jobs (NREL 2013). **Figure 3.16-1** illustrates changes in construction employment in Washington over the last 20 years.

The outlook for construction jobs in Washington may be described as follows:

- In 2024, the construction industry in Washington added 7,900 jobs (Associated General Contractors of America 2025).
- The Washington Employment Security Department estimates that construction employment will continue growing at a forecast of 1.57 percent annually till 2027 (ESD n.d.).

⁵ An analytical statistic used to measure a region's industrial specialization relative to a larger geographic unit.



- The Associated General Contractors of America's 2024 Construction Outlook for Washington expressed optimism for federal construction and infrastructure projects (Associated General Contractors of America 2024). They reported that:
 - o Most contractors reported having difficulty filling positions and anticipate adding workers in 2024 to accommodate increased demand.
 - o The surveyed contractors expect the highest growth in the value of projects to be in transportation, bridges and highways, other federal actions, data centers, and hospitals.

The steady increase in construction employment in Washington represents an opportunity for those not currently working in the industry to find employment. It also supports the need for additional skilled laborers who require training and apprenticeships.

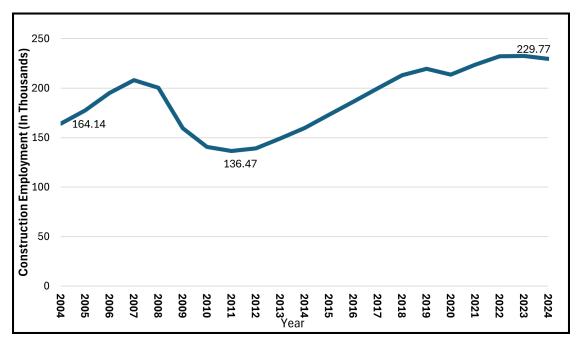


Figure 3.16-1: Average Annual Construction Employment in Washington Source: BLS 2024b

Fiscal and Economic Conditions

Research has shown that well-designed infrastructure investments can spur economic growth, productivity, and land values, while also providing positive spillovers to areas such as economic development, energy efficiency, public health, and manufacturing (U.S. Treasury Department 2010).

Fiscal Conditions

According to Washington's Annual Comprehensive Financial Report for 2023, governmental activities increased by \$5.79 billion in 2023 (OFM 2024c). This can be attributed to a \$1.82 billion increase in tax revenues, of which \$779.1 million came from sales and use tax, and \$504.5 million from business and occupation tax. In June 2023, the state unemployment rate was 3.8 percent. This was slightly lower than the 3.9 percent in June 2022 (OFM 2024c). Governmental funds as of June 30, 2023, were reported as \$32.74 billion, with \$4.15 billion of the total fund balance being unassigned and available for use at the state's discretion. Capital assets, which include infrastructure, land, buildings, and construction in progress, among other categories, totaled \$51.13 billion. Construction in progress increased from \$1.83 billion in 2022 to \$2.19 billion in 2023 (OFM 2024c).

Economic Conditions

Existing Economic Conditions

On a national scale, Washington has the 20th largest economy of the 50 states (BEA 2024a). In the first quarter of 2024, the state's real gross domestic product (GDP) was \$829.9 billion, with a real GDP growth rate of 4.9 percent per year (BEA 2024a). Economists use GDP to estimate the size of an area's economy by calculating the total value of all goods and services produced in that area. The total GDP comprises four main components:

- Personal Consumption Expenditures (Consumption): This includes all private expenditures by households on goods and services, such as food, clothing, healthcare, and entertainment.
- Business Investment: This encompasses spending by businesses on capital goods like machinery, buildings, and technology, as well as investments in inventories.
- Government Spending: This includes all government expenditures on goods and services, such as infrastructure projects, defense, education, and public safety.
- **Net Exports:** This is calculated as the value of a country's exports minus its imports. A positive net export indicates that a country exports more than it imports, contributing positively to GDP.

During the first quarter of 2024, retail and wholesale trade, information technologies, agriculture, and government were the industries that recorded the highest GDP growth rates in Washington (BEA 2024a). Adams, Garfield, and Lincoln Counties displayed the highest GDP growth rates between 2019 and 2022 with 17.1 percent, 12.3 percent, and 7.6 percent, respectively (BEA 2024b). Economic data from 2019 to 2022 show that King County, Snohomish County, and Pierce County had the highest GDP of the state's counties, with \$367.2 billion, \$48.3 billion, and \$47.1 billion, respectively.

Anticipated Economic Value of Transmission Facility Projects

As new transmission facilities bring reliable power to local communities and regions, there is potential for an expansion of economic growth in Washington communities that could impact the livelihoods of their residents. While economic benefits from infrastructure construction are often considered positive, the effect of the associated growth might not be experienced by everyone within a community or region as fiscal conditions change.

The following are general economic assumptions related to implementing a high-voltage transmission facility project:

- A transmission facility project would generate expenditures that potentially benefit the local, regional, and state economies.
- A transmission facility project would impact a local economy in the following ways:
 - o Increases in employment and income generation
 - o Changes in local infrastructure
 - o Increased tax revenue for local governments
 - o Increases in local business growth and operations related to the project.
- Regional impacts would encompass broader economic effects such as changes in labor markets, worker migration between counties, and modifications to regional transportation systems or utilities.
- Economic effects at the state level would include changes in the state's GDP, economic growth rates, industry expansion, state tax revenue, and statewide employment.

Economic Impacts Analysis

Economic impacts generated from the new construction and operation and maintenance of a transmission facility project and related substations would be assessed on a case-by-case basis through a project-specific economic impact analysis (EIA). An EIA would estimate the total impact of the project on regional output, value added, employment earnings, and jobs. The types of expenditures generated by a specific project would need to be considered when analyzing a project's impact on the local economy. The following types of expenditures should be considered in a project-specific EIA:

- Local direct expenditures: These are expenditures that are spent locally to implement a project during its new construction and operational stages (e.g., materials and supplies purchased to construct the project, payrolls for a project's construction and operation).
- **Indirect expenditures:** These expenditures represent the additional economic impact of increases in the demand for goods and services (e.g., material manufacturers, excavation companies).
- Induced expenditures: These expenditures represent the additional economic impact of increased demand for consumer goods and services attributable to labor earnings. Induced expenditures would cause a temporary beneficial impact by creating the potential for employment opportunities for local workers in other service areas besides construction, such as transportation and retail.

Project-specific EIAs analyze the following criteria to determine the impact of a project on the local economy:

- **Job creation:** Full-time and part-time jobs that would be generated during all project stages.
- **Labor income:** Wages, salaries, and the net earnings of sole proprietors and partnerships, generated throughout all stages of the project.
- **Fiscal and taxation:** Direct and indirect project expenditures would be subject to applicable sales taxes. Landowners would be subject to property taxes, and local communities could benefit from increased tax revenue.
- Output and value added: The value of goods and services produced, serving as a broad measure of economic activity. Value added, often referred to as GDP,

represents the net additional economic activity (the value of output minus the value of purchased goods and services used in production).

Climate Commitment Act and Clean Energy Transformation Act

Washington's implementation of the Climate Commitment Act (CCA) and Clean Energy Transformation Act (CETA) is anticipated to have a major impact on the state's economy. The goal of CETA is to develop an electricity supply free of greenhouse gas emissions. The law provides safeguards to maintain affordable rates and reliable service. It also requires an equitable distribution of the benefits from the transition to clean energy for all utility customers and adds and expands energy assistance programs for low-income customers. CETA also supports Washington workers and businesses by providing tax incentives for clean energy projects that employ women, minorities, or veteran-owned businesses, as well as businesses that have a long history of complying with federal and state wage and hour laws and regulations, and employers who hire local workers or offer apprenticeship programs. The incentives are available through 2029 to encourage early investments in the electric grid (DOC 2025).

CETA requires electric utilities to improve energy assistance programs for low-income households by designing programs that lower the energy burden. A household's energy burden is defined as the percentage of its income that is required to cover its energy use. Low-income households qualify to receive energy assistance to bring their energy burden down to 6 percent. The amount of assistance required to bring a household's energy burden down to 6 percent is the household's "energy assistance need." Under CETA, utilities are required to meet 90 percent of low-income customers' energy assistance needs by 2050 (Thuraisingham 2021).

The State Energy Strategy, submitted by the Washington State Department of Commerce to the Washington State Legislature, provides guidance for state agencies to meet the state's energy and climate goals. The guidance includes recommendations for transitioning to 100 percent carbon-free emissions by 2045 and identifies the following policies and expenditures:

- Allocation of nearly \$60 million to the Clean Energy Fund within the Department of Commerce's Energy Office, with the directive to use the 2021 State Energy Strategy to guide the design of clean energy programs.
- New funding that will support grid modernization, strategic research and development of emerging clean energy technologies, innovative approaches to the electrification of transportation systems, building electrification, maritime

- electrification, bioenergy projects, and further development of a rural clean energy strategy.
- Allocation of an additional \$1,175,000 to support the implementation of the strategy as it relates to emissions from energy use in new and existing buildings (Donalds 2022).

The CCA establishes a comprehensive, market-based program to reduce carbon pollution and achieve its commitment to reducing greenhouse gas emissions by 95 percent by 2050. The CCA established a cap-and-invest program that sets a limit, or cap, on overall carbon emissions in the state and requires businesses to obtain allowances equal to their covered greenhouse gas emissions. These allowances can be obtained through quarterly auctions hosted by the Washington State Department of Ecology or bought and sold on a secondary market. The greenhouse gas emission cap is reduced over time to ensure that the state reaches its emission reduction goals. The CCA requires that at least 35 percent of the funds from the CCA allowance auctions be invested in projects that benefit overburdened communities, and a minimum of 10 percent go to projects with Tribal support (Ecology n.d.).

Electricity Demand and Burden

According to the U.S. Energy Information Administration's profile analysis, Washington had the ninth-lowest average electricity prices of all U.S. states. The residential sector accounted for 44 percent of Washington's electricity usage, the commercial sector used 33 percent of the state's electricity, and the industrial sector accounted for 23 percent of the state's electricity use. Small amounts of electricity are also used for light rail and electric buses (EIA 2024a).

Figure 3.16-2 highlights the growth in retail electricity prices across the residential, commercial, industrial, and transportation sectors.

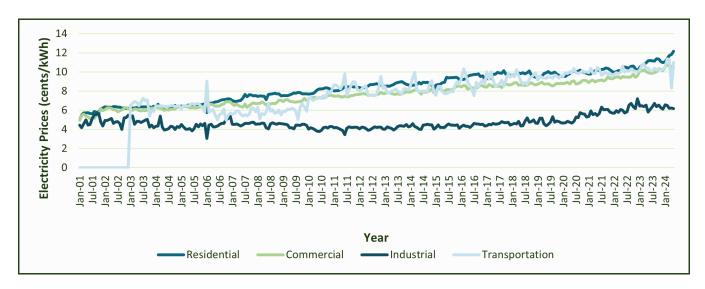


Figure 3.16-2: Average Retail Price of Electricity, Washington, Monthly

Source: EIA 2024a.

Over the next 10 years, the Pacific Northwest Utilities Conference Committee has projected an increase in electricity demand of over 30 percent (PNUCC 2024). One factor contributing to this demand surge is the expansion of data centers, which are becoming increasingly important to Washington's economy. Data centers serve as the physical infrastructure of the digital world. They are large facilities that house a vast network of interconnected computer servers, storage devices, and networking equipment. Additionally, advances in artificial intelligence and the rapid increase in power usage to train and deploy these systems are increasing electricity demand estimates (Bank of America Global Research 2024).

According to the global data center research firm, Data Center Map, Inc., there are currently 128 data centers in Washington. Of these, 69 are in the Seattle-Tacoma-Bellevue metropolitan area. **Table 3.16-8** shows the breakdown of data centers in Washington by county. Washington has an estimated electricity demand of 509 megawatts (MW) in existing data centers, with another 402 MW in the pipeline.

Table 3.16-8: Number of Data Centers per County

County in Washington	Location	Number of Data Centers
King	Seattle – 58	60
	Bellevue – 2	
Pierce	Tacoma	9
Spokane	Spokane	7

County in Washington	Location	Number of Data Centers
Grant	Quincy – 27	29
	Moses Lake – 2	
Chelan	Wenatchee	16
Walla Walla	Walla Walla	4
Whatcom	Bellingham	2
Franklin	Pasco	1
Total		128

Source: Data Center Map n.d.

Table 3.16-9 compares electricity demand for different data center sizes. Investment in grid modernization or upgrades will support the growth of data centers in Washington.

Table 3.16-9: Data Centers

Data Center Size	Small	Medium	Large
Building Size	5,000–20,000 square feet	20,000–100,000 square feet	100,000 to millions of square feet
Server Count	500–2,000 servers	2,000–10,000 servers	10,000–100,000 servers
Power Capacity	1–5 MW	5–20 MW	20–100+ MW
Design/Efficiency	Basic power management and cooling	Robust power management, partial efficiency	High efficiency, renewable energy use
Example Company	Equinix	Digital Realty	Amazon Web Services

Source: Dgtl Infra 2024 **MW** = megawatts

Energy Burden

Nationally, low-income households spend a larger portion of their income on home energy costs (e.g., electricity, natural gas) than higher-income households. A higher energy burden can cause a household to have to decide between paying energy bills and buying food, medicine, or other essentials (DOE 2018).

Based on data from the Department of Energy (DOE)'s Low-Income Energy Affordability Data (LEAD) Tool, the average annual energy burden in Washington is 2 percent. However, for low-income households, the average energy burden in

Washington is 8.6 percent. **Figure 3.16-3** shows that households in Washington in areas with lower median incomes (0 to 30 percent) have higher energy burdens than areas with higher median incomes.

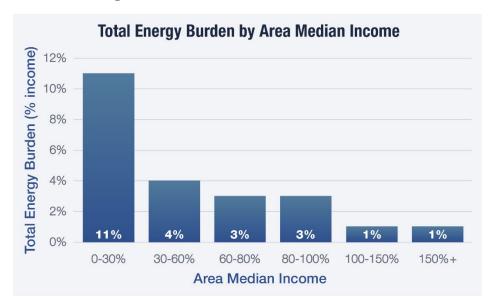


Figure 3.16-3: Total Energy Burden by Area Median Income

Source: DOE 2024b

According to Washington's Annual Comprehensive Financial Report for 2023, governmental activities increased by \$5.79 billion in 2023 (OFM 2024c). This can be attributed to a \$1.82 billion increase in tax revenues, of which \$779.1 million came from sales and use tax, and \$504.5 million from business and occupation tax. In June 2023, the state unemployment rate was 3.8 percent. This was slightly lower than the 3.9 percent in June 2022 (OFM 2024c). Governmental funds as of June 30, 2023, were reported as \$32.74 billion, with \$4.15 billion of the total fund balance being unassigned and available for use at the state's discretion. Capital assets, which include infrastructure, land, buildings, and construction in progress, among other categories, totaled \$51.13 billion. Construction in progress increased from \$1.83 billion in 2022 to \$2.19 billion in 2023 (OFM 2024c).

Taxation and Tariff

Taxation

Washington's sales and use tax is 6.5 percent, with local rates ranging from 1 to 4.1 percent. Total sales and use tax rates range from 7.5 to 10.6 percent (DOR 2022a). Washington uses a business and occupation (B&O) tax. There are no deductions for

labor, materials, taxes, or other costs of doing business; however, there are different B&O tax classifications for extracting, manufacturing, wholesaling, government contracting, public road construction, service and other activities, retailing, and others, all with their own tax rates (DOR 2022b). Each business owes the B&O tax on its gross income. **Table 3.16-10** shows tax rates for major B&O tax classifications.

Table 3.16-10: Business and Occupation Tax Rates

Major Business and Occupation Tax Classifications	Rate
Retailing	0.47%
Wholesaling	0.48%
Manufacturing	0.48%
Service and Other Activities	1.50%
Service and Other Activities (\$1 million or greater in prior year)	1.75%

Source: DOR 2022a

Tariff

A tariff is a document that sets forth the terms and conditions of regulated service, including rates, charges, tolls, rentals, rules, and equipment and facilities. This document can include the manner in which rates and charges are assessed for regulated services provided to customers and rules and conditions associated with offering the service.

As detailed in Section 3.11, Public Services and Utilities, three of the 60 electric utility entities in Washington are investor-owned companies. Investor-owned utilities are for-profit companies that are regulated by the Utilities and Transportation Commission (UTC). Most public utility entities purchase electricity from investor-owned utility companies. Investor-owned utility providers do not receive appropriations or tax dollars for their operation and maintenance; rather, they pay their expenses through the sale of electricity and transmission services. These costs are ultimately passed on to the customer through rates or tariffs included as part of their electric power bills from local utilities.

The tariff or rate that is set for electricity and transmission services is assessed, reviewed, and approved through a multi-step process. Rates typically ensure that a utility company will be able to recover its total costs, including project construction, operation, and maintenance costs, and fish and wildlife protection activities. The UTC is ultimately responsible for approving any requests for rate increases for electricity in

Washington. This ensures that private or investor-owned natural gas and electric companies are providing services that are priced fairly and reliably. The increase in retail electricity cost in Washington over the past few years has been attributed to the following factors:

- Increased energy demand due to more customers. Washington's population increased 14.1 percent over the past 10 years, leading to additional energy use and higher demand.
- Inflation adjustments.
- Utility companies' investments to comply with environmental and renewable energy state laws.
- Growing investment in transmission or distribution, higher costs for investment in new-generation technologies, and upgrades and replacement of aging equipment.
- Increased global demand has caused a rise in the cost of raw materials such as concrete, steel, and copper. Prices have risen 10 to 15 times the rate of general inflation over the last decade, making building or replacing infrastructure more expensive (UTC 2018; EIA 2024b).

For facilities or portions of facilities that are analyzed and/or constructed for the sole benefit of a particular customer or customer group, utility companies may require that the customer or customer group pay for the requested service through a tariff. For instance, a community or service area requesting underground transmission facilities instead of overhead facilities would be responsible for paying the difference. The tariff would be imposed only on the customers benefiting from this modified service (PSE n.d.).

3.16.2.2 Environmental Justice

With the passage of the Healthy Environment for All (HEAL) Act in 2021, Washington took a historic step toward eliminating environmental and health disparities among communities of color and low-income households. The HEAL Act was the first statewide law in Washington to create a coordinated state agency approach to environmental justice, making it a priority and part of the mission of key state agencies. The law requires the Washington State Departments of Ecology, Agriculture, Commerce, Health, Natural Resources, and Transportation, and the Puget Sound

Partnership (Covered Agencies) to identify and address environmental health disparities (EHD) in overburdened communities and for vulnerable populations.

Although EFSEC is not a Covered Agency, Revised Code of Washington (RCW) 43.21C.405 mandates that this nonproject EIS evaluate potential impacts on environmental justice and overburdened communities as defined in RCW 70A.02.010. The HEAL Act, as codified in RCW 70A.02, defines environmental justice as:

The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, rules, and policies. Environmental justice includes addressing disproportionate environmental and health impacts in all laws, rules, and policies with environmental impacts by prioritizing vulnerable populations and overburdened communities, the equitable distribution⁶ of resources and benefits, and eliminating harm.

The Washington State Department of Health's Environmental Justice Assessment Report template was used to support the analysis in this Programmatic EIS (DOH 2024). The template suggests that Covered Agencies incorporate the following sections into their environmental justice assessments:

- 1. Analysis of environmental benefits⁷ and harms⁸
- 2. Identification of overburdened communities and vulnerable populations
- 3. Tribal engagement and consultation
- 4. Community engagement summary
- 5. Strategies to address environmental harms and equitably distribute environmental benefits.

⁶ A fair and just, but not necessarily equal, allocation intended to mitigate disparities in benefits and burdens that are based on current conditions, including existing legacy and cumulative impacts, that are informed by cumulative environmental health impact analysis (RCW 70A.02.020).

⁷ An activity that: (a) Prevents or reduces existing environmental harms or associated risks that contribute significantly to cumulative environmental health impacts; (b) Prevents or mitigates impacts to overburdened communities or vulnerable populations from, or support community response to, the impacts of environmental harm; or (c) meets a community need formally identified to a covered agency by an overburdened community or vulnerable population that is consistent with the intent of chapter 70A.02 RCW.

⁸ An individual or cumulative environmental health impact and risk to communities caused by historic, current, or projected: (a) Exposure to pollution, conventional or toxic pollutants, environmental hazards, or other contamination in the air, water, and land; (b) Adverse environmental effects, including exposure to contamination, hazardous substances, or pollution that increase the risk of adverse environmental health outcomes or create vulnerabilities to the impacts of climate change; (c) Loss or impairment of ecosystem functions or traditional food resources or loss of access to gather cultural resources or harvest traditional foods; or (d) Health and economic impacts from climate change.

The analysis provided in this section encompasses the first, second, and fifth sections of the Environmental Justice Assessment Report template. Chapter 5, Consultation and Engagement, describes the public scoping; government-to-government consultation; and agency cooperation, consultation, and coordination that helped support the development of this Programmatic EIS.

Vulnerable Populations and Overburdened Communities

The Washington State Legislature defines "vulnerable populations" as follows:

- (a) Population groups that are more likely to be at higher risk for poor health outcomes in response to environmental harms, due to:
 - i) Adverse socioeconomic factors, such as unemployment, high housing and transportation costs relative to income, limited access to food and health care, and linguistic isolation;9 and
 - ii) Sensitivity factors, including low birth weight and higher rates of hospitalization.
- (b) "Vulnerable populations" includes, but is not limited to:
 - *i)* Racial or ethnic minorities;
 - *ii)* Low-income populations;
 - iii) Populations disproportionately impacted by environmental harms; and
 - iv) Populations of workers experiencing environmental harms.

An "overburdened community" is defined as a geographic area where vulnerable populations face combined, multiple environmental harms and health impacts. This includes, but is not limited to, highly impacted communities as defined in RCW 19.405.020. RCW 19.405.020 and RCW 19.405.140 define these communities as being highly impacted by fossil fuel pollution and climate change, as designated in the cumulative impact analysis prepared by the Washington State Department of Health. Overburdened communities also include communities located in census tracts¹0 that

 $^{^{10}}$ A small geographical unit used by the U.S. Census Bureau for collecting demographic data.



⁹ Linguistic Isolation refers to households where no one over age 14 speaks English very well, based on data obtained from the U.S. Census Bureau's American Community Survey.

are fully or partially on "Indian country," as defined in 18 United States Code Section $1151.^{11}$

The following sections describe the affected environment for vulnerable populations and overburdened communities throughout Washington. The analysis encompasses the different aspects of vulnerable populations and overburdened communities, including racial or ethnic minorities and low-income populations, and uses different databases to understand existing environmental harms, including harms related to climate change. The following data sources and tools were used to identify counties with vulnerable populations and overburdened communities:

- U.S. Census Bureau
- Washington Tracking Network (WTN)
- Washington State Office of Financial Management
- Information By Location (IBL) tool on WTN

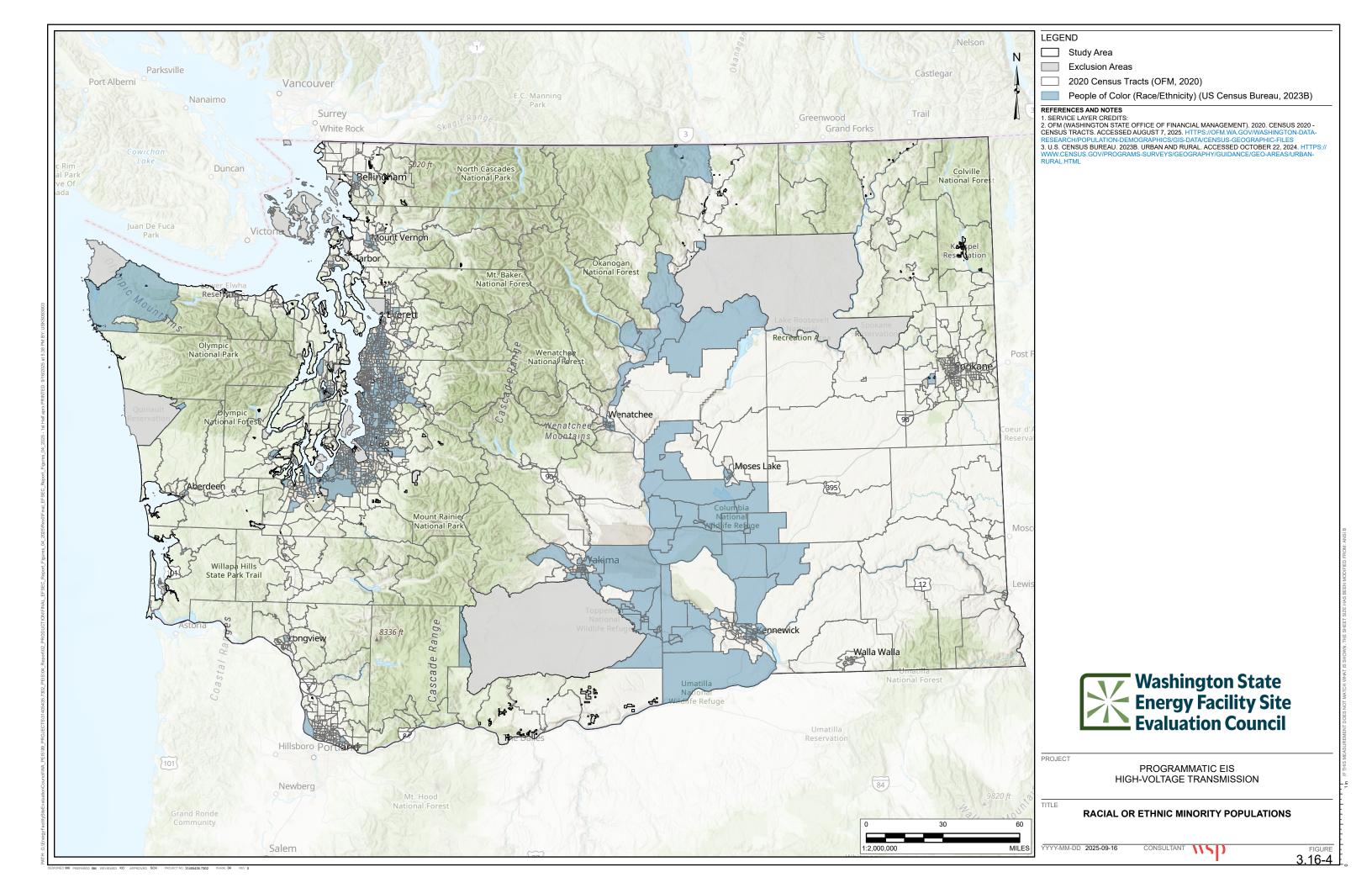
Racial or Ethnic Minorities

The analysis uses 5-year population estimates at the census tract level from the U.S. Census Bureau 2019-2023 American Community Survey (ACS). Data from each census tract overlapping the Study Area were analyzed and compared to the State as a whole. Racial and ethnic populations make up 32.06 percent of Washington's population. This number serves as a conservative baseline for comparing the percentage of minority populations in individual census tracts with the statewide percentage.

A census tract is considered a "racial or ethnic minority population" if the percentage of minority population in the census tract is greater than the state percentage (32.06%). A racial or ethnic minority is defined as all people who identify in the census as a race other than white alone and/or list their ethnicity as Hispanic or Latino. The 2020 census tracts that overlap the Study Area and are considered a racial or ethnic minority population are shown in **Figure 3.16-4**.

¹¹ 18 United States Code Section 1151 defines Indian country as: (a) all land within the limits of any Indian reservation under the jurisdiction of the United States Government, notwithstanding the issuance of any patent, and, including rights-of-way running through the reservation, (b) all dependent Indian communities within the borders of the United States whether within the original or subsequently acquired territory thereof, and whether within or without the limits of a state, and (c) all Indian allotments, the Indian titles to which have not been extinguished, including rights-of-way running through the same





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Low-Income Population

The Washington State Legislature defines low-income as follows:

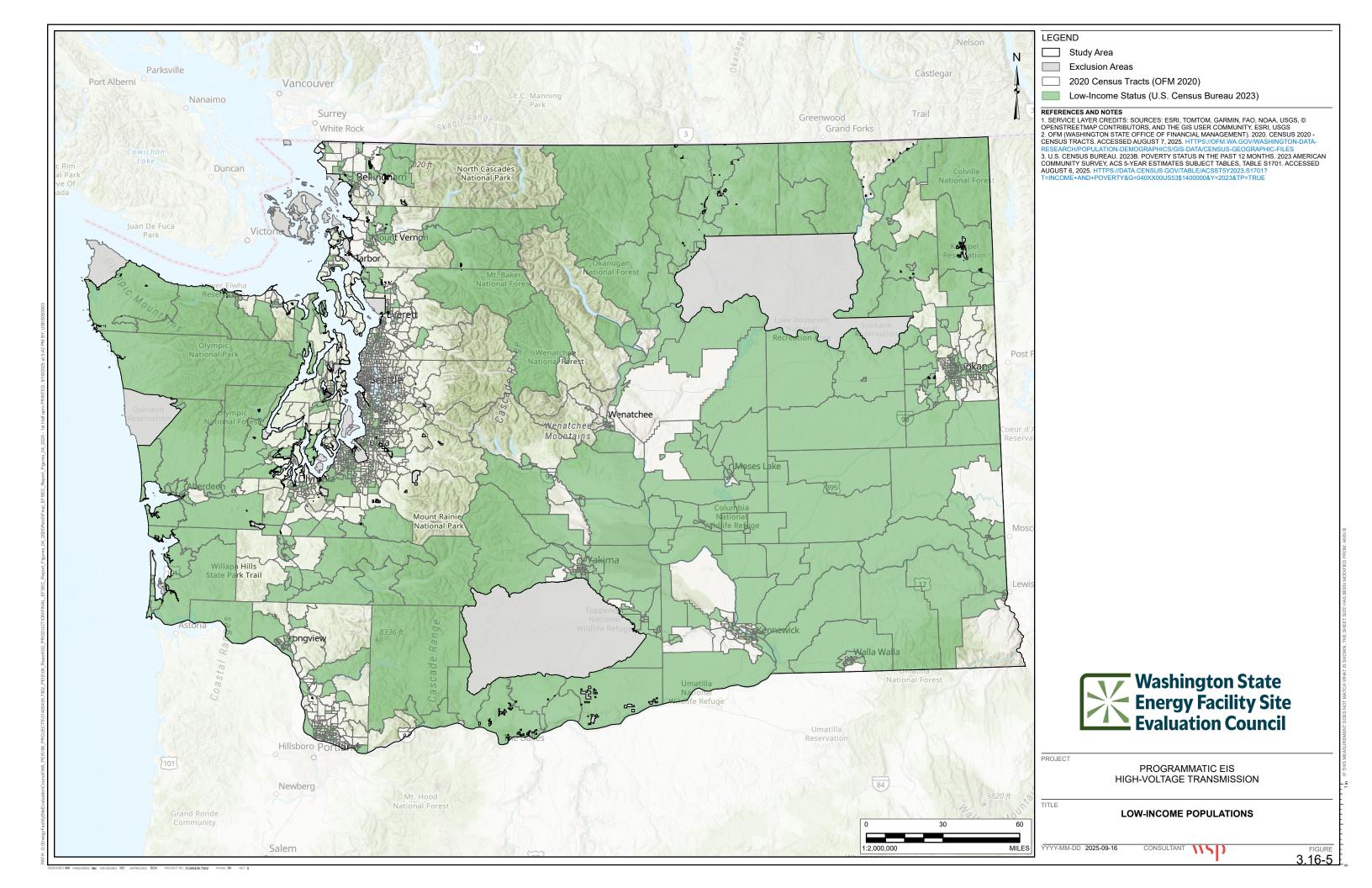
Household incomes as defined by the department or commission, provided that the definition may not exceed the higher of eighty percent of the area median household income or two hundred percent of the federal poverty level, adjusted for household size (RCW 19.405.020).

In accordance with RCW 19.405.020, the analysis conducted for this Programmatic EIS defines low-income individuals with an income at or below 200 percent of the federal poverty level, adjusted for household size. This methodology is used herein to set forth a threshold for identifying a potential low-income population for the purpose of studying environmental justice.

The analysis uses 5-year population estimates at the census tract level from the U.S. Census Bureau 2019-2023 ACS. Data from each census tract overlapping the Study Area were analyzed and compared to the State as a whole. Low-income populations make up 22.78 percent of Washington's population. This number serves as a conservative baseline for comparing the percentage of low-income populations in individual census tracts with the statewide percentage.

A census tract is considered a "low-income population" if the percentage of low-income populations in the census tract is greater than the state percentage (22.78%). As previously described, low-income persons were defined as individuals living in households with an income at or below twice the federal poverty level. The 2020 census tracts that overlap the Study Area and are considered a low-income population are shown in **Figure 3.16-5**.

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Environmental Harms

Washington Environmental Health Disparities Map

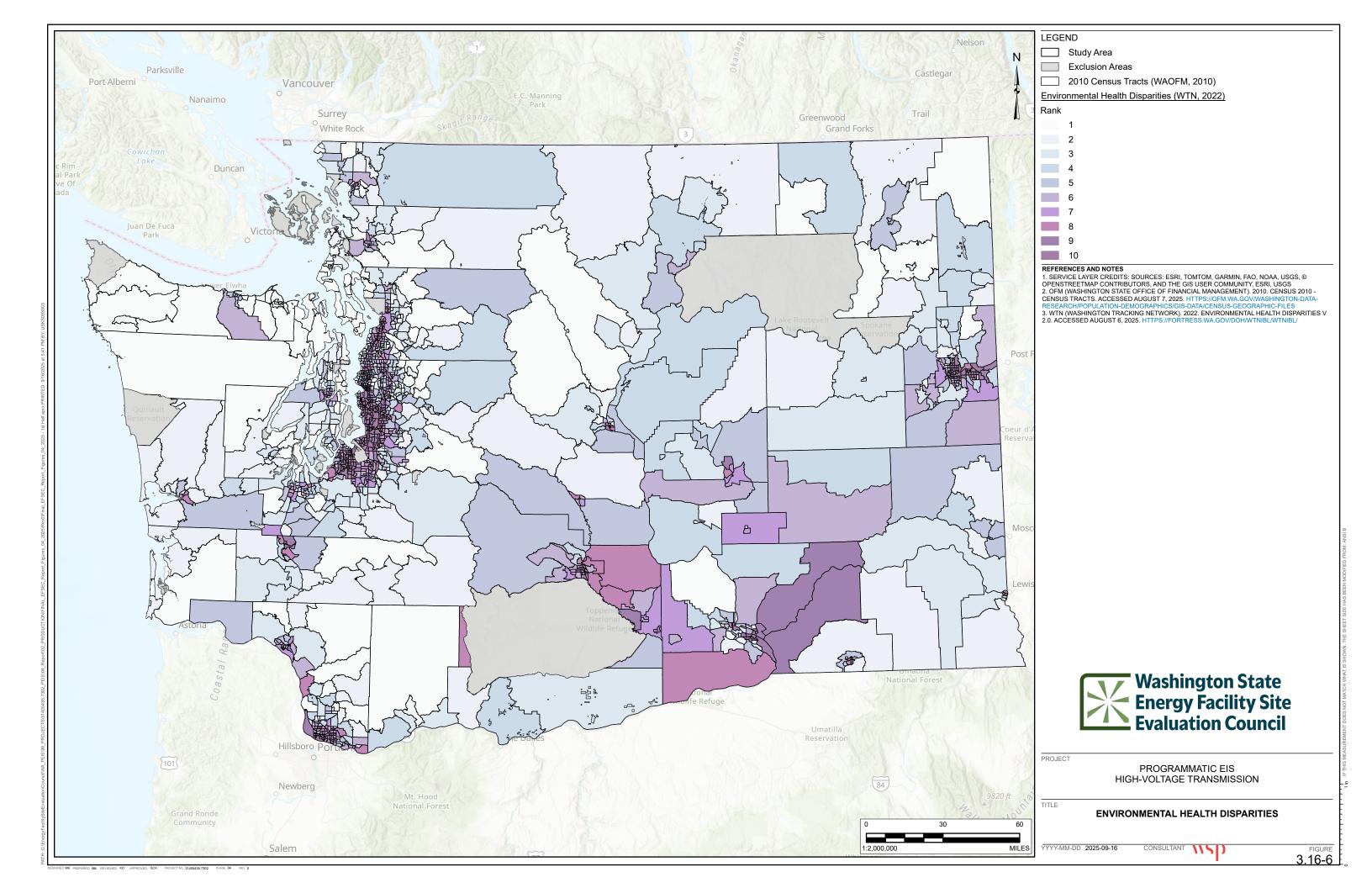
Washington developed the Washington Tracking Network's EHD Map, which is an interactive tool that integrates 2010 census tracts with state and national data to map 19 indicators of community and environmental health. These indicators are categorized into four topic areas, including environmental exposures, environmental effects, socioeconomic factors, and sensitive populations. The different indicators that make up these topic areas are provided below.

- Environmental exposures: Particulate matter up to 2.5 microns in diameter (PM_{2.5}); diesel exhaust PM_{2.5}, emissions, ozone, toxic releases from facilities (Risk-Screening Environmental Indicators [RSEI] Model), and proximity to heavy traffic roadways.
- Environmental effects: Lead risk from housing, proximity to hazardous waste treatment, storage, and disposal facilities, proximity to national priorities list facilities (superfund sites), proximity to risk management plan, and wastewater discharge.
- Socioeconomic factors: No high school diploma, unaffordable housing, transportation expense, limited English, people living in poverty, race (people of color), unemployment,
- Sensitive populations: Death from Cardiovascular Disease and low birth weight.

The tool estimates a cumulative environmental health impact score for each census tract, which is based on a conceptual formula of Risk = Threat x Vulnerability. The tool helps visualize how the cumulative risks affect each neighborhood in Washington and the environmental burdens that contribute to inequitable health outcomes and unequal access to healthy communities (DOH 2022).

Rankings for this map can be interpreted as a way to measure relative environmental risk factors in communities. The rankings help compare health and social factors that may contribute to disparities within a community or between communities and should not be taken as an absolute value. For example, if a community has a rank of 8, it means about 10 percent of communities are similarly impacted, approximately 70 percent of communities are less impacted, and 20 percent of communities are more impacted (DOH 2022). Figure 3.16-6 represents EHD for all 2010 census tracts overlapping the Study Area.

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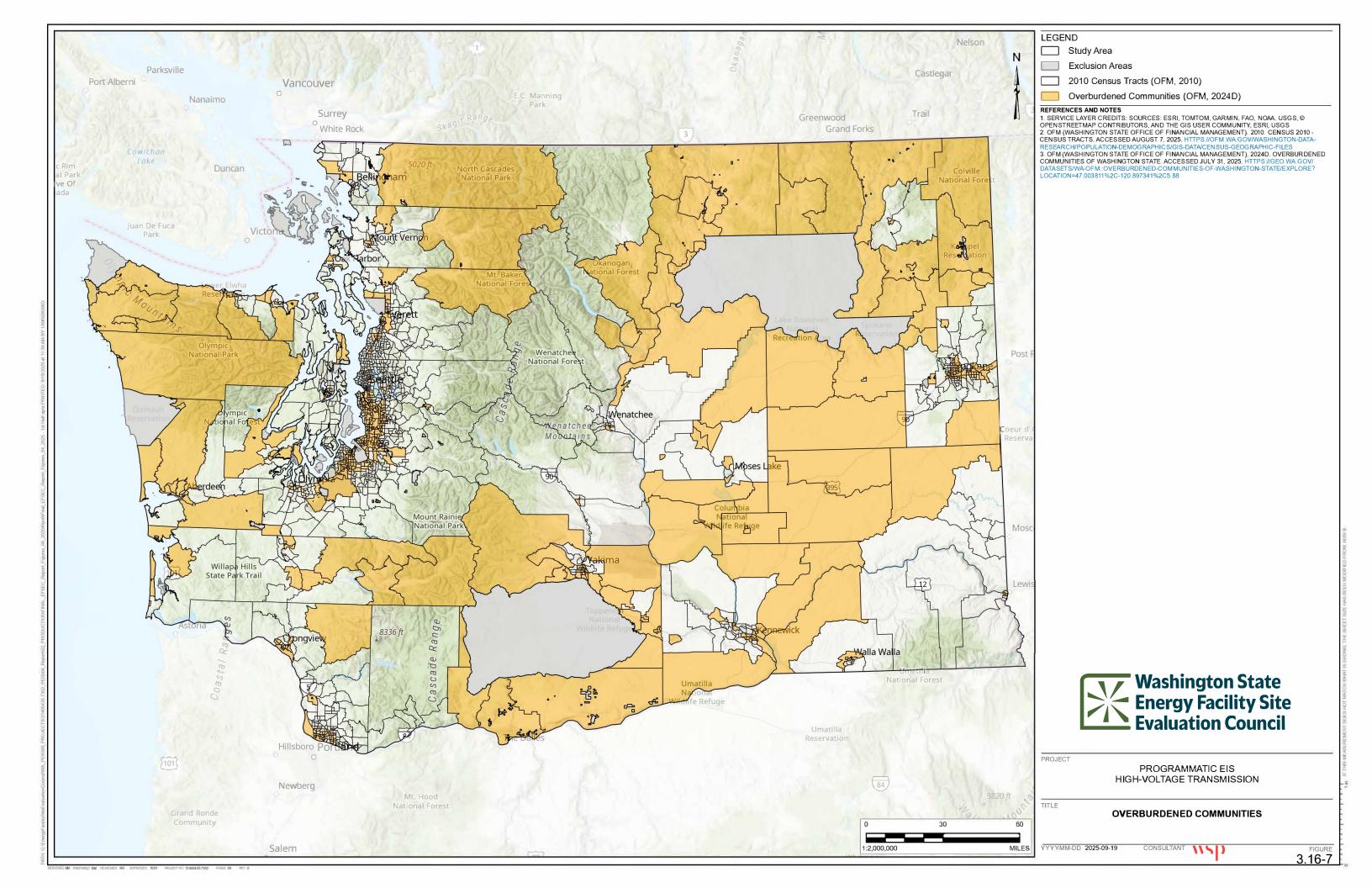
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Overburdened Communities

Washington also provides a geospatial dataset for overburdened communities in the state. The dataset merges several critical and currently available data sources to identify where vulnerable populations face cumulative environmental and health impacts. This dataset integrates 2010 census tracts ranked 9 or 10 by the Washington EHD Map, tracts identified as "disadvantaged" by the federal Climate and Economic Justice Screening Tool (CEJST), and tracts overlapping with Tribal reservations (as recognized by the Bureau of Indian Affairs) (Ecology 2024). The CEJST considers communities disadvantaged if they are located in census tracts that meet the threshold for at least one of the tool's eight identified burdens, or if they are on land within the boundaries of Federally Recognized Tribes. The CEJST's eight identified burdens include climate change, energy, health, housing, legacy pollution, transportation, water and wastewater, and workforce development (CEQ 2022).

The data for overburdened communities support the identification of fund allocation under the CCA and HEAL Act, aiming to ensure equitable expenditures of funds toward environmental benefits and reduction of burdens in these critical areas (Ecology 2024). Figure 3.16-7 below shows the 2010 census tracts overlapping the Study Area that are considered an overburdened community.

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3.16.3 Impacts

For this Programmatic EIS, adverse environmental impacts were assessed for the new construction, operation and maintenance, upgrade, and modification of transmission facilities within the Study Area.

3.16.3.1 Method of Analysis

The study area for a project-specific application would typically encompass several key regions and features, such as the following:

- Project Site and Immediate Vicinity: This includes the specific location of the
 project and the surrounding area that might be directly affected by new
 construction, operation and maintenance, upgrade, and modification activities.
 The project site would include the transmission facility rights-of-way (ROWs),
 substation locations, transmission towers, access roads, and construction yards
 and associated laydown areas. The immediate vicinity would be based on setback
 requirements within local land use codes and transmission facility voltages.
- Vulnerable Populations and Overburdened Communities: Applicants would work closely with the SEPA Lead Agency to identify which screening tool to use to ensure the project does not result in an adverse disproportionate impact on vulnerable populations or overburdened communities.

This Programmatic EIS analyzes the affected environment and adverse environmental impacts on socioeconomics within the Study Area (see Chapter 1, Introduction). Four project stages for each transmission facility type (overhead or underground) were considered: new construction, operation and maintenance, upgrade, and modification.

This evaluation considers both overhead and underground transmission facilities for each stage. Overhead transmission facilities consist of transmission lines, substations, and ancillary infrastructure. Overhead and underground transmission facilities may involve similar aboveground infrastructure. Underground transmission facilities consist of underground transmission lines, underground access vaults, and other infrastructure located below the ground surface. The new construction of underground transmission facilities could include both open-trench and trenchless construction methods.

This analysis includes an evaluation of potential adverse environmental impacts related to environmental justice on vulnerable populations and overburdened communities in accordance with RCW 43.21C.405.

The impact analysis uses urban and rural areas 22 as proxies for how the Action Alternative could impact communities, including vulnerable populations and overburdened communities. Urban and rural areas were selected as proxies, as their geographies and baseline conditions could potentially dictate whether an adverse environmental impact is a nuisance or severe enough that it causes a measurable change to their residents' general welfare, social conditions, and economic environment.

Impact Determination

The discussion of adverse environmental impacts is qualitative, given the high-level nature of a Programmatic EIS; quantification would require project-specific details to analyze. **Table 3.16-11** describes the criteria used to evaluate adverse environmental impacts from the Action Alternative and No Action Alternative. Information reviewed to identify adverse environmental impacts on socioeconomic resources in the Study Area was obtained from federal agencies, state agencies, local planning documents, and public scoping.

¹² The Census Bureau's urban areas represent densely developed territory, and encompass residential, commercial, and other non-residential urban land uses. Rural encompasses all population, housing, and territory not included within an urban area. An urban area must comprise a densely settled core of census blocks that meet minimum housing unit density and/or population density requirements. This includes adjacent territory containing non-residential urban land uses. To qualify as an urban area, the territory identified according to criteria must encompass at least 2,000 housing units or have a population of at least 5,000 (U.S. Census Bureau 2023c).

Table 3.16-11: Criteria for Assessing the Impact Determination on Socioeconomics

Impact Determination	Description
Nil	No foreseeable adverse environmental impacts are expected. A project would not adversely affect socioeconomics, including the general welfare, social condition, or economic environment of communities, vulnerable populations, or overburdened communities.
Negligible	A project would result in minimal adverse environmental impacts on socioeconomics. Changes would either be non-detectable or, if detected, would have only slight effects. A project would result in:
	 General Welfare: Slight changes to the health, wellbeing, or safety of residents.
	• Social Conditions: Sight changes to healthcare, lifestyles, sense of belonging, housing, education, or assistance programs.
	■ Economic Environment: Slight changes to local employment, labor demand, employment accessibility, demand for local goods and services, or fiscal revenue.
	■ Environmental Justice: Slight changes to the general welfare, social conditions, and economic environment of vulnerable populations and overburdened communities. These changes would not be disproportionate in comparison to the same impacts on other populations or communities.
	Negligible impacts would be short-term in duration. BMPs and design considerations are expected to be effective.
Low	A project would result in noticeable adverse environmental impacts on socioeconomics, even with the implementation of BMPs and design considerations. These adverse environmental impacts may include:
	■ General Welfare: Noticeable changes to the health, wellbeing, or safety of residents. Changes would be minor and within applicable regulatory standards. Changes would not require community- or government-level support to be improved.
	 Social Conditions: Noticeable changes to healthcare, lifestyles, sense of belonging, housing, education, or assistance programs. For changes not to become long-term, communities may implement readily available assistance programs.
	■ Economic Environment: Noticeable changes to local employment, labor demand, employment accessibility, demand for local goods and services, or fiscal revenue. A project would not lead to a recession in business or housing. For changes not to become long-term, communities may implement readily available programs to revitalize or enhance economic growth.
	■ Environmental Justice: Noticeable changes to the general welfare, social conditions, or economic environment of vulnerable populations or overburdened communities. These changes would not be disproportionate in comparison to the same impact on other populations or communities.
	These adverse environmental impacts would be limited, controlled, and localized. Adverse environmental impacts may be short or long-term in duration.

Impact Determination	Description
Medium	A project would result in adverse environmental impacts on socioeconomics, even with the implementation of BMPs and design considerations. A project would result in:
	 General Welfare: Measurable changes to the health, wellbeing, or safety of residents. Changes would not be improved without community-level support. Social Conditions: Measurable changes to healthcare, lifestyles, sense of belonging, housing, education, or assistance programs. For changes not to become long-term, communities would need to implement structural changes or assistance programs. Economic Environment: Measurable changes to local employment, labor demand, employment accessibility, demand for local goods and services, or fiscal revenue. Communities may experience a short or long-term recession in housing or businesses. For changes not to become long-term, communities may need to make structural changes that revitalize economic growth. Environmental Justice: Measurable changes to the general welfare, social conditions, and economic environment of vulnerable populations or overburdened communities. These changes may have a short or long-term disproportionate effect on vulnerable populations or overburdened communities in comparison to the same impact on other populations or communities.
	Medium impacts may be short or long-term in duration.
High	A project would result in adverse and potentially severe environmental impacts on socioeconomics, even after implementation of BMPs and design considerations. A project would cause:
	 General Welfare: Substantial changes in the health, wellbeing, or safety of residents. Improvements in general welfare may not be possible without government-level support.
	Social Conditions: Substantial changes in healthcare, lifestyles, sense of belonging, housing, education, or assistance programs. Communities may experience a long-term change in social conditions. Improvements to social conditions may be outside a community's control.
	■ Economic Environment: Substantial changes in local employment, labor demand, employment accessibility, demand for local goods and services, or fiscal revenue. Communities may experience a long-term recession in housing or businesses. Improvements in economic conditions may be outside a community's control.
	■ Environmental Justice: Substantial changes to the general welfare, social conditions, and economic environment of vulnerable populations or overburdened communities. These changes would result in a long-term, disproportionate impact on vulnerable populations and overburdened communities in comparison to the same impact on other populations or communities.

Impact Determination	Description
	Adverse environmental impacts on socioeconomics may affect a larger area and may not be localized to the construction site. High impacts may be short or long-term.

Notes:

- (a) Raphael et al. 2020
- (b) U.S. Department of Health and Human Services n.d.(b)

BMP = best management practice

To clearly understand the potential severity of adverse environmental impacts without any interventions, the following impact determinations exclude the use of Avoidance Criteria and Mitigation Measures. The ratings assume compliance with all federal, state, and local laws and regulations, as well as standardized BMPs and design considerations. Assessing adverse environmental impacts without Avoidance Criteria or Mitigation Measures offers a baseline understanding of potential environmental effects, helping to identify the true extent of these impacts. Environmental laws often require that initial impact assessments be conducted without considering mitigation to maintain the integrity of the environmental review process.

When impact determinations are identified as medium or high, then either the applicant would adopt applicable Mitigation Measures from this Programmatic EIS, or the SEPA Lead Agency may require other applicable mitigation measures to be implemented to reduce project-specific adverse environmental impacts. When impact determinations are low, applicable Mitigation Measures should still be considered by the applicant and the SEPA Lead Agency, as these measures would help to further reduce adverse environmental impacts, including the project's contribution to cumulative impacts. These Mitigation Measures would be implemented in addition to compliance with laws, regulations, environmental permits, plans, and design considerations required for transmission facilities.

3.16.3.2 Action Alternative

New Construction

Overhead Transmission Facilities

Activities for new construction of overhead transmission facilities would vary and depend on the scale of the facility and site characteristics. New construction could include a relatively short site preparation period (e.g., a few months), followed by a longer construction and start-up period. It is assumed that new construction of

overhead transmission, per mile, would have a shorter duration than underground construction.

Overhead transmission facilities could have the following adverse impacts related to socioeconomics and environmental justice during new construction:

- Degradation of the Natural and Built Environment
- Changes in Housing Availability
- Changes in Home Values
- Changes in Economic and Fiscal Conditions or Employment

Degradation of the Natural and Built Environment

This section of the analysis is organized based on elements of the environment, as defined in WAC 197-11-444 and discussed throughout Chapter 3, Affected Environment, Significant Impacts, and Mitigation. The natural environment includes elements such as air quality, water resources, plants, and animals. The built environment includes noise, land and shoreline use, aesthetics, recreation, and transportation. This analysis evaluates how environmental degradation related to noise, air quality, visual quality, recreation, and land and shoreline use resulting from the new construction of overhead transmission facilities could impact socioeconomics and environmental justice.

Noise and Vibration

Noise and vibration could be generated during the new construction of overhead transmission facilities from transporting and staging materials, using heavy machinery, drilling and blasting, constructing access roads, and assembling transmission structures. Section 3.13, Noise and Vibration, analyzes noise and vibration adverse environmental impacts from transmission facilities on sensitive receptors, such as residential areas, parks and recreational areas, schools, hospitals, nursing homes, and hotels. Table 3.13-1 includes applicable regulations that are intended to protect workers and the public from hearing loss. Table 3.13-2 provides a list of guidelines that are intended to prevent noise pollution and protect workers and the public from noise pollution. The following analysis evaluates potential noise impacts on urban and rural communities, including vulnerable populations and overburdened communities.

Urban communities may experience elevated ambient noise levels from nearby airports, transportation corridors, or higher population densities. A change in noise in



an urban area can either go unnoticed or exacerbate an already noisy environment. Rural areas may have lower ambient noise levels but still experience noise from agricultural activities or natural sounds from birds, insects, and vegetation rustling.

Noise and vibration in urban areas may not be noticeable because of the existing baseline conditions. Homes may also be constructed in a way that minimizes exterior noise or enhances their structural integrity. However, health impacts could occur in certain urban locations, particularly those where a change in noise levels exacerbates existing conditions and leads to increased and prolonged stress. Since rural areas have lower baseline ambient noise levels, a change in noise could be more noticeable and result in a greater impact than in urban areas. In both urban and rural areas, noise from construction could cause disruption to education for neighboring students and schools. Noise and vibration adverse environmental impacts would occur on a temporary basis during construction activities and would cease once construction is completed.

Noise from the new construction of overhead transmission facilities could impact vulnerable populations and overburdened communities in the same ways as those described above. However, these groups may experience greater adverse environmental impacts from construction noise due to their vulnerability and being impacted by existing environmental harms, as described above. Additionally, it is possible that these groups could experience greater impacts from construction noise and vibration for the following reasons:

- Structures such as houses may not be constructed with the same noiseattenuating materials or have the same structural integrity as houses in other communities. This can make these structures and the individuals within them more susceptible to audible and vibratory impacts.
- Financial constraints may prevent individuals from seeking refuge from noisy conditions, further increasing levels of stress and affecting their overall health and wellbeing.

Noise from the new construction of overhead transmission facilities could have short-term adverse environmental impacts on the social conditions and general welfare of both urban and rural communities. The siting of transmission facilities is anticipated to be influenced by their long, linear design and the locations of higher energy demand. However, if transmission facilities are constructed in areas that are predominantly vulnerable or overburdened, the noise and vibration adverse environmental impacts resulting from their construction could have temporary,

disproportionate effects on vulnerable populations and/or overburdened communities.

Air Quality

New construction of overhead transmission facilities could impact air quality as a result of increased fugitive dust emissions, emissions from fuel-burning equipment, and sulfur hexafluoride emissions. As described in Section 3.3, Air Quality, adverse environmental impacts on air quality can adversely impact sensitive receptors. The following analysis evaluates potential impacts on urban and rural communities, including vulnerable populations and overburdened communities.

Urban communities often experience high levels of air pollution from sources such as land development, transportation, and industrial activities. While air pollution levels may be generally lower in rural areas, these communities can still be affected by air pollution from transportation and agricultural activities. Changes in baseline air quality conditions may be more noticeable in rural areas than in urban ones. However, depending on the construction activity type, duration, and distance from a community, fugitive emissions can affect the social conditions and overall wellbeing of both urban and rural communities.

Increased fugitive emissions may be perceived as a nuisance, leading residents to temporarily change their lifestyles. For example, dust from construction may cause people to stay indoors for longer periods, force them to close their windows, or lead them to install air purifying systems. Temporary lifestyle changes could increase stress levels among residents, thereby impacting their overall wellbeing. Additionally, increased construction emissions could temporarily affect the health and wellbeing of individuals with respiratory conditions, such as asthma.

Air quality adverse environmental impacts from the new construction of overhead transmission facilities could impact vulnerable populations and overburdened communities in the same ways. However, these groups may experience even greater impacts due to their vulnerability, limited financial opportunities to implement air purifying systems or air conditioners, and being impacted by existing environmental harms, as described above. Additionally, impacts related to social conditions could increase if access to healthcare or assistance programs changes or is limited.

The siting of transmission facilities is anticipated to be influenced by their long, linear design and the locations of higher energy demand. However, if transmission facilities are constructed in areas that are predominantly vulnerable or overburdened, the air

quality impacts resulting from their construction could have temporary, disproportionate effects on vulnerable populations and/or overburdened communities.

Visual Quality

As described in Section 3.12, Visual Quality, new construction activities associated with overhead transmission facilities have adverse environmental impacts on visual quality and the aesthetics of surrounding areas. The following analysis evaluates potential impacts on urban and rural communities, including vulnerable populations and overburdened communities.

Urban communities often have visually crowded environments due to prominent features such as tall buildings, telephone poles, and nighttime lights. In contrast, rural areas tend to have less visual clutter and fewer nighttime lights than urban settings. Rural areas are more likely than urban areas to offer open vistas and scenic natural resources. However, highways and agricultural support structures can still impact the visual landscape in rural areas.

New construction activities, such as vegetation clearing, grading, and earthworks, could temporarily degrade the aesthetics of both urban and rural communities. Adverse environmental impacts on the visual quality or aesthetics of an area may be perceived as a nuisance, thereby increasing stress levels for residents in both urban and rural communities.

Clearing ROWs or constructing permanent access roads could create contrasting visual landscapes, especially in rural areas. Furthermore, scenic views in rural areas could be disrupted by the installation of overhead transmission structures. Rural communities may experience heightened levels of stress and a decreased sense of belonging due to the rapidly changing landscape. Ongoing levels of increased stress and a change in an individual's sense of belonging could affect their overall wellbeing. Visual disruptions to scenic views or visual landscapes could also reduce tourism and agri-tourism appeal, thereby affecting the economic environment for populations that rely on these industries.

Visual effects from the new construction of overhead transmission facilities could have long-term, adverse environmental impacts on the social conditions, economic environment, and general welfare of urban and rural communities. These impacts could also affect vulnerable populations and overburdened communities. However, these groups may experience even greater effects due to their vulnerability and being

impacted by existing environmental harms, as described above. For instance, if the new construction of overhead transmission facilities has adverse effects on tourism or agri-tourism, it could decrease labor demand and fiscal revenue. If low-income populations that rely on this industry are let go due to budget cuts, then their lifestyle, health, and overall wellbeing could be adversely impacted at a greater magnitude or more severely than other populations.

Overhead transmission facilities could have adverse visual impacts that begin during new construction and continue throughout the life of a project. These long-term adverse environmental impacts would affect the social conditions and general welfare of both urban and rural communities. The siting of transmission facilities is anticipated to be influenced by their long, linear design and the locations of higher energy demand. However, if transmission facilities are constructed in areas that are predominantly vulnerable or overburdened, the visual impacts resulting from their construction could have long-term, disproportionate effects on vulnerable populations and/or overburdened communities.

Land and Shoreline Use, and Recreation

As discussed in Section 3.9, Land and Shoreline Use, and Section 3.14, Recreation, the new construction of overhead transmission facilities could result in an incompatible land and shoreline use and decrease the function and value of recreational facilities, shorelines, agricultural lands, and rangelands. The following analysis evaluates how these potential adverse environmental impacts may affect urban and rural communities, including vulnerable populations and overburdened communities.

Rural areas generally experience fewer changes or conflicts related to land use than urban areas because they have less development. Therefore, changes to the baseline conditions are expected to be more noticeable. Land uses that conflict with residential, commercial, or public service and education facilities, in both urban and rural areas, could influence a community's sense of belonging and impact an individual's health and safety (see Section 3.8, Public Health and Safety). These changes could result in long-term, adverse environmental impacts on the social conditions and general welfare of rural communities.

Since rural areas have more land designated for agriculture and farming activities, temporary adverse environmental impacts on their operations could affect the economic environment. Damage to crops, decreased productivity, and the presence of heavy equipment that poses an obstacle to agricultural activities could decrease labor demand and fiscal revenue, thereby resulting in long term adverse environmental

impacts on the economic environment. Similarly, impacts on shorelines in either rural or urban communities could affect livelihoods that depend on fishing or tourism.

Adverse environmental impacts on shoreline uses and recreational resources could affect both urban and rural communities. New construction activities have the potential to limit public access and recreational opportunities. New construction activities could also temporarily change the integrity of a shoreline or recreational resource. New construction activities could destabilize natural resources, disturb soils prone to sedimentation and erosion, and alter the existing visual landscape, leading to a change in the resource's integrity. Urban and rural communities may be deterred from going to these areas and already experience a lack of recreational opportunities. Therefore, temporary changes to the integrity and accessibility of shorelines and recreational facilities could affect an individual's lifestyle, wellbeing, and health. These changes could result in temporary adverse environmental impacts on the social conditions and general welfare of urban and rural communities.

These adverse environmental impacts could also affect vulnerable populations and overburdened communities. However, these groups may experience greater impacts due to their vulnerability and the historical burden of environmental stressors as described above. Additionally, these groups may experience increased impacts for the following reasons:

- They may already experience impacts from incompatible land uses caused by land or transportation developments, such as major roads or highways.
 Additional incompatible developments could increasingly have an adverse impact on the social conditions and general welfare of a vulnerable population and an overburdened community.
- Financial constraints may limit a vulnerable population and overburdened community from accessing unaffected shorelines or recreational resources, thereby having a more noticeable effect on their lifestyle, health, and wellbeing.

Overhead transmission facilities could have adverse land and shoreline use and recreation impacts that begin with new construction and continue throughout the life of the project. These long-term, adverse environmental impacts would affect the social conditions, economic environment, and general welfare of both urban and rural communities. The impacts may also affect vulnerable populations and overburdened communities. However, these groups may experience greater effects due to their vulnerability and being impacted by existing environmental harms, as described above.

The siting of transmission facilities is anticipated to be influenced by their long, linear design and the locations of higher energy demand. However, if transmission facilities are constructed in areas that are predominantly vulnerable or overburdened, the impacts resulting from their construction could have long-term, disproportionate effects on vulnerable populations and/or overburdened communities.

Impact determination: Adverse environmental impacts on socioeconomics resulting from the degradation of the natural and built environment during the new construction of overhead transmission facilities are expected to vary depending on the scale of the project and site-specific conditions. In the absence of mitigation, these adverse environmental impacts could range from negligible to high.

Changes in Housing Availability

As discussed in Chapter 2, Overview of Transmission Facilities, Development Considerations, and Regulations, the number of workers employed during the new construction of transmission facilities would vary greatly depending on the size and scale of the facility. It is generally anticipated that the new construction of a transmission facility could require between 60 and 220 employees at any given time. However, new construction activities are expected to occur in sequences; therefore, employees would not all be in one location at the same time. The workers traveling to the new construction area could affect the availability of local hotels or short-term places of stay rather than long-term housing options.

As discussed in Chapter 1, Introduction, adverse environmental impacts related to or resulting from eminent domain are not analyzed in this document. Projects that may require eminent domain are subject to Title 8 RCW and 54.16.020. However, the new construction of overhead transmission facilities could include mutually agreed-upon property acquisition agreements between the project applicant and the property owner. Property acquisition could lead to long-term changes in housing availability if the agreements result in the displacement of residents or housing units. Zoning changes or new utility infrastructure near residents could influence the desirability of continuing to live there, and could lead to residents moving. Changes in housing availability could arise if many people decide to move due to the new construction of an overhead transmission facility. Additionally, some project employees may look for more permanent residences based on their roles on the project (e.g., project managers, superintendents). Changes in housing availability could lead to adverse environmental impacts on the economic environment, social conditions, and general welfare of communities.

Furthermore, as shown in **Table 3.16-6**, housing availability is low statewide, and affordability varies by location. In densely populated urban areas, where affordable housing options are often limited, a change in housing availability could result in an increased demand. If affordable housing demands increase, prices may increase to reflect the demand, thereby leading to higher costs of living. Rural areas generally have fewer housing options than urban areas; therefore, a change from baseline conditions may result in a more severe adverse environmental impact on these communities than on those in urban areas.

Decreased short- and long-term housing availability resulting from the new construction of overhead transmission facilities could have long-term adverse environmental impacts on the economic environment, social conditions, and general welfare of urban and rural communities. These impacts could also affect vulnerable populations and overburdened communities. However, these groups may experience a greater effect due to their limited financial resources, which may be required to adapt to a changing economic environment. Additionally, they may face greater impacts due to their vulnerability and being impacted by existing environmental harms, as described above.

The siting of transmission facilities is anticipated to be influenced by their long, linear design and the locations of higher energy demand. However, if transmission facilities are constructed in areas that are predominantly vulnerable or overburdened, the adverse environmental impacts on housing availability resulting from their construction could have long-term, disproportionate effects on vulnerable populations and/or overburdened communities.

Impact Determination: Adverse environmental impacts on socioeconomics resulting from changes in housing availability during the new construction of overhead transmission facilities are expected to vary depending on the scale of the project and site-specific conditions. In the absence of mitigation, these adverse environmental impacts could range from negligible to high.

Changes in Home Values

As shown in **Table 3.16-6**, median home values can be closely associated with whether the home is in an urban or rural county. The exception to this is when a rural county has land use restrictions that limit future development, such as housing. In these areas, limited housing availability may have a greater influence on home values than the addition of new transmission facilities. For instance, in a rural county like Adams County, the median home value is \$216,900, while in San Juan County, the median

home value is \$673,700. The higher home values in San Juan County are likely associated with the island's restrictions on development and its remote location. The median home value in an urban county, such as King County, is \$761,500. The home values in King County are likely supported by the larger population and higher personal incomes.

Additional overhead infrastructure in urban viewsheds is likely to have a lower impact on home values than in rural areas, where there are more scenic natural resources. Once new construction begins, potential homebuyers would likely factor the long-term changes to the viewshed or potential health and safety concerns (see Section 3.8, Public Health and Safety) into their decision-making process. These factors could influence and decrease home values beginning in new construction and continuing throughout the life of a project.

Vacancy rates, shown in **Table 3.16-6**, suggest that there may be more competition for housing in urban areas than in rural communities, where fewer people reside. The increased population of urban areas may support higher home values, even in areas where new transmission facilities are being constructed. However, adverse changes to the economic environment could still occur.

Homebuyers with greater financial resources may prefer neighborhoods farther away from overhead transmission facilities for various reasons, including fewer visual obstructions and potential health and safety concerns. In contrast, vulnerable populations and overburdened communities often lack the financial resources to make similar choices. As a result, these groups may have to adjust their lifestyle to adapt to rising home values in areas farther away from overhead transmission facilities. In contrast, this situation could force these groups to choose homes closer to such facilities, which could result in adverse changes to lifestyles, sense of belonging, and overall wellbeing.

Overhead transmission facilities could have adverse environmental impacts on home values that begin in new construction and continue throughout the life of the project. These long-term adverse environmental impacts would affect the social conditions, economic environment, and general welfare of both urban and rural communities. The siting of transmission facilities is anticipated to be influenced by their long, linear design and the locations of higher energy demand. However, if transmission facilities are constructed in areas that are predominantly vulnerable or overburdened, the impacts on home values resulting from their construction could have long-term,

disproportionate effects on vulnerable populations and/or overburdened communities.

Impact Determination: Adverse environmental impacts on socioeconomics resulting from changes in home values during the new construction of overhead transmission facilities are expected to vary depending on the scale of the project and site-specific conditions. In the absence of mitigation, these adverse environmental impacts could range from low to high.

Changes in Economic and Fiscal Conditions or Employment

As discussed in Section 3.10, Transportation, the new construction of overhead transmission facilities could require road closures and diversions. These closures and diversions could temporarily disrupt access to local businesses or employment centers. A change in access to local businesses could have adverse environmental impacts on their fiscal revenue, while a change in access to employment centers may require employees to alter their lifestyles to accommodate changes in accessibility. These impacts are not expected to be long-term, as access to local businesses would return to pre-project conditions once construction is complete.

As discussed in Section 3.9, Land and Shoreline Use, the new construction of overhead transmission facilities could require the conversion of the Washington Department of Natural Resources (DNR) administered lands, including state trust lands. DNR-administered lands can generate revenue for beneficiaries, such as public schools, state universities, other state educational institutions, and prisons. Revenue is produced from activities such as harvesting timber, biomass byproducts, and leasing lands for various purposes, such as agriculture, mining, energy production, ROWs, and communication sites. The purchase or conversion to a non-revenue-producing land use could have long-term implications for the fiscal conditions of these beneficiaries and the communities they serve. Additionally, changes in the amount, distribution, or allocation of funding could also impact employment tied to those services.

The siting of overhead transmission facilities could place an economic burden on property owners. As discussed in Section 3.8, Public Health and Safety, overhead transmission facilities could be ignition sources for wildfires, rendering roughly 2.2 million homes exposed to wildfire risk throughout Washington. Wildfire risk has increased because of prolonged fire seasons due to hotter, drier summers and a decline in forest health (DNR 2019), and the threat of structural and personal damage from wildfire continues to increase.

Homeowners in wildfire-prone areas may find it challenging to pay for the increased insurance rates that may accompany increased wildfire risk. In some cases, providers may even opt out of providing coverage for wildfire damage. Households that pay higher insurance premiums may face challenges in affording other essential and discretionary expenses. For some, this could mean having to choose between insurance and other basic needs, such as healthcare, adding stressors to daily life, and potentially impacting residents' wellbeing. A potential decline in discretionary spending could also impact the local economy, particularly for businesses that rely on non-essential purchases. A decline in sales revenue could negatively impact government services, as government budgets could experience reduced revenue from sales taxes. However, this decline in government services would vary across jurisdictions for a variety of reasons, including the efficiency of government services, financial reserves, economic context, and whether or not a jurisdiction maintains a balanced budget. Instability in revenue generation and uncertainty in government budgets and services could lead to shifts in local employment.

The siting of transmission facilities could result in adverse environmental impacts on the social conditions, economic environment, and general welfare of both urban and rural communities. The siting of transmission facilities is anticipated to be influenced by their long, linear design and the locations of higher energy demand. However, if overhead transmission facilities are constructed in areas that are predominantly vulnerable or overburdened, the impacts from changes in economic and fiscal conditions or employment could have a disproportionate effect on these populations.

Impact determination: Adverse environmental impacts on socioeconomics resulting from changes in economic and fiscal conditions or employment during the new construction of overhead transmission facilities are expected to vary depending on the scale of the project and site-specific conditions. In the absence of mitigation, these adverse environmental impacts could range from negligible to high.

Underground Transmission Facilities

Activities for the new construction of underground transmission facilities would vary and depend on the scale of the facility and site characteristics. New construction could include a site preparation period of relatively short duration (e.g., a few months), followed by a longer construction and start-up period. It is assumed that the new construction of overhead transmission, per mile, would have a shorter duration than

underground construction. Underground transmission facilities could have the following adverse environmental impacts during new construction:

- Degradation of the Natural and Built Environment
- Changes in Housing Availability
- Changes in Home Values
- Changes in Economic and Fiscal Conditions or Employment

Degradation of the Natural and Built Environment

Noise and Vibration

The new construction of underground transmission facilities is expected to result in noise and vibration adverse environmental impacts similar to those associated with the construction of overhead transmission facilities. However, new construction of underground transmission facilities is likely to result in greater vibration due to the extensive earthwork, tunneling, and use of heavy equipment. Additionally, the new construction of underground transmission facilities typically takes longer than that of overhead facilities, which would result in a longer duration of noise and vibration impacts. Noise and vibration impacts would occur on a temporary basis during new construction activities and would cease once construction is completed.

Noise from the new construction of underground transmission facilities could have temporary adverse environmental impacts on the social conditions and general welfare of both urban and rural communities. The siting of transmission facilities is anticipated to be influenced by their long, linear design and the locations of higher energy demand. However, if transmission facilities are constructed in areas that are predominantly vulnerable or overburdened, the noise and vibration resulting from their construction could have temporary, disproportionate effects on vulnerable populations and/or overburdened communities.

Air Quality

Emissions associated with the new construction of underground transmission facilities could temporarily affect air quality. Adverse environmental impacts on air quality from the new construction of underground transmission facilities would be similar to those associated with the construction of overhead transmission facilities. However, the new construction of underground transmission facilities could require extensive and long durations of trenching, which disturbs soil and could result in

fugitive dust emissions. Extensive trenching over a long duration would result in greater air quality impacts than overhead transmission facilities.

The new construction of underground transmission facilities could have temporary adverse air quality impacts that affect the social conditions and general welfare of both urban and rural communities. The siting of transmission facilities is anticipated to be influenced by their long, linear design and the locations of higher energy demand. However, if transmission facilities are constructed in areas that are predominantly vulnerable or overburdened, the air quality impacts resulting from their construction could have temporary, disproportionate effects on vulnerable populations and/or overburdened communities.

Land and Shoreline Use, and Recreation

Similar to overhead new construction, underground transmission construction could result in incompatible land and shoreline use and decrease the function and value of recreational facilities, shorelines, agricultural lands, and rangelands. The prolonged nature of new underground transmission facility construction could lead to extended impacts, thereby having a greater impact on communities in both urban and rural areas.

The effects on urban and rural communities resulting from changes in land and shoreline use, as well as recreation, could be minimized by installing underground transmission facilities using trenchless techniques such as tunneling or horizontal directional drilling.

The new construction of overhead transmission facilities could adversely impact land and shoreline uses, and recreation, leading to temporary adverse changes in the social conditions, economic environment, and general welfare of both urban and rural communities. The siting of transmission facilities is anticipated to be influenced by their long, linear design and the locations of higher energy demand. However, if transmission facilities are constructed in areas that are predominantly vulnerable or overburdened, the impacts resulting from their construction could have long-term, disproportionate effects on vulnerable populations and/or overburdened communities.

Impact Determination: Adverse environmental impacts on socioeconomics resulting from degradation of the natural and built environment during the new construction of underground transmission facilities are expected to vary depending on the scale of the

project and site-specific conditions. In the absence of mitigation, these adverse environmental impacts range from negligible to high.

Changes in Housing Availability

The new construction of underground transmission facilities could result in impacts on housing availability similar to those described for overhead transmission facilities. Because the new construction of underground transmission facilities generally takes longer to complete, the availability of local hotels or short-term rentals could be affected for a longer duration.

As with overhead transmission facilities, if underground transmission facilities are constructed in areas that are predominantly vulnerable or overburdened, the adverse environmental impacts on housing availability resulting from their construction could have long-term, disproportionate effects on vulnerable populations and/or overburdened communities.

Impact Determination: Adverse environmental impacts on socioeconomics resulting from changes in housing availability during the new construction of underground transmission facilities are expected to vary depending on the scale of the project and site-specific conditions. In the absence of mitigation, these adverse environmental impacts could range from negligible to high.

Changes in Home Values

While individuals or communities may prefer underground transmission facilities, this construction method could still impact homeowners or home buyers.

Development of underground transmission facilities would have restrictions within or directly adjacent to the ROW, such as planting deep-rooted shrubs or trees to prevent interference with underground lines. Utility operators would also require access to the transmission facility for periodic inspections, maintenance, and potential repairs. These vegetation, development, and access requirements could deter potential homebuyers from purchasing a home, potentially leading to changes in home values.

The recurring fee from an imposed tariff to a service area for the additional cost of undergrounding a transmission facility, in comparison to the cost of constructing overhead transmission facilities, could outweigh the benefit of increased home values. The additional cost resulting from the imposed tariff could deter a potential homebuyer from purchasing a home. Additionally, the health and safety concerns (see Section 3.8, Public Health and Safety) regarding the operation and maintenance of

underground transmission facilities may further influence potential homebuyers and home values.

Once new construction begins, potential homebuyers would likely factor access requirements, development restrictions, changes to the cost of living, and health and safety concerns into their decision-making process. This could result in a decrease in home values that begins in new construction and continues throughout the life of a project. These long-term adverse environmental impacts would affect the social conditions, economic environment, and general welfare of both urban and rural communities. The siting of transmission facilities is anticipated to be influenced by their long linear design and the locations of higher energy demand. However, if new transmission facilities are constructed in areas that are predominantly vulnerable or overburdened, the impacts on home values resulting from their construction could have long-term, disproportionate effects on vulnerable populations and/or overburdened communities.

Impact Determination: Adverse environmental impacts on socioeconomics resulting from changes in home values during the new construction of underground transmission facilities are expected to vary depending on the scale of the project and site-specific conditions. In the absence of mitigation, these adverse environmental impacts range from low to high.

Changes in Economic and Fiscal Conditions or Employment

The construction of underground transmission facilities could have adverse environmental impacts on the economic environment of local businesses, similar to the effects described for overhead transmission facilities. However, the duration of these impacts may be longer for underground transmission facilities since they typically take longer to construct.

The siting of transmission facilities could result in adverse environmental impacts on the social conditions, economic environment, and general welfare of both urban and rural communities. The siting of transmission facilities is anticipated to be influenced by their long, linear design and the locations of higher energy demand. However, if underground transmission facilities are constructed in areas that are predominantly vulnerable or overburdened, the impacts from changes in economic and fiscal conditions or employment could have a disproportionate effect on these populations.

Impact determination: Adverse environmental impacts on socioeconomics resulting from changes in economic and fiscal conditions or employment during the new

construction of underground transmission facilities are expected to vary depending on the scale of the project and site-specific conditions. In the absence of mitigation, these adverse environmental impacts could range from negligible to high.

Operation and Maintenance

Overhead Transmission Facilities

Activities for the operation and maintenance stage of overhead transmission facilities would vary based on the type of facility, scale, and site characteristics. Facilities are not expected to have staff on site daily, but maintenance crews are anticipated to be regularly deployed. Transmission facilities require ongoing maintenance for equipment and ROWs. Overhead transmission facilities could have the following adverse environmental impacts during the operation and maintenance stage:

- Degradation of the Natural and Built Environment
- Changes in Economic and Fiscal Conditions or Employment

Degradation of the Natural and Built Environment

Noise and Vibration

Adverse noise impacts could result from both operational and temporary noise sources during the operation and maintenance of overhead transmission facilities.

Operational noise can include corona discharge, especially during foul weather. It can also result from typical transmission facility equipment, including, but not limited to, substations, transformers, and cooling systems. Temporary noise and vibration could be generated from routine inspections, maintenance, and repair of overhead transmission facilities.

Noise and vibration from the operation and maintenance of overhead transmission facilities may be noticeable to communities in urban and rural areas, depending on the existing noise environment, the specific equipment used, and any natural noise buffers such as vegetation or topography. Additionally, while noise levels could be similar to those experienced during new construction, they would occur intermittently and be shorter in duration.

Noise and vibration in urban areas may not be noticeable because of the existing baseline conditions. Additionally, urban homes may have been constructed in a way that minimizes exterior noise or enhances their structural integrity. However, health impacts could occur in certain urban locations, particularly those where a change in noise levels exacerbates existing conditions and leads to increased and prolonged

stress. Since rural areas have a lower baseline ambient noise level, a long-term change in noise could be more noticeable and result in a greater impact in rural than in urban areas. In both urban and rural areas, noise from operation and maintenance could cause disruption to education for neighboring students and schools.

These adverse environmental impacts could affect vulnerable populations and overburdened communities in similar ways. However, these groups may experience greater impacts due to their vulnerability and the historical burden of environmental stressors as described above, as well as for the following reasons:

- Structures such as houses may not be constructed with the same noiseattenuating materials or have the same structural integrity as houses in other communities. This can make these structures and the individuals within them more susceptible to audible and vibratory impacts.
- Financial constraints may prevent individuals from seeking refuge from noisy conditions, further increasing levels of stress and affecting their overall health and wellbeing.

Noise from the operation and maintenance of overhead transmission facilities could have an adverse environmental impact on the social conditions and the general welfare of both urban and rural communities, including vulnerable populations and overburdened communities. As previously discussed, the siting of transmission facilities is expected to depend on energy demand and may span several miles across various communities with differing socioeconomic conditions and demographics. However, if transmission facilities are constructed in areas that are predominantly vulnerable or overburdened, the noise impacts resulting from their operation and maintenance could have disproportionate effects on vulnerable populations and/or overburdened communities.

Air Quality

During the operation and maintenance stage, routine maintenance and inspections of overhead transmission facilities may require the use of maintenance vehicles, heavy equipment, and portable generators. This can lead to increased fugitive emissions, resulting in impacts on the social conditions and overall wellbeing of both urban and rural communities, similar to those described for new construction. However, these impacts would likely be shorter in duration and less severe.

Air quality effects from the operation and maintenance of overhead transmission facilities could have an adverse environmental impact on the social conditions and the

general welfare of urban and rural communities, including vulnerable populations and overburdened communities. As previously discussed, the siting of transmission facilities is expected to depend on energy demand and may span several miles across various communities with differing socioeconomic conditions and demographics. However, if transmission facilities are constructed in areas that are predominantly vulnerable or overburdened, the air quality impacts resulting from their operation and maintenance could disproportionately affect vulnerable populations and/or overburdened communities.

Visual Quality

Overhead transmission facilities would continue to adversely impact the visual quality and aesthetics of urban and rural areas due to the large size of transmission towers and cleared corridors. The long-term presence of overhead transmission facilities and wide, open corridors could cause adverse changes in a population's overall wellbeing and social conditions.

In urban areas, the presence of additional infrastructure in the viewshed could cause a noticeable adverse environmental impact on the feeling of neighborhoods and individuals' sense of belonging. Its added presence could cause an increase in stress related to affected residents' concerns about safety and wellbeing from living near overhead transmission facilities. In rural areas, the presence of overhead transmission facilities also could affect residents' wellbeing and sense of belonging, as feelings of urbanization filter into a rural community.

Visual impacts from the operation and maintenance of overhead transmission facilities could have an adverse environmental impact on the social conditions and the general welfare of urban and rural communities, including vulnerable populations and overburdened communities. If overhead transmission facilities are constructed in areas that are predominantly vulnerable or overburdened, the visual adverse environmental impacts resulting from their operation and maintenance could have long-term, disproportionate effects on vulnerable populations and/or overburdened communities.

Land and Shoreline Use, and Recreation

As discussed in Section 3.9, Land and Shoreline Use, and Section 3.14, Recreation, overhead transmission facilities could continue to impact land and shoreline use and recreation, through the operation and maintenance stage.

The operation and maintenance of overhead transmission facilities in urban areas would restrict future residential, commercial, and industrial development, potentially leading to adverse changes in that area's economic condition. Additionally, the operation of overhead transmission facilities could restrict allowable crop types, such as orchards, hops, and tree farms. Certain farming equipment, activities, and irrigation systems, and their maneuverability, could be restricted due to conflicts with overhead transmission facilities. Maintenance activities associated with overhead transmission facilities could also continue to impact rural agriculture and farming activities. ROW or access road maintenance activities would require vegetation removal using a variety of methods, including mechanical removal, hand cutting, and herbicide application. These maintenance activities could interfere with farming operations or activities and livestock grazing. Furthermore, the use of herbicides to control vegetation along the ROW could impact nearby crop production and interfere with organic farms or other herbicides used by farm workers. These adverse environmental impacts could decrease fiscal revenue and labor demand, thereby adversely impacting the economic environment. Similarly, adverse environmental impacts on shorelines, in either rural or urban communities, could affect livelihoods that depend on fishing or tourism.

Operation and maintenance of overhead transmission facilities, including their associated ROW corridors and access roads, may require long-term or temporary closure of shoreline and recreational resources. These permanent features could fragment the existing landscape, adversely impacting the natural and aesthetic quality of the area. Further, the presence of maintenance vehicles and staff, along with noise from potential repair activities, could adversely impact the experience for visitors. These adverse environmental impacts could result in adverse effects on the lifestyle, health, and wellbeing of those who rely on consistent public access to shoreline or recreational facilities.

These adverse environmental impacts could also affect vulnerable populations and overburdened communities. However, these groups may experience greater impacts due to their vulnerability and the historical burden of environmental stressors, as above. Additionally, financial constraints may limit the ability of vulnerable populations and overburdened communities to access unaffected shorelines or recreational resources, thereby having a more noticeable effect on their lifestyle, health, and wellbeing.

The operation and maintenance of overhead transmission facilities could adversely impact land and shoreline uses, and recreation, leading to long-term changes in the



social conditions, economic environment, and general welfare of both urban and rural communities. If transmission facilities are constructed in areas that are predominantly vulnerable or overburdened, the impacts resulting from their operation and maintenance could have long-term, disproportionate effects on vulnerable populations and/or overburdened communities.

Impact Determination: Adverse environmental impacts on socioeconomics and environmental justice resulting from the degradation of the natural and built environment during the operation and maintenance of overhead transmission facilities are expected to vary depending on the scale of the project and site-specific conditions. In the absence of mitigation, these adverse environmental impacts range from negligible to high.

Changes in Economic and Fiscal Conditions or Employment

Maintenance activities associated with overhead transmission facilities could require road closures and diversions. Impacts on the economic environment and social conditions for communities in both rural and urban areas would be similar to those during new construction. However, impacts are expected to occur for shorter periods of time.

If a transmission facility is constructed in an area that is predominantly vulnerable or overburdened, the project could have a disproportionate impact on vulnerable populations and overburdened communities.

Impact Determination: Adverse environmental impacts on socioeconomics and environmental justice resulting from changes in economic and fiscal conditions during the operation and maintenance of overhead transmission facilities are expected to vary depending on the scale of the project and site-specific conditions. In the absence of mitigation, these adverse environmental impacts could range from negligible to medium.

Underground Transmission Facilities

Similar to overhead transmission facilities, activities for the operation and maintenance of underground transmission facilities would vary based on the type of facility, scale, and site characteristics. Facilities are not expected to have staff on site daily, but maintenance crews are anticipated to be regularly deployed. Transmission facilities require ongoing maintenance for equipment and ROWs, similar to any other

linear industrial facility. Underground transmission facilities could have the following adverse environmental impacts during the operation and maintenance stage:

- Degradation of the Natural and Built Environment
- Changes in Economic and Fiscal Conditions or Employment

Degradation of the Natural and Built Environment

Noise and Vibration

Adverse environmental impacts from noise and vibration are not expected to occur during normal operations of underground transmission facilities. However, if repairs are required, temporary noise impacts could occur due to the use of heavy machinery needed to access the underground facilities. Temporary noise impacts would be similar to those expected during new construction, though they would be shorter in duration.

If transmission facilities are constructed in areas that are predominantly vulnerable or overburdened, the noise impacts resulting from their operation and maintenance could have temporary, disproportionate effects on vulnerable populations and/or overburdened communities.

Air Quality

Similar to noise and vibration, air quality would likely be impacted by underground transmission facilities only when repairs are needed. The use of heavy machinery and fuel-burning equipment could create fugitive dust and emissions that temporarily impact the surrounding area. Temporary air quality adverse environmental impacts would be similar to those expected during new construction, though they would be shorter in duration.

If transmission facilities are constructed in areas that are predominantly vulnerable or overburdened, the air quality impacts resulting from their operation and maintenance could have temporary, disproportionate effects on vulnerable populations and/or overburdened communities.

Land and Shoreline Use, and Recreation

As discussed in Section 3.9, Land and Shoreline Use, and Section 3.14, Recreation, underground transmission facilities could continue to impact land and shoreline use and recreation through the operation and maintenance stage.

The presence of underground transmission facilities in urban areas would restrict future residential, commercial, and industrial development, potentially leading to

adverse changes in that area's economic condition. Additionally, planting deep-rooted shrubs or trees would not be allowed within the ROW of underground transmission facilities. As with overhead transmission facilities, maintenance activities for underground transmission facilities would include vegetation removal. These maintenance activities can interfere with farming operations or activities and livestock grazing. Furthermore, the use of herbicides to control vegetation along the ROW could impact nearby crop production and interfere with organic farms or other herbicides used by farm workers. These adverse environmental impacts could decrease fiscal revenue and labor demand, thereby adversely impacting the economic environment.

Although underground transmission facilities are considered to have less visual impact than their overhead counterparts, they still require long-term vegetation clearing along the ROW and access roads, which could permanently alter the visual landscape of shorelines and recreational areas. Additionally, repairs could require temporary closure or restricted access to these resources. These impacts could result in adverse effects on the lifestyle, health, and wellbeing of those who rely on consistent public access to shoreline or recreational facilities.

These adverse environmental impacts could also affect vulnerable populations and overburdened communities. However, these groups may experience greater impacts due to their vulnerability and the historical burden of environmental stressors, as described above. Additionally, financial constraints may limit the ability of vulnerable populations and overburdened communities to access unaffected shorelines or recreational resources, thereby having a more noticeable effect on their lifestyle, health, and wellbeing.

The operation and maintenance of overhead transmission facilities could adversely impact land and shoreline uses, and recreation, leading to long-term changes in the social conditions, economic environment, and general welfare of both urban and rural communities. If transmission facilities are constructed in areas that are predominantly vulnerable or overburdened, the adverse environmental impacts resulting from their operation and maintenance could have long-term, disproportionate effects on vulnerable populations and/or overburdened communities.

Impact Determination: Adverse environmental impacts on socioeconomics and environmental justice resulting from the degradation of the natural and built environment during the operation and maintenance of underground transmission

facilities are expected to vary depending on the scale of the project and site-specific conditions. In the absence of mitigation, these adverse environmental impacts could range from negligible to high.

Changes in Economic and Fiscal Conditions or Employment

Changes in fiscal conditions and employment during the operation and maintenance of underground transmission facilities would be similar to those described for overhead transmission facilities. However, underground transmission facilities may have slightly greater adverse environmental impacts since repairs would take longer to complete and require more technically skilled employees.

If a transmission facility is constructed in an area that is predominantly vulnerable or overburdened, and the benefits and adverse environmental impacts of the project are not equally distributed, the project could have a long term, disproportionate impact on vulnerable populations and/or overburdened communities.

Impact Determination: Adverse environmental impacts on socioeconomics and environmental justice resulting from changes in economic and fiscal conditions or employment during the operation and maintenance of underground transmission facilities are expected to vary depending on the scale of the project and site-specific conditions. In the absence of mitigation, these adverse environmental impacts could range from negligible to high.

Upgrade

Overhead Transmission Facilities

Upgrades to overhead transmission facilities would occur within existing ROWs without expanding the existing facility footprint or causing new ground disturbance. However, these upgrades may result in adverse environmental impacts on socioeconomics, including:

- Degradation of the Natural and Built Environment
- Changes in Economic and Fiscal Conditions or Employment

The adverse environmental impacts from upgrading overhead transmission facilities are often comparable to those of maintaining overhead transmission facilities. These adverse environmental impacts are generally anticipated to be lower than those for modifying or constructing a new transmission facility due to several factors.

Table 2.3-1 highlights how upgrading existing transmission facilities would generally result in fewer or less impactful adverse environmental impacts.

Underground Transmission Facilities

Upgrades to underground transmission facilities would occur within existing ROWs without expanding the facility footprint or causing new ground disturbance. However, these upgrades may result in adverse environmental impacts on socioeconomics, including:

- Degradation of the Natural and Built Environment
- Changes in Economic and Fiscal Conditions or Employment

The adverse environmental impacts from upgrading underground transmission facilities are often comparable to those of maintaining underground transmission facilities. These adverse environmental impacts are generally anticipated to be lower than those for modifying or constructing a new transmission facility due to several factors. Table 2.3-1 highlights how upgrading existing transmission facilities would generally result in fewer or less impactful adverse environmental impacts.

Modification

Overhead Transmission Facilities

Modifying existing overhead transmission facilities typically involves several key steps, each with specific requirements, timelines, and settings, as outlined in Chapter 2, Overview of Transmission Facilities, Development Considerations, and Regulations. The adverse environmental impacts of modifying existing transmission facilities would vary depending on the scale of the project-specific application. Overhead transmission facilities could have the following adverse environmental impacts on socioeconomics during the modification stage:

- Degradation of the Natural and Built Environment
- Changes in Housing Availability
- Changes in Home Values
- Changes in Economic and Fiscal Conditions or Employment

Adverse environmental impacts of modifying overhead transmission facilities could be similar to those of new construction, but are anticipated to be lower. Table 2.3-2

highlights how modifying existing transmission facilities would generally result in fewer or less impactful adverse environmental impacts.

Underground Transmission Facilities

Modifying existing underground transmission facilities typically involves several key steps, each with specific requirements, timelines, and settings, as outlined in Chapter 2, Overview of Transmission Facilities, Development Considerations, and Regulations. The adverse environmental impacts of modifying existing transmission facilities would vary depending on the scale of the project-specific application. Underground transmission facilities could have the following adverse environmental impacts on socioeconomics during the modification stage:

- Degradation of the Natural and Built Environment
- Changes in Housing Availability
- Changes in Home Values
- Changes in Economic and Fiscal Conditions or Employment

Adverse environmental impacts of modifying underground transmission facilities could be similar to those of new construction, but are anticipated to be lower. Table 2.3-2 highlights how modifying existing transmission facilities would generally result in fewer or less impactful adverse environmental impacts.

3.16.3.3 No Action Alternative

Under the No Action Alternative, the Programmatic EIS would not be adopted as a planning or analytical framework. Instead, transmission facility siting and development would continue under existing state and local regulatory processes, with each project evaluated for environmental compliance without the benefit of the environmental review provided in this document. This approach would lack the advanced notice of potential serious environmental concerns for those planning transmission facilities, as well as Mitigation Strategies developed under the Programmatic EIS. As a result, environmental outcomes could be less predictable and consistent, and adverse environmental impacts could be greater.

3.16.4 Mitigation Measures

Under SEPA, there are six recognized forms of mitigation that agencies can apply to reduce or address adverse environmental impacts:

- Avoiding the adverse environmental impact altogether by not taking a certain action or parts of an action.
- Minimizing adverse environmental impacts by limiting the degree or magnitude of the action and its implementation.
- **Rectifying the adverse environmental impact** by repairing, rehabilitating, or restoring the affected environment.
- Reducing or eliminating the adverse environmental impact over time by preservation and maintenance operations during the life of the action.
- Compensating for the adverse environmental impact by replacing or providing substitute resources or environments.
- Monitoring the adverse environmental impact and taking appropriate corrective measures.

This section describes the Avoidance Criteria and Mitigation Measures that could apply to adverse environmental impacts from new construction, operation and maintenance, upgrade, and modification of transmission facilities.

All General Measures adopted for this Programmatic EIS (see Section 3.1 of Chapter 3, Affected Environment, Significant Impacts, and Mitigation) are relevant to this resource section. Applicants would be responsible for providing information within their application materials documenting their implementation of the General Measures.

Avoidance Criteria¹³ that are relevant to this resource section are described below:

AVOID-13 – Land Use and Zoning Incompatibilities: Avoid incompatible land uses and adhere to all applicable zoning and development regulations. Demonstrate that there are no direct or indirect adverse land use incompatibilities with private property owners or public land administrators.

¹³ The complete list of Avoidance Criteria and their rationales can be found in Section 3.1 and Appendix 3.1-1.



Rationale: This Avoidance Criterion aims to avoid conflicts with land use and zoning designations. Avoiding land use and zoning conflicts would also help reduce adverse environmental impacts on property owners, agricultural landowners, noise, neighboring viewers, and socioeconomics.

AVOID-16 – Decrease in LOS below Acceptable Levels: Avoid a decrease in the level of service (LOS) below level C on roads used during all stages of transmission facilities.

Rationale: This Avoidance Criterion aims to maintain LOS. LOS can be directly related to safety issues related to traffic density and flow. For example, higher traffic volumes and lower LOS can increase the risk of accidents.

AVOID-18 – Exceptional Recreation Assets: Avoid having equipment or infrastructure near or within the viewshed of exceptional recreation assets, as defined by the Washington State Recreation and Conservation Office (RCO) and listed in Appendix 3.1-1.

Rationale: This Avoidance Criterion aims to guide early transmission facility planning efforts to protect exceptional recreational assets. These places provide a unique experience or activity that may not be available in all areas of the state, such as rock climbing, whitewater rafting, and backcountry horseback riding.

AVOID-19 – Wilderness Areas: Avoid having equipment or infrastructure near or within the viewshed of designated wilderness areas.

Rationale: This Avoidance Criterion aims to protect the scenic integrity of wilderness areas. Wilderness areas are valued for their untouched natural beauty. The Wilderness Act of 1964 mandates the preservation of the natural conditions of designated wilderness areas.

AVOID-20 – Limit Closure of Recreation Resources: Consider closure and restrictions only after other mitigation strategies and alternatives have been explored. Avoid long-term closure and restriction of recreation resources lasting more than 24 months.

Rationale: This Avoidance Criterion establishes the definition of "long-term closure" in relation to adverse environmental impacts on recreation resources from the new construction, operation and maintenance, upgrade, and modification of transmission facilities.

AVOID-25 – Disproportionate Impacts on Environmental Justice Communities:

Avoid disproportionate impacts on vulnerable populations and overburdened communities.

Rationale: This Avoidance Criterion aims to reflect and build upon existing legal and planning frameworks to avoid a disproportionate impact on vulnerable populations and overburdened communities.

AVOID-26 – Displacing Residents or Housing Units: Avoid land acquisitions that result in the loss of housing units and the displacement of residents.

Rationale: Long-term housing availability could be impacted if the new construction of transmission facilities requires land acquisition that results in the displacement of residents or housing units. Changes in housing availability could lead to adverse environmental impacts on the economic environment, social conditions, and general welfare of communities, including vulnerable populations and overburdened communities. This Avoidance Criterion aims to avoid impacts on long-term housing availability.

This Programmatic EIS is intended to support more efficient and effective siting and permitting of transmission facilities, consistent with the legislative direction in RCW 43.21C.408, by streamlining environmental review where projects incorporate the recommended planning and Mitigation Strategies. Applicants would be responsible for providing information within their application materials documenting the project's compliance with the above Avoidance Criteria. While total avoidance of all adverse environmental impacts is not required in order to use the Programmatic EIS, applicants are expected to demonstrate how their project aligns with the intent of the Avoidance Criteria to the extent practicable. If specific Avoidance Criteria are not met, the applicant would provide an explanation and supporting information. Additional environmental analyses would be required as part of the documentation for SEPA for the Project. Additional mitigation could be required, depending on the nature of the deviation and its potential to result in probable significant adverse environmental impacts.

Mitigation Measures have been identified to minimize adverse environmental impacts from transmission facility projects. These measures are intended to be broad so that they can be applied to most projects that would be covered under this Programmatic EIS. However, project-specific plans would be needed to adapt the measures for project-specific applications. The inclusion of a Mitigation Measure in this Programmatic EIS does not imply that a given adverse environmental impact is

presumed to occur. Rather, the measures are provided to support early planning and the avoidance of adverse environmental impacts, streamlining project-specific environmental reviews when impacts are identified. Mitigation Measures are intended to serve as a set of potential strategies that the SEPA Lead Agency and applicants can draw from, depending on the specific environmental context and project footprint. Applicants and the SEPA Lead Agency retain discretion to:

- Propose alternative mitigation strategies that achieve equivalent or better outcomes.
- Demonstrate that certain Mitigation Measures are not applicable due to the absence of relevant impacts.

When impact determinations are identified as medium or high, then either the applicant would adopt applicable Mitigation Measures from this Programmatic EIS or the SEPA Lead Agency may require applicable mitigation to be implemented to reduce project-specific adverse environmental impacts. When impact determinations are low, applicable Mitigation Measures should still be considered by the applicant and the SEPA Lead Agency, as these Mitigation Measures would help to further reduce adverse environmental impacts, including the project's contribution to cumulative impacts. These Mitigation Measures would be implemented in addition to compliance with laws, regulations, environmental permits, plans, and design considerations required for transmission facilities.

The following Mitigation Measures could be adopted to mitigate adverse environmental impacts:

SE-1 – Analysis of Housing Market: Complete an analysis of the temporary housing market.

Rationale: This Mitigation Measure aims to address potential adverse environmental impacts on temporary housing and property values. It assesses the potential impacts on temporary housing, identifying when and what type of mitigation would be necessary.

SE-2 – Engage Vulnerable Populations and Overburdened Communities: Identify and engage community leaders and organizations from within vulnerable populations and overburdened communities. These community organizers would be listed within a community engagement plan. This plan would also include a community worker training initiative in which education and job training programs are made accessible to vulnerable populations and overburdened communities.

Rationale: This Mitigation Measure aims to ensure vulnerable populations and overburdened communities can participate in the energy transition through active engagement and equal access to employment opportunities. This measure promotes stimulation and diversification of the local economy, prepares workers for a variety of industries, and offers local employment opportunities, thereby minimizing the need for worker relocation. Community engagement and worker training programs can greatly contribute to the revitalization of overburdened communities by addressing socioeconomic disparities and promoting environmental justice.

In addition to the above Mitigation Measures, the following Mitigation Measures¹⁴ developed for other resources may be applicable:

- **Air-1 Traffic Speeds:** Limit traffic speeds to 15 miles per hour on unpaved areas that do not have designated speed limits.
- **Air-2 Use Low-Emission Construction Equipment and Vehicles:** Use low-emission construction equipment and vehicles, such as those meeting the latest emission standards.
- **Air-4 Counties with Exceedances:** Minimize emissions in counties with air quality exceedances during the new construction and upgrade or modification of transmission facilities.
- **ENR-5 Source Locally:** Locally source raw materials, components, and fuel to the extent practicable.

¹⁴ The rationales for the identified Mitigation Measures are provided in their respective resource sections.



- **H6S-1 Early Fault Detection**: Install early fault detection sensors that detect the radio frequency signal generated by partial discharge arcing on alternating current circuits and use precise time measurements of events to locate the source along the conductors.
- H6S-2 Risk Management Strategy: Develop and apply an electromagnetic field (EMF) and electromagnetic interference (EMI) risk management strategy that regularly considers the consequence, likelihood, and significance of EMF and EMI on public health and existing infrastructure, such as transportation systems, based on emerging research studies and guidelines.
- LSU-1 Property, ROW, and Easement Verification: All potentially impacted rights-of-way (ROWs), property boundaries, or easements that haven't been surveyed within five (5) years of project planning, design, or implementation would be reviewed and re-surveyed by a licensed land surveyor.
- **LSU-3 Construction Schedule:** Develop and distribute a schedule of new construction activities to potentially affected farm operators at least three months in advance of ground disturbance.
- **LSU-4 Remove Livestock:** Coordinate with property owners to keep livestock out of new construction areas.
- **LSU-5 Reseed Disturbed Rangelands:** Coordinate with rangeland property owners to determine the appropriate seed mix used in revegetation actions.
- **PSU-1 Utility Coordination:** Contact impacted or potentially impacted utility service providers as early as possible in the planning process to identify conflicts or issues.
- **Vis-1 Selection of Finishes:** Use dull and/or dark painted surfaces, textured surfaces, and low-reflectivity finishes on transmission facilities.
- Vis-2 Visual Appeal of ROWs: Create varied, feathered vegetation edges for cleared areas and linear rights-of-way (ROWs) that are sinuous horizontally and layered vertically. Strategically retain or plant native vegetation within the ROW where practicable in visually sensitive areas.
- **Vis-3 Underground Construction:** Use underground construction methods in areas with high scenic quality and/or open rural areas, depending on geologic conditions.

- **Vis-4 Visual Screening:** Use techniques such as berms, fencing, or vegetative screening to conceal or improve the appearance of distribution substations, aboveground vaults, and other facilities.
- **Vis-5 Span Length:** Maximize the span length when using overhead lines crossing highways and other linear viewing locations.
- Noise-1 Limit Construction Hours: With the exception of trenchless crossings that require continuous day/night operations, limit noise-generating equipment used in new construction, maintenance, upgrades, and modifications that would impact sensitive receptors to weekdays and daytime hours.
- Noise-2 Use Noise Barriers for Construction: Use noise barriers or other Mitigation Measures for new construction activities, like trenchless crossings, that require continuous day/night operations or during upgrades and maintenance where the potential exists to exceed state and/or local noise standards to mitigate the adverse environmental impact on noise-sensitive receptors.
- **Noise-3 Use of Operational Noise Mitigation:** Provide vendor-supplied noise mitigation or acoustic barriers for substation transformers and equipment located near noise-sensitive areas.
- Noise-4 Prevent Hearing Loss: Identify when construction activities may produce on-site and off-site noise levels that exceed 85 A-weighted decibels (dBA) as an equivalent noise level over 8 hours ($L_{\text{eq[8Hr]}}$) and the associated engineering or administrative controls in place to reduce the potential for hearing loss.
- Noise-5 Noise Assessment: Prepare a noise assessment that includes measuring existing baseline noise environments, predicting future noise levels from either new construction and/or operation and maintenance, and evaluating the potential adverse environmental impacts on surrounding sensitive noise receptors.
- Rec-1 Stakeholder and Agency Coordination: Coordinate with potentially affected federal, state, and local agencies, communities, and recreation-based organizations to mitigate adverse environmental impacts on recreational facilities and during seasonal activities.
- Rec-2 Public Notification of Temporary Closure: Notify appropriate stakeholders of temporary closures at least six months prior to the start of the closure.

- **Rec-3 Trail Detours:** Consider phased closures or explore alternative solutions such as rerouting trails, creating temporary access points, or scheduling work during off-peak times to minimize disruption.
- Rec-4 Informational Signage and Precautionary Safety Measures: Place informational signage, placards, safety fencing, and other precautionary indicators in areas where transmission facilities are within or adjacent to existing recreational facilities.

3.16.5 Probable Significant Adverse Environmental Impacts

Determining the significance of an adverse environmental impact involves consideration of context and intensity, which, in turn, depend on the magnitude and duration of the impact. "Significant" in SEPA means a reasonable likelihood of more than a moderate adverse environmental impact on environmental quality. An adverse environmental impact may also be significant if its chance of occurrence is not great, but the resulting impact would be severe if it occurred (WAC 197-11-794).

Identification of adverse environmental impacts and assignment of discipline-specific ratings are based on a structured evaluation consistent with the criteria outlined in WAC 197-11-330. Significance determinations consider the context and intensity of potential adverse environmental impacts, using both quantitative and qualitative information where appropriate. Professional expertise does not substitute for regulatory compliance. Regulatory requirements establish the baseline for environmental analysis and mitigation. Professional experience is used to supplement this baseline, providing additional insight to identify whether Mitigation Measures beyond those required by regulation may be warranted. In cases where data are incomplete or unavailable, a conservative approach has been applied to ensure that potential adverse environmental impacts are not underestimated.

This Programmatic EIS weighs the potential adverse environmental impacts on socioeconomics that could result from transmission facilities after considering the application of laws and regulations; siting and design considerations, including agency guidance and BMPs; and Mitigation Strategies, and makes a resulting determination of significance for each adverse impact. **Table 3.16-12** summarizes the adverse environmental impacts anticipated for the new construction, operation and maintenance, upgrade, and modification of transmission facilities.

Table 3.16-12: Summary of Adverse Environmental Impacts, Mitigation Strategies, and Significance Rating for Socioeconomics

Adverse Environment al Impact	Project Stage	Description of Impact	Impact Determination Before Applying Mitigation	Mitigation Strategy Applied ^(a)	Significance After Applying Mitigation Strategy	Rationale for Significance Rating
Socioeconomics – Degradation of the Natural and Built Environment	New Construction	Noise: New construction activities could create noise and vibration impacts leading to temporary adverse changes in the social conditions and general welfare of communities, including schools. Impacts could occur over a longer duration with the new construction of underground transmission facilities. Air Quality: New Construction activities could create air quality impacts leading to adverse changes in the social conditions and general welfare of communities. Impacts could occur over a longer duration with the new construction of underground transmission facilities. Visual Quality and Aesthetics: Construction equipment and materials and clearing for ROWs and access roads could reduce the visual quality of natural and built environments. The installation of overhead transmission structures could result in long-term visual impacts. Adverse environmental impacts from visual quality and aesthetics could lead to long-term adverse changes in the social conditions, economic environment, and general welfare of communities. Land and Shoreline Use, and Recreation: Conflicting or incompatible land uses could result in adverse changes in the social conditions and general welfare of communities. New construction activities could damage crops, create obstacles for agricultural activities, and decrease productivity, leading to adverse changes in the economic environment. Additionally, new construction activities could restrict public access to shorelines and recreational resources or change the resource's integrity. Adverse environmental impacts on land and shoreline use, and recreation could result in adverse changes to the social conditions, economic environment, and general welfare of communities. If transmission facilities are constructed in areas that are predominantly vulnerable or overburdened, the adverse environmental impacts resulting from their construction could have short or long term, disproportionate effects on vulnerable populations and/or overburdened communities. Noise: Overhead transmission lines could	Overhead: negligible to high Underground: negligible to high Overhead: negligible to high	 AVOID-13: Land Use and Zoning Incompatibilities AVOID-18: Exceptional Recreation Assets AVOID-19: Wilderness Areas AVOID-20: Limit Closure of Recreation Resources AVOID-25: Disproportionate Impacts on Environmental Justice Communities SE-2: Engage Vulnerable Populations and Overburdened Communities Air-1: Traffic Speeds Air-2: Use Low-Emission Construction Equipment and Vehicles Air-4: Counties with Exceedances H6S-1: Early Fault Detection H6S-2: Risk Management Strategy LSU-3: Construction Schedule LSU-4: Remove Livestock LSU-5: Reseed Disturbed Rangelands Noise-1: Limit Construction Hours Noise-2: Use Noise Barriers for Construction Noise-3: Use of Operational Noise Mitigation Noise-4: Prevent Hearing Loss Noise-5: Noise Assessment PSU-1: Utility Coordination Rec-1: Stakeholder and Agency 	Less than Significant	Adverse environmental impacts on communities, including vulnerable populations and overburdened communities, due to the degradation of the natural and built environment, would be reduced to a less than significant level through the implementation of and compliance with Mitigation Strategies.
	Operation and Maintenance	transmission facility infrastructure, such as substations, transformers, and cooling systems, could create long term noise impacts.	Coordination	Coordination • Rec-2: Public Notification of		



Adverse Environment al Impact	Project Stage	Description of Impact	Impact Determination Before Applying Mitigation	Mitigation Strategy Applied ^(a)	Significance After Applying Mitigation Strategy	Rationale for Significance Rating
		Maintenance and repair activities associated with overhead and underground transmission facilities could create short term noise and vibration impacts. Noise and vibration impacts could lead to long-term changes in the social conditions and general welfare of communities. Air Quality: Maintenance activities could require the use of heavy equipment, maintenance vehicles, and portable generators that could result in fugitive emissions, leading to changes in the social conditions and general welfare of communities. Adverse environmental impacts would be similar to those associated with construction activities; however, they would be less severe and shorter in duration. Visual Quality and Aesthetics: Both overhead and underground transmission facilities would require cleared ROWs, which could result in adverse environmental impacts on the social conditions and general welfare of communities. Land and Shoreline Use, and Recreation: The operation and maintenance of transmission facilities would restrict future development and allowable crop types, resulting in adverse changes to the economic environment. Operation and maintenance of transmission facilities may require short or long term closure of shoreline and recreational resources. It could also change the integrity or long term condition of the area. These impacts could result in adverse changes in the social conditions and general welfare of those who rely on these resources. If transmission facilities are constructed in areas that are predominantly vulnerable or overburdened, the impacts resulting from their operation and maintenance could have short or long term, disproportionate effects on vulnerable populations and/or overburdened communities.		 Rec-3: Trail Detours Rec-4: Informational Signage and Precautionary Safety Measures Vis-1: Selection of Finishes Vis-2: Visual Appeal of ROWs Vis-3: Underground Construction Vis-4 Visual Screening Vis-5: Span Length 		
	Upgrade	Upgrades to existing transmission facilities conducted entirely within the existing ROW and without additional ground disturbance would still result in short term noise, air quality, visual quality, land and shoreline, and recreation impacts that result in adverse environmental impacts on the social conditions and general welfare of communities. These adverse environmental impacts are generally lower than those associated with the construction of a new transmission facility or modification.	Overhead: negligible to high Underground: negligible to high			

Adverse Environment al Impact	Project Stage	Description of Impact	Impact Determination Before Applying Mitigation	Mitigation Strategy Applied ^(a)	Significance After Applying Mitigation Strategy	Rationale for Significance Rating
	Modification	Noise: Increased noise or vibration levels from construction activities associated with the modification of existing transmission facilities could impact the social conditions and general welfare of communities. Air Quality: Increased fugitive dust emissions, emissions from fuel-burning equipment, and sulfur hexafluoride emissions from construction activities associated with modification can affect the social conditions and overall wellbeing of communities. Visual Quality: Increased visual disruptions from ROW clearing, dust, or increased visual disruptions could affect an individual's sense of belonging and overall wellbeing, as well as reduce tourism and agri-tourism appeal, thereby decreasing labor demand and fiscal revenue. Land and Shoreline Use, and Recreation: Conflicting or incompatible land uses could result in adverse changes in the social conditions and general welfare of communities. Construction activities could damage crops, create obstacles for agricultural activities, and decrease productivity, leading to adverse changes in the economic environment. Additionally, construction activities could restrict public access to shorelines and recreational resources or change the resource's integrity. If transmission facilities are modified in areas that are predominantly vulnerable or overburdened, the adverse environmental impacts could have short or long term, disproportionate effects on vulnerable populations and/or overburdened communities.	Overhead: negligible to high Underground: negligible to high			
Socioeconomics – Changes in Housing Availability	New Construction	An influx of new construction workers could affect the availability of local hotels or short-term rentals. Long-term housing availability could be impacted if the new construction of transmission facilities results in mutually agreed-upon property acquisition that displaces residents or housing units. Changes in housing availability could also arise if many people decide to move due to the new construction of a transmission facility that is within close proximity to their residence. Additionally, some project employees may look for more permanent residences based on their roles on the project. Should these scenarios occur individually or collectively, changes in housing availability could result in long term, adverse environmental impacts on the economic environment, social conditions, and general welfare of communities. If new transmission facilities are constructed in areas that are predominantly vulnerable or overburdened, the adverse	Overhead: negligible to high Underground: negligible to high	 AVOID-13: Land Use and Zoning Incompatibilities AVOID-25: Disproportionate Impacts on Environmental Justice Communities AVOID-26: Displacing Residents or Housing Units SE-1: Analysis of Housing Market SE-2: Engage Vulnerable Populations and Overburdened Communities 	Less than Significant	Adverse environmental impacts on communities, including vulnerable populations and overburdened communities, due to changes in housing availability would be reduced to a less than significant level through the implementation of and compliance with Mitigation Strategies.



Adverse Environment al Impact	Project Stage	Description of Impact	Impact Determination Before Applying Mitigation	Mitigation Strategy Applied ^(a)	Significance After Applying Mitigation Strategy	Rationale for Significance Rating
		environmental impacts on housing availability resulting from their construction could have long term, disproportionate effects on vulnerable populations and/or overburdened communities.				
	Operation and Maintenance	This impact is not anticipated to occur during the operation and maintenance of overhead or underground transmission facilities.	Overhead: N/A Underground: N/A	_		
	Upgrade	Upgrades to transmission facilities within the existing ROW and without additional ground disturbance are not expected to affect housing availability.	Overhead: N/A Underground: N/A			
	Modification	Increased construction workers, potential land acquisition agreements, and permanent employment relocations from the modification of existing transmission facilities could result in changes in housing availability. These impacts could result in long term, adverse impacts on the economic environment, social conditions, and general welfare of communities. If the modification of existing transmission facilities occurs in areas that are predominantly vulnerable or overburdened, the adverse environmental impacts on housing availability could have long term, disproportionate effects on vulnerable populations and/or overburdened communities.	Overhead: negligible to high Underground: negligible to high			
Socioeconomics – Changes in Home Values	New Construction	The new construction of overhead transmission facilities could affect the visual landscape due to permanently cleared ROWs and the introduction of new overhead infrastructure. Similarly, the new construction of underground transmission facilities may also adversely impact the visual landscape because of the need for permanently cleared ROWs. Additionally, underground transmission facilities would require access for repairs, and a tariff would be imposed on the community to pay for the additional cost associated with undergrounding the facility. For these reasons, new construction of both overhead and underground transmission facilities could influence home values, leading to adverse changes in the economic environment, social conditions, and general welfare of communities. If new transmission facilities are constructed in areas that are predominantly vulnerable or overburdened, the impacts on home values resulting from their construction could have long term, disproportionate effects on vulnerable populations and/or overburdened communities.	Overhead: low to high Underground: low to high	 AVOID-13: Land Use and Zoning Incompatibilities AVOID-25: Disproportionate Impacts on Environmental Justice Communities AVOID-26: Displacing Residents or Housing Units SE-1: Analysis of Housing Market SE-2: Engage Vulnerable Populations and Overburdened Communities H6S-1: Early Fault Detection H6S-2: Risk Management Strategy Noise-5: Noise Assessment Vis-1: Selection of Finishes 	Less than Significant	Adverse and potentially permanent impacts on communities, including vulnerable populations and overburdened communities, due to changes in home values, would be reduced to a less than significant level through the implementation of and compliance with Mitigation Strategies.



Adverse Environment al Impact	Project Stage	Description of Impact	Impact Determination Before Applying Mitigation	Mitigation Strategy Applied ^(a)	Significance After Applying Mitigation Strategy	Rationale for Significance Rating
	Operation and Maintenance	This impact is not anticipated to occur during the operation and maintenance of overhead or underground transmission facilities.	Overhead: N/A Underground: N/A	 Vis-2: Visual Appeal of ROWs Vis-3: Underground Construction Vis-4: Visual Screening Vis-5: Span Length 		
	Upgrade	Since upgrades are confined to existing ROWs and would not create new or increased environmental disturbance, home values are likely to remain consistent with the current market value. Therefore, this impact is not anticipated to occur.	Overhead: N/A Underground: N/A			
	Modification	The modification of an existing transmission facility could affect the visual landscape and impose restrictions or tariffs, resulting in adverse changes in the economic environment, social conditions, and general welfare of communities. If modifications are conducted in areas that are predominantly vulnerable or overburdened, the impacts on home values could have long term, disproportionate effects on vulnerable populations and/or overburdened communities.	Overhead: low to high Underground: low to high			
Socioeconomics – Changes in Economic and Fiscal Conditions or Employment	New Construction	The new construction of transmission facilities could result in road closures and diversions, leading to temporary disruptions in access to local businesses or employment centers. A change in access to local businesses could have temporary adverse environmental impacts on their fiscal revenue, while a change in access to employment centers may require employees to alter their lifestyle to accommodate changes in accessibility. The conversion of DNR-administered lands that produce revenue to a non-revenue-producing land use could impact the beneficiaries of those revenue sources, such as schools, universities, and other public facilities. It could also have adverse impacts on the employment opportunities tied to those services. The new construction of overhead transmission facilities could increase wildfire risks. This increased risk could drive the cost of insurance premiums up, making it challenging for homeowners to pay for, resulting in adverse changes to communities' general welfare and social conditions. Less income to spend on nonessential items or services could have an adverse impact on the economic environment. If a transmission facility is constructed in an area that is predominantly vulnerable or overburdened, it could have a short	Overhead: negligible to high Underground: negligible to high	 AVOID-16: Decrease in LOS Below Acceptable Levels AVOID-25: Disproportionate Impacts on Environmental Justice Communities SE-2: Engage Vulnerable Populations and Overburdened Communities ENR-5: Source Locally LSU-1: Property, ROW, and Easement Verification 	Less than Significant	Adverse environmental impacts on communities, including vulnerable populations and overburdened communities, due to changes in fiscal conditions and employment, would be reduced to a less than significant level through the implementation of and compliance with Mitigation Strategies.



Adverse Environment al Impact	Project Stage	Description of Impact	Impact Determination Before Applying Mitigation	Mitigation Strategy Applied ^(a)	Significance After Applying Mitigation Strategy	Rationale for Significance Rating
		or long-term, disproportionate impact on vulnerable populations and/or overburdened communities.				
	Operation and Maintenance	Maintenance activities associated with overhead and underground transmission facilities could require road closures and diversions. Impacts on the economic environment and social conditions for communities in both rural and urban areas would be similar to those during new construction. If a transmission facility is constructed in an area that is predominantly vulnerable or overburdened, it could have disproportionate impacts on vulnerable populations and	Overhead: negligible to medium Underground: negligible to medium			
	Upgrade	overburdened communities. The upgrade of an existing transmission facility could result in short term road closures and diversions, leading to disruptions in access to local businesses or employment centers. A change in access to local businesses could have minor adverse environmental impacts on their fiscal revenue, while a short term change in access to employment centers may require employees to alter their lifestyle to accommodate changes in accessibility.	Overhead: negligible to medium Underground: negligible to medium			
	Modification	Impacts associated with the modification of both overhead and underground transmission facilities could be similar to those expected for new construction. However, these adverse environmental impacts could be less due to minimized disturbance footprints and the use of existing infrastructure.	Overhead: negligible to high Underground: negligible to high			

Notes

Washington State Energy Facility Site Evaluation Council

⁽a) Appendix 3.1-1 provides a detailed listing of each Mitigation Strategy. This appendix serves as a reference section that can be consulted independently of the main text. This is particularly useful for detailed guidance and technical specifications that may be referred to multiple times. Additionally, including this information in an appendix allows for easier updates and revisions. If Mitigation Strategies or guidance changes, the appendix can be updated without altering the main content.

DNR = Department of Natural Resources; LOS = level of service; ROW = right-of-way

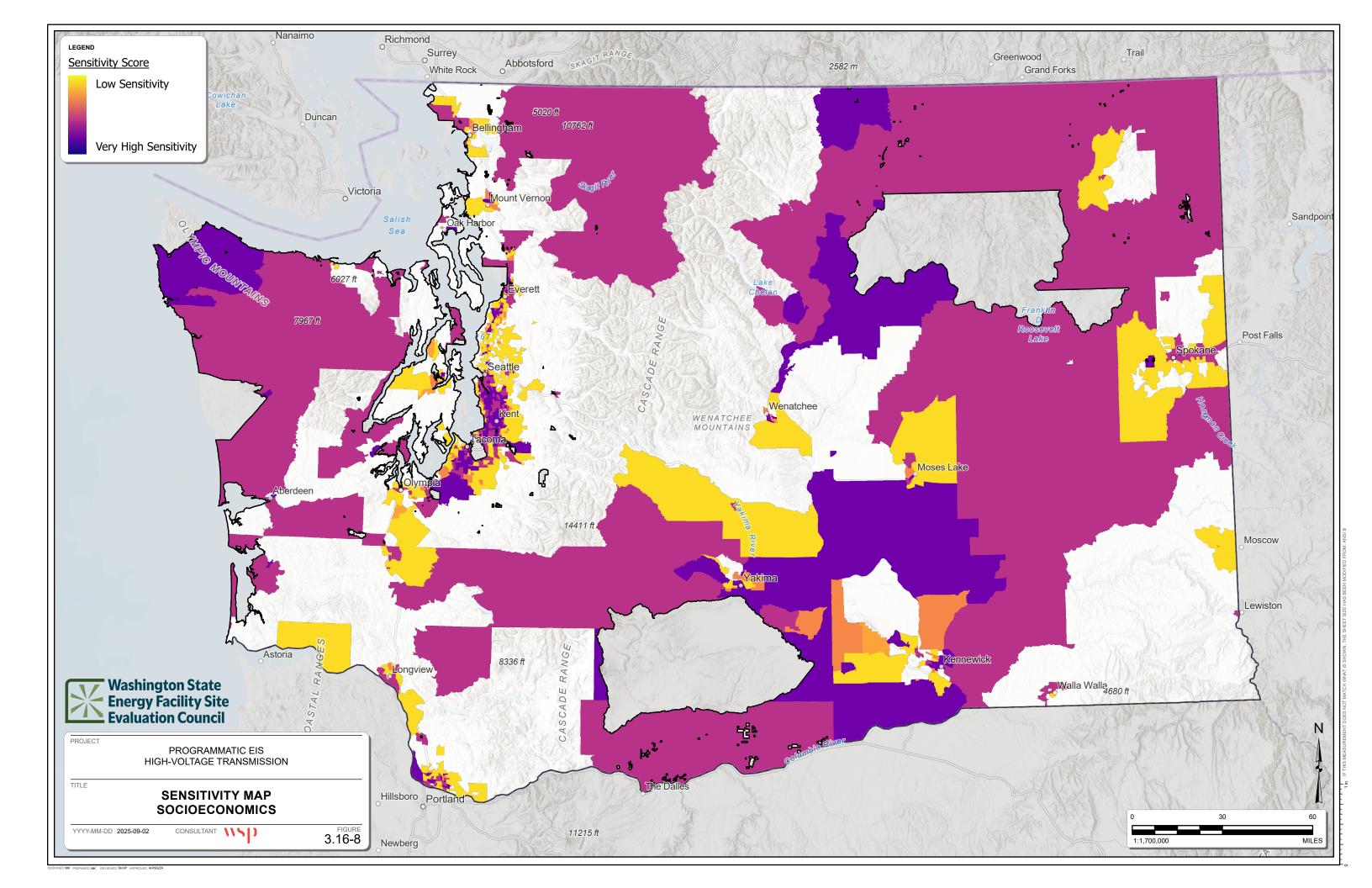
3.16.6 Environmental Sensitivity Map

Project-specific applications require a comprehensive analysis to identify the site-specific adverse environmental impacts on resources and determine the suitability of this Programmatic EIS. Environmental review may be phased by incorporating relevant information from this Programmatic EIS by reference while evaluating site-specific adverse environmental impacts of individual project applications. For more information on phased reviews, please refer to Chapter 1, Introduction.

Each project-specific application would include details about the proposal's location and site-specific conditions. This Programmatic EIS provides environmental sensitivity maps that, when used alongside project-specific data, could support more informative and efficient environmental planning. An online mapping tool has also been developed to provide public access to the most current data used in creating these environmental sensitivity maps.

Figure 3.16-8 presents the environmental sensitivity map for socioeconomics, identifying areas of varying sensitivity based on the siting criteria described in the following sections.

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3.16.6.1 Environmental Sensitivity Map Criteria Cards

The environmental sensitivity map evaluates various siting criteria and assigns sensitivity levels to geographic areas based on their potential for adverse environmental impacts, as analyzed in this Programmatic EIS. Each criterion was assigned a sensitivity level (1, 2, or 3), with Level 3 representing the highest sensitivity. Criteria cards illustrate the spatial extent of the siting criteria chosen. A summary of the criteria cards is provided below. Appendix 3.1-2 details the data preparation process for the criteria cards.

The Draft Programmatic EIS included an evaluation of socioeconomic criteria that was primarily based on federal data sources that have since been rescinded or removed from being publicly available. Therefore, the data sources and evaluation methodology have been updated to rely primarily on data provided by the State of Washington.

Non-Overburdened Communities with an Environmental Health Disparity Ranking of 5 through 8 – Sensitivity Level 1

Figure 3.16-9 illustrates 2010 census tracts within the Study Area that are not considered overburdened communities but have an EHD ranking of 5 through 8 (OFM 2010; WTN 2022).

Potentially Vulnerable Populations- Sensitivity Level 2

Figure 3.16-10 illustrates the spatial extent of 2020 census tracts within the Study Area that are considered to have racial and ethnic minority populations and low-income populations (OFM 2020; U.S. Census Bureau 2025). As previously defined, the Washington State Legislature identifies "vulnerable populations" as including, but not limited to:

- i) Racial or ethnic minorities;
- ii) Low-income populations;
- iii) Populations disproportionately impacted by environmental harms; and
- iv) Populations of workers experiencing environmental harms.

A census tract is considered a "racial or ethnic minority population" if the percentage of minority population in the census tract is greater than the state percentage (32.06%). A census tract is considered a "low-income population" if the percentage of

low-income populations in the census tract is greater than the state percentage (22.78%).

Overburdened Communities - Sensitivity Level 3

Figure 3.16-11 illustrates 2010 census tracts within the Study Area that are considered an overburdened community from "Overburdened Communities of Washington State" (OFM 2024d).

The Overburdened Communities of Washington State dataset merges several data sources to identify census tracts where vulnerable populations face cumulative environmental and health impacts. The dataset considers a census tract as an overburdened community if one of the following three criteria is met:

- The census tract had an EDH ranking of 9 or 10
- The census tract was identified as "disadvantaged" by the federal Climate and Economic Justice Screening Tool (CEJST)
- The census tract overlaps with Tribal reservations (as recognized by the Bureau of Indian Affairs) (OFM 2024d)

This data supports the identification of fund allocation under the CCA and HEAL Act, aiming to ensure equitable expenditures of funds towards environmental benefits and reduction of burdens in these critical areas (OFM 2010, 2024d). Although this dataset was clipped to the Study Area, it is recognized that data associated with census tracts may extend into areas outside the Study Area, such as Tribal reservations.

Note that an overlap in data may exist between Sensitivity Level 3 and 2 due to differences in census tract boundaries. The Washington EHD Map includes population data that relies on 2010 census tract boundaries, whereas the demographic analysis conducted for Sensitivity Level 2 is based on 2020 census tract boundaries. Changes in census tract boundaries may affect how populations are represented. Changes in census tract boundaries may affect how populations are represented and could show an overlap in data.

Non-Overburdened Communities with an Environmental Health Disparity Ranking of 5 through 8 — Sensitivity Level 1



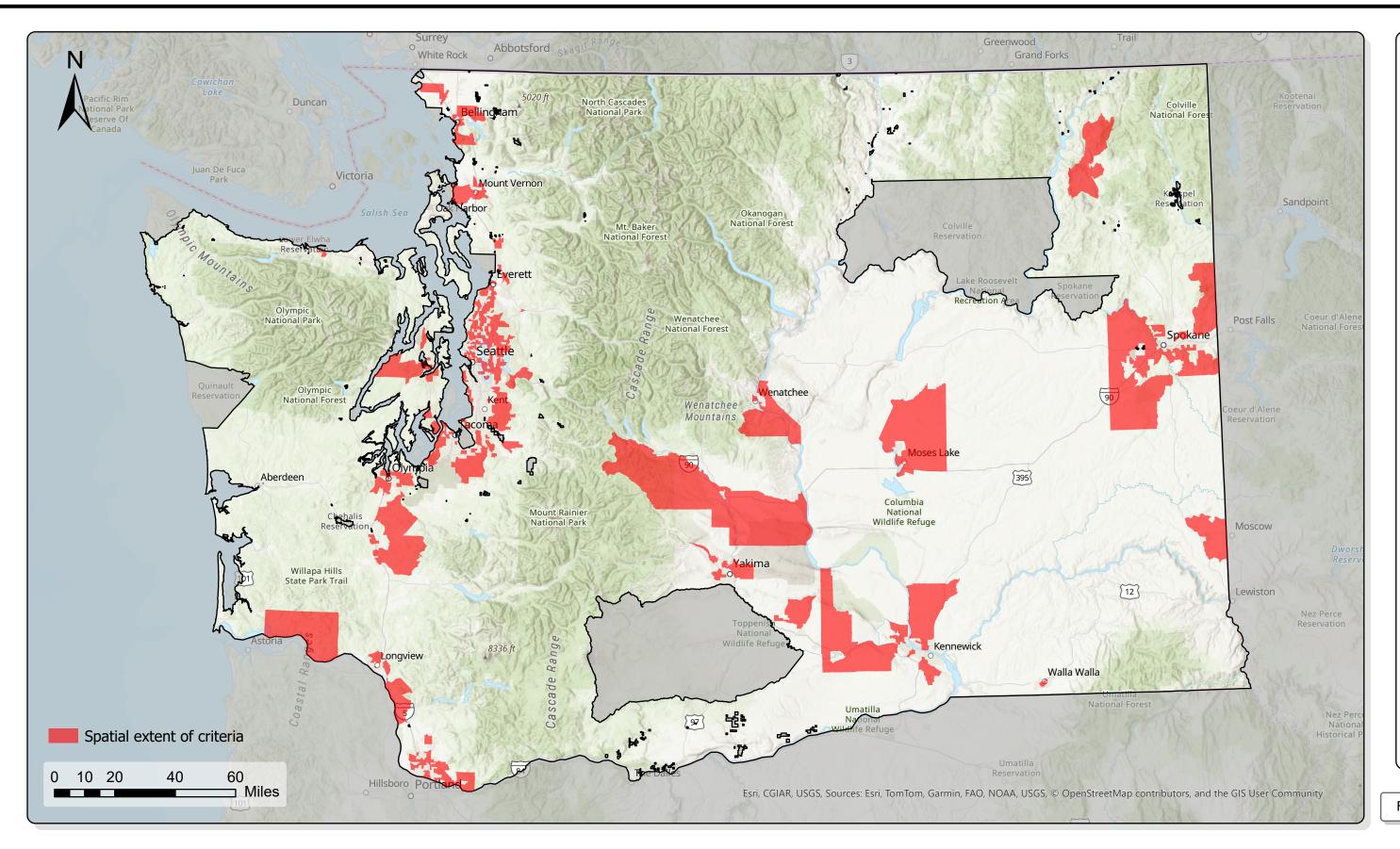


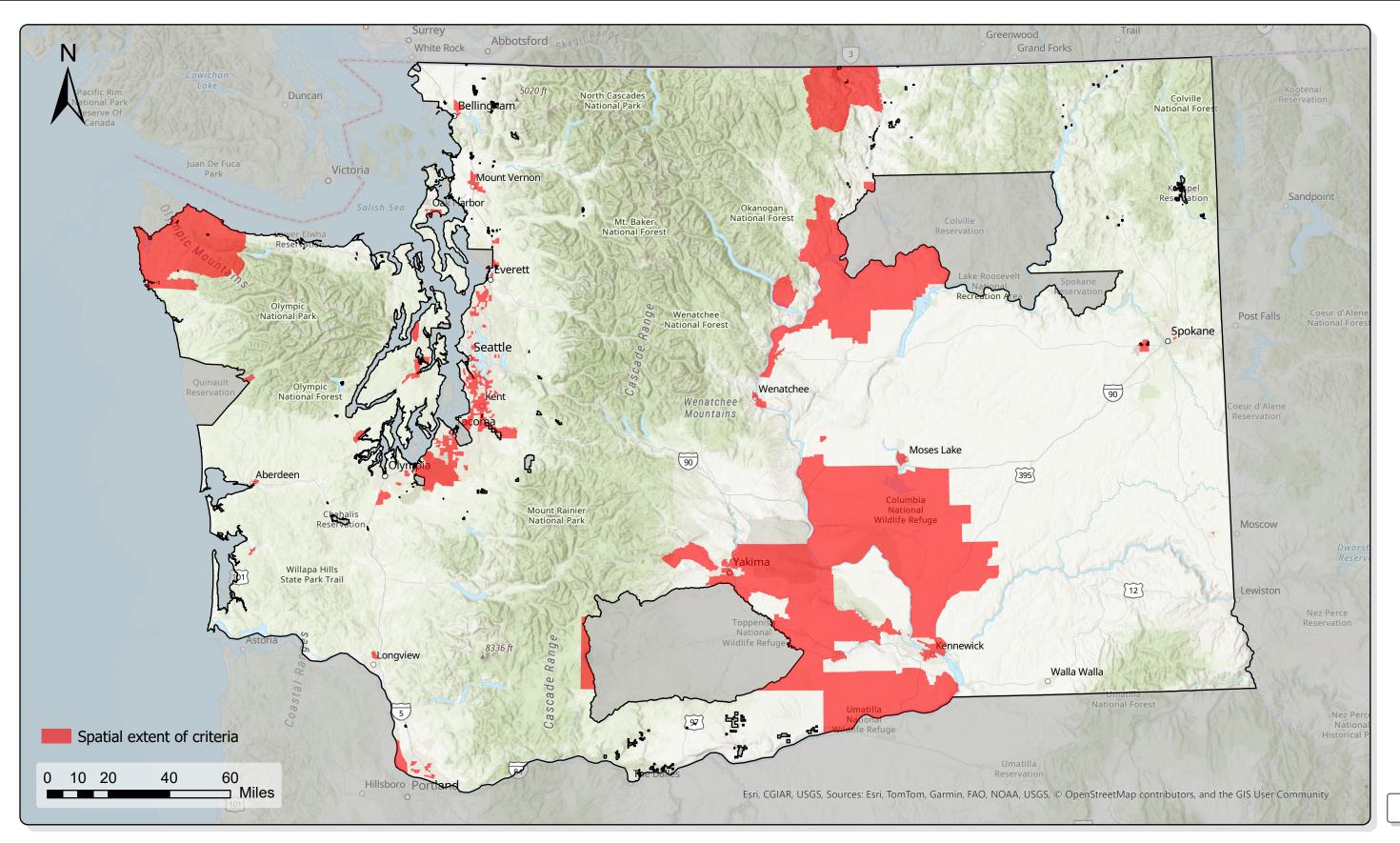
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Potentially Vulnerable Populations – Sensitivity Level 2





SOCIOECONOMICS

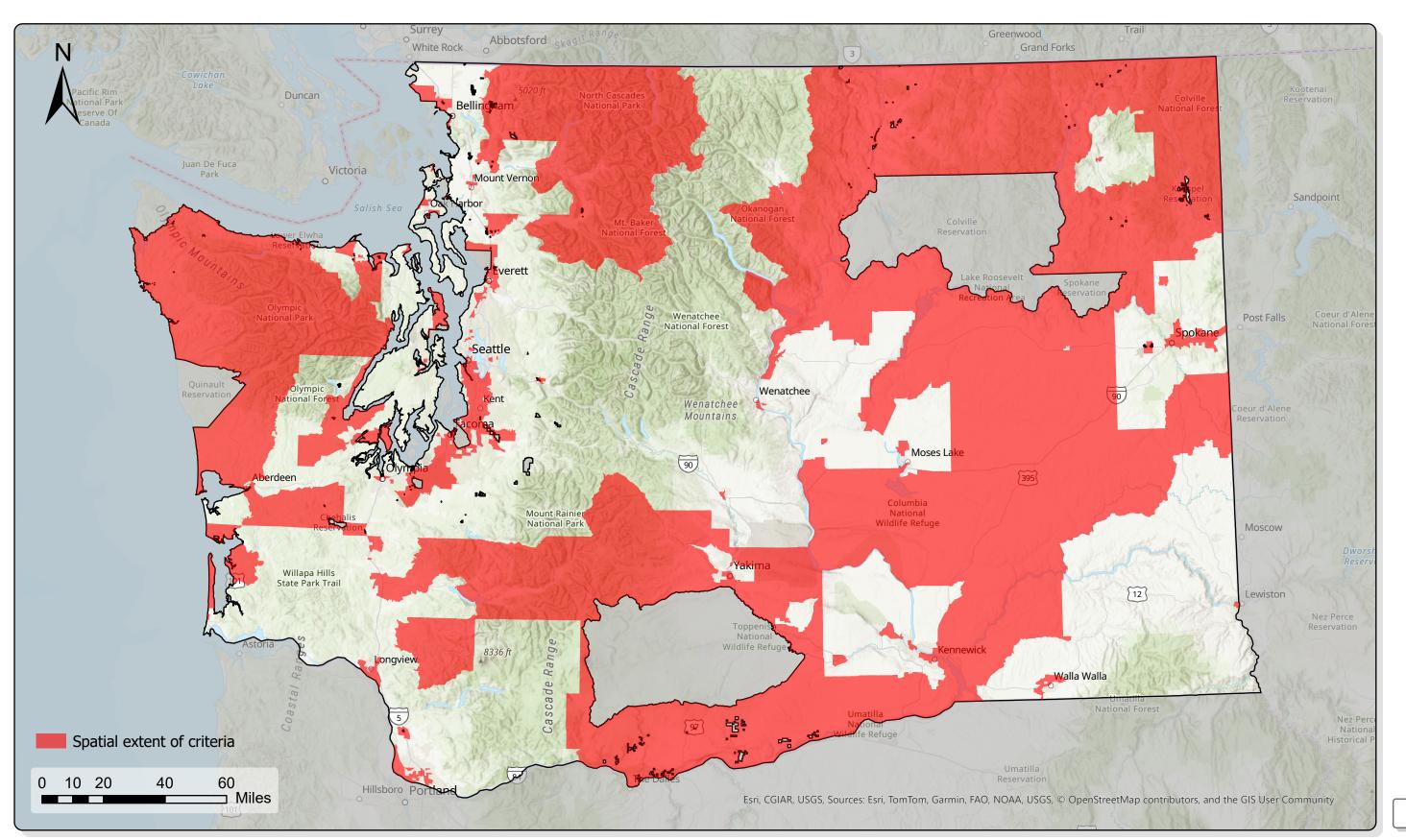
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Figure 3.16-10

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Overburdened Communities – Sensitivity Level 3





SOCIOECONOMICS

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Figure 3.16-11

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