DRAFT PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT

HIGH-VOLTAGE TRANSMISSION FACILITIES IN WASHINGTON

Chapter 4 - Cumulative Impacts

March 2025

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4.0 CHAPTER 4 – CUMULATIVE IMPACTS

The Washington State Environmental Policy Act (SEPA) requires consideration of how a project or projects could contribute to cumulative impacts when combined with impacts caused by other developments in the region over time. Although the adverse environmental effects of an individual project may not be significant when considered separately, the combined effects of several projects may be significant when considered collectively. Under the Revised Code of Washington (RCW) 43.21C.405, the nonproject environmental review must include a cumulative impact analysis. This cumulative impact analysis was prepared pursuant to Washington Administrative Code 197-11-060 in response to RCW 43.21C.405.

Cumulative impacts could result from development associated with transmission facilities combined with effects of many different types of development or other activities occurring on land within the state. The geographic scope for this cumulative analysis is the Study Area, which includes all lands across Washington except for Tribal Reservations and areas requiring oceanic or undersea transmission. The analysis of cumulative impacts was accomplished using the following general methodology:

1) Identify environmental resources that could be cumulatively affected by transmission facility development in combination with other actions.

2) Identify other present projects and reasonably foreseeable actions (collectively referred to herein as RFAs) that could contribute to cumulative impacts on the environmental resources identified in Step 1.

3) Analyze each environmental resource identified in Step 1 in combination with transmission facility development and RFAs identified in Step 2. At this broad scale of analysis, most cumulative impacts cannot be accurately quantified and are therefore discussed in more general qualitative terms. Some environmental resource areas may be discussed by region to better evaluate potential cumulative impacts if such an analysis is deemed possible.

4.1 Potentially Affected Resources

Although cumulative impacts could originate from actions beyond the Washington State boundary, the geographic scope for this cumulative impact analysis is the same as the geographic scope, or Study Area, for the Action Alternative identified in this Draft Programmatic Environmental Impact Statement (EIS). As described in Chapter 1, the Study Area encompasses all lands within the State of Washington, excluding Tribal lands[1] and areas requiring oceanic or undersea transmission.[2] Within the Study Area, numerous and diverse actions are ongoing or may occur in the future, potentially contributing to cumulative impacts on the same resources as transmission facility development. Therefore, this cumulative impact analysis incorporates all direct and indirect effects on the environmental resource areas analyzed in Chapter 3 and expands upon the analysis by evaluating

[1] For the purposes of this scoping document, Tribal lands are not included in the proposed Study Area. Tribal lands are sovereign territories, and decisions regarding their use typically fall under the jurisdiction of the respective Tribal Government. Tribal lands often have their own regulatory processes and environmental review requirements, which may differ from state or federal processes. Federal agencies are required to engage in government-to-government consultation with Tribes. This process ensures that Tribal concerns and perspectives are adequately addressed.

[2] Programmatic EIS documents address broad, overarching policies, plans, or programs rather than specific projects. Sea cables are considered to be too specific or detailed for the broad focus of this nonproject review. Additionally, sea cables, especially those that cross international water or state boundaries, may fall under different regulatory frameworks or jurisdictions, requiring separate, more specific environmental reviews. Lastly, the environmental impacts and technical considerations of sea cables can be significantly different from those of land-based transmission facilities. These differences might necessitate a distinct, focused EIS to adequately address the unique challenges and impacts.

the combined direct and indirect effects of present and reasonably foreseeable future actions on each resource area.

4.2 Cumulative Reasonably Foreseeable Actions

The cumulative effects of past projects and actions are not individually identified and considered in this chapter, as they are addressed in the affected environment for each resource discussed in Chapter 3. RFAs are those that are formally being proposed or planned, those about which a formal decision has been made, and developments currently under construction. RFAs that are formally being proposed or planned have readily available published planning documents or public notifications. RFAs for which a formal decision has been made include those that have undergone a federal, state, and/or local approval or application process(es), such as environmental clearance, application review, and/or permitting process(es). This analysis does not include speculative future projects or actions, such as those that are not formally proposed or do not have adequate detail to be sufficiently analyzed in this chapter and thus are not reasonably foreseeable.

Because the Study Area encompasses a majority of the state, it is not possible to identify and evaluate all cumulative actions in the Study Area, nor would that be meaningful at a programmatic level. A desktop review of federal, state, and local websites was conducted to identify a broad list of RFAs that have the potential to impact the same resources analyzed in this Draft Programmatic EIS. RFAs were considered for inclusion in this cumulative impact analysis if they met the following general criteria:

- They are or would be located in the State of Washington.
- Their construction and operation have or would have a potentially adverse impact on the same or similar resources as those affected by transmission facility development.
- They are currently undergoing, or have undergone, a federal, state, or local agency permitting or approval process, or the agency has publicly noticed the proposed action.

Common themes were then developed to further refine and organize the list of RFAs to be incorporated into this cumulative impact analysis. Themes are categories of RFAs based on industry, trend, or type and are made up of individual actions that are resulting, or could result, in the greatest cumulative impact in combination with the development of transmission facilities. Each theme has criteria for the RFAs that were identified and used in this cumulative impact analysis. Natural breaks[3] in data—specifically, the size or scale of an RFA—were used to determine the criteria of each theme. By focusing on RFAs with a higher degree of certainty and impact, this Draft Programmatic EIS can provide a more accurate and reliable assessment of cumulative impacts. The themes and their associated criteria are discussed in more detail below.

- **Energy Transmission** – This theme includes RFAs related to transmission facility development, upgrade, and/or modification. Only transmission facility RFAs 15 miles long or greater are included in this cumulative impact analysis.

[3] A natural break is a method used in data classification to divide data into distinct classes based on natural groupings inherent in the data. This technique, also known as the Jenks Natural Breaks method, identifies gaps or breaks in the data distribution to create class intervals. These breaks occur at points where there are relatively large differences in data values, effectively grouping similar values together and maximizing the differences between classes.

- **Energy Generation** – This theme includes new energy-generating facilities. Only energy-generating RFAs that produce 400 megawatts (MW) of electricity or more, or are 1,000 acres or greater, are included in this cumulative impact analysis.
- **Community Growth** – This theme includes RFAs related to residential, commercial, and/or industrial development. Only development RFAs 200 acres or greater are included in this cumulative impact analysis.
- **Land-Based Transportation** – This theme includes RFAs that propose new, expanded, and/or modified linear transportation improvements. Only linear transportation improvement RFAs 10 miles or greater are included in this cumulative impact analysis. Water-based transportation RFAs are considered in a separate theme.
- **Water-Based Transportation** – This theme includes a variety of RFAs where water resources overlap with transportation improvements, such as water crossings and marine transportation. The criteria for an RFA to be included are based on cost.[4] Water-based transportation RFAs that are over $10 million are included in this cumulative impact analysis.
- **Agriculture** – This theme represents the agricultural industry and includes RFAs that propose new or modified agricultural land use designations, activities, and/or the development of supporting facilities. Only agricultural-related RFAs that impact or modify 40 acres or greater are used in this analysis.
- **Forestry** – This theme includes RFAs related to timber harvesting, associated construction or maintenance activities, and forest conservation actions. Only timber harvesting and forest conservation RFAs that are 300 acres or greater were included in this cumulative impact analysis.
- **Mining** – This theme includes RFAs that propose new or expanded mining operations. Only mining RFAs that involve 150 acres or greater for new or expanded mining operations are used in this cumulative impact analysis.
- **Recreation** – This theme includes RFAs that propose new or expanded recreational areas or facilities and conversion from non-recreation to recreation land use designations. The criteria for an RFA to be included are based on the total acreage to be designated as a recreational area or recreational facilities to be developed. Recreation-related RFAs that total 50 acres or greater are used in this cumulative impact analysis.
- **Wildlife and Habitat Conservation** – This theme includes RFAs that propose new or expanded conservation areas and restoration or management projects. Only wildlife and habitat conservation RFAs totaling 400 acres and greater are used in this cumulative impact analysis.
- **Water Resources** – This theme includes RFAs related to improving water supply, quality, and wildlife habitats. Specifically, these RFAs include floodplain and aquifer recharge, fish passages, agriculture irrigation improvements, and dams. Water resource RFAs totaling 200 acres and greater, and fish passage RFAs are used in this cumulative impact analysis.

[4] While it would be beneficial to conduct this analysis based on length, this information could not be obtained for every project.

Providing a comprehensive review of probable cumulative impacts, both adverse and beneficial, helps stakeholders understand the full range of effects on the environment. While beneficial RFAs are not considered when determining whether there is a probable cumulative impact on a specific element of the environment, understanding the potential benefits of RFAs may help decision-makers better evaluate project-specific mitigation for probable significant cumulative adverse impacts.

RFAs based on the criteria described previously in this section that could contribute to a cumulative impact are discussed in **Table 4.2-1** and presented in **Figure 4.2-1**. As previously stated, projects or actions that have been completed and constructed are considered part of the baseline conditions used to describe the affected environment throughout Chapter 3. Therefore, past projects and actions are not included in **Table 4.2-1** and **Figure 4.2-1**.

Table 4.2-1: Reasonably Foreseeable Actions

Theme	Theme Description	Proposed ID	Project Name	Project Description	Project Location (County)	Project Size	Current Project Phase (Planning/Development or Under Construction)
Energy Transmission	Development and/or modification of transmission facilities and systems.	N/A	Replacement Program - Various Operators	Operators proactively monitor the performance of underground distribution (low-voltage) cables approaching the end of their useful lives, typically 20 years, and often replace them. Annually, operators could replace upwards of 100 miles of electric cable across their service areas. Due to varying need of replacement based on monitoring, locations have not been identified in **Figure 4.2-1**.	Multi-County	100 miles	Under Construction
		1	Cascade Renewable Transmission Project	The Cascade Renewable Transmission Project proposes to transport 1,100 MW of renewable energy approximately 79 miles east of the Cascades to customers west of the Cascades via a high-voltage direct current transmission line.	Multi-County: Clark, Skamania, and Klickitat	79 miles	Planning/Development
		2	Shelton-Fairmount No. 1 Transmission Line Rebuild Project	BPA is planning to rebuild the 60-mile-long Shelton-Fairmount No. 1 115-kV wood pole transmission line from BPA's Shelton Substation in Mason County, Washington, to BPA's Fairmount Substation in Jefferson County, Washington. Construction is expected to begin in spring 2025, with energization slated for late 2028.	Multi-County: Clallam, Jefferson, Mason, and Thurston	60 miles	Planning/Development
		3	Wanapum to Mountain View	The Grant County Public Utility District plans to build a new 31-mile, 230 kV transmission line from the Wanapum Dam to the Mountain View Substation near Quincy. The new transmission line will be aligned along existing roadways and utility corridors.	Grant County	31 miles	Planning/Development
Energy Generation	Development and/or modification of energy facilities and systems.	4	Goldendale Energy Project	The Goldendale Energy Project proposes to build an off-channel energy storage system 8 miles south of Goldendale next to the Columbia River. The system would release water from an upper reservoir downhill to a lower reservoir to generate energy. The project is expected to generate up to 1,200 MW of electricity.	Klickitat County	1,200 MW; 682 acres	Planning/Development
		5	Horse Heaven Wind Farm	The Horse Heaven Wind Farm project proposes to construct a renewable energy generation facility that will utilize both wind turbines and solar photovoltaic panels for generating capacity of up to 1,150 MW.	Benton County	1,150 MW; 11,850 acres	Planning/Development
		6	Hop Hills Solar Energy Project	The Hop Hills Solar Energy Project proposes to develop a utility-scale photovoltaic solar power plant on approximately 11,000 acres. The project could consist of up to 500 MW of solar power interconnected to the BPA system at the Midway Substation with an alternative potential interconnect at the BPA Wautoma Substation. The project would also include up to 500 MW of battery storage.	Benton County	500 MW; 11,000 acres	Planning/Development
		7	Wautoma Solar Energy Project	The Wautoma Solar Energy Project proposes a 470 MW solar photovoltaic facility, including a BESS.	Benton County	470 MW; 2,974 acres	Planning/Development
		8	Dry Falls Solar Project	The Dry Falls Solar Project proposes a 400 MW solar photovoltaic array, BESS (anticipated 100 MW), and supporting facilities, located in unincorporated Grant County, Washington.	Grant County	400 MW; 2,515 acres	Planning/Development
		9	Appledale Energy Center	The Appledale Energy Center proposes to build and operate a 300 MW solar photovoltaic energy generation facility and associated 300 MW BESS. The project would be located on 3,000 acres in Grant County.	Grant County	300 MW; 3,000 acres	Planning/Development
		10	Badger Mountain Solar Energy Project	The Badger Mountain Solar Energy Project proposes a 200 MW solar photovoltaic generation facility with an optional 200 MW BESS located in unincorporated Douglas County, Washington.	Douglas County	200 MW; 2,390-acres	Planning/Development
		11	Carriger Solar Project	The Carriger Solar Project is a proposed solar photovoltaic electric generating facility with a capacity of 160 MW of alternating current solar energy and 63 MW of battery energy storage.	Klickitat County	160 MW; 1,323-acres	Planning/Development
		12	Quincy Valley Solar Photovoltaic and BESS Project	The Quincy Valley Solar Photovoltaic and BESS Project is a proposed solar facility capable of generating up to 130 alternating current MW of	Grant County	130 MW; 1,773-acres	Planning/Development

Theme	Theme Description	Proposed ID	Project Name	Project Description	Project Location (County)	Project Size	Current Project Phase (Planning/Development or Under Construction)
				photovoltaic solar energy. The project's proposed boundary encompasses 1,773 acres.			
		13	Desert Claim Wind Power Project	The Desert Claim Wind Power Project proposes a 100 MW total maximum capacity wind power facility located on approximately 4,400 acres. The project would consist of a maximum of 31 turbines and associated electrical collection system that would connect the project to the regional high-voltage transmission grid.	Kittitas County	100 MW; 4,400 acres	Planning/Development
		N/A – See Figure Legend	Programmatic Environmental Impact Statement on Utility-Scale Onshore Wind Energy Facilities in Washington State	This Washington State Environmental Policy Act (SEPA) Programmatic Environmental Impact Statement (PEIS) was prepared to evaluate utility-scale onshore wind energy facilities in Washington state. A PEIS is a type of nonproject environmental review used for planning; it is not an evaluation of a specific project. This PEIS considers potentially significant adverse environmental impacts at a broad level. It analyzes general types of facilities—but not individual projects—to identify probable significant adverse environmental impacts and possible ways to avoid, minimize, or mitigate those impacts.	The geographic scope for the wind PEIS includes areas throughout the State of Washington where utility-scale onshore wind facilities are likely to be developed based on available wind energy and proximity to transmission lines.	N/A	Preliminary Evaluation
		N/A - See Figure Legend	Programmatic Environmental Impact Statement on Utility-Scale Solar Energy Facilities in Washington State	This Washington SEPA PEIS was prepared to evaluate utility-scale solar energy facilities in Washington state. A PEIS is a type of nonproject environmental review used for planning; it is not an evaluation of a specific project. This PEIS considers potentially significant adverse environmental impacts at a broad level. It analyzes general types of facilities—but not individual projects—to identify probable significant adverse environmental impacts and possible ways to avoid, minimize, or mitigate those impacts.	The geographic scope for the solar PEIS includes areas throughout the State of Washington where utility-scale solar facilities are likely to be developed based on available solar energy, the topographic slope, and proximity to transmission lines.	N/A	Preliminary Evaluation
		N/A - See Figure Legend	Programmatic Environmental Impact Statement on Green Hydrogen Energy Facilities in Washington State	This Washington SEPA PEIS was prepared to evaluate green electrolytic and renewable hydrogen facilities (referred to as "green hydrogen facilities") in Washington state. This PEIS considers potential significant adverse environmental impacts at a broad level. It analyzes general types of facilities—but not individual projects—to identify probable significant adverse environmental impacts and possible ways to avoid, minimize, or mitigate those impacts.	The geographic scope for the green hydrogen PEIS includes areas throughout the state of Washington where green hydrogen facilities are likely to be developed based on proximity to transmission lines, proximity to freight highway routes, and industrial or industrial-use supporting zoning.	N/A	Preliminary Evaluation
Community Growth	Land use development, including residential, commercial, and industrial uses.	14	Wallula Gap Business Park	The Wallula Gap Business Park project proposes a 1,900-acre heavy industrial site in the western portion of Walla Walla County.	Walla Walla County	1,900 acres	Planning/Development
		15	Bullfrog Flats Development	The Bullfrog Flats Development project proposes a mixed-use phased development in the western portion of the City of Cle Elum between Bullfrog Road and SR 903. The project consists of multiple parcels to be developed in multiple phases, including 1,100 acres to be subdivided into 1,334 residential dwellings, a business park, and land set aside for various public uses. Portions of the Development Agreement have been executed since it was originally approved on October 30, 2002, with the construction of utility infrastructure including a power substation and water treatment plant, dedication of land to the Cle Elum/Roslyn School District and City of Cle Elum and recording of a subdivision in the proposed business park. The remaining parcels, 918.90 acres, are the subject of the current project submittal package.	Kittitas County	919 acres	Planning/Development

Theme	Theme Description	Proposed ID	Project Name	Project Description	Project Location (County)	Project Size	Current Project Phase (Planning/Development or Under Construction)
		16	Mission Ridge Expansion	The Mission Ridge Expansion Project proposes a Master Planned Resorts Overlay District on approximately 502 acres of land that is directly adjacent to the existing Mission Ridge Ski and Board Resort. A Development Agreement has been applied to guide the development process. The Master Planned Resort would provide a mixture of commercial, residential (single-family, condo, town homes), and recreational opportunities. It would consist of five phases and is expected to be built out over a 20-year timeframe.	Chelan County	502 acres	Planning/Development
		17	Aerospace Innovation and Manufacturing (AIM) Center	The AIM Center project proposes a Master Plan development at the Tri-Cities Airport. The Port of Pasco released the AIM Center Master Plan in June 2023, which encompasses a total of approximately 460 acres. The plan outlines goals to build the AIM Center within the existing Tri-Cities Airport boundary, adjacent to the current runway system.	Franklin County	460 acres	Planning/Development
		18	FRED310 Industrial Development	The proposed FRED310 Industrial Development project would surround the current Boeing fabrication facility on two parcels consisting of approximately 310 acres. The development proposes seven buildings, totaling approximately 4 million square feet. The proposed buildings would be used for industrial, warehouse, distribution, and office.	Pierce County	310 acres	Planning/Development
		19	Copperstone Planned Development	The Copperstone Planned Development project is a proposed planned development subdivision in rural Okanogan County along the Methow River. The proposal is to develop the site into 56 detached single-family homes, open spaces, recreational facilities, and a storage facility.	Okanagan County	277 acres	Planning/Development
		20	Project Sequoia: Mineral Wool Insulation Manufacturing Facility	Roxul USA Inc. dba Rockwool plans to construct and operate a mineral wool insulation and products manufacturing facility in the Wallula area in unincorporated Walla Walla County.	Walla Walla County	250 acres	Planning/Development
		21	Rocky Pond Master Planned Resort Comprehensive Plan Amendment	This is a proposed amendment to the comprehensive plan and development regulation to designate approximately 215 acres of land in unincorporated Douglas County as a Master Planned Resort. The site is currently a mix of vineyards, pear orchards, undeveloped open space and an event center.	Douglas County	215 acres	Planning/Development
Land-Based Transportation	New, expanded, modified, or reconstructed land-based transportation facilities and infrastructure.	22	I-405/SR 167 Corridor Program	The I-405/SR 167 Corridor Program stems from the I-405 Master Plan and SR 167 Master Plan, foundational documents that guide project development, funding, and delivery. The I-405 Master Plan alone includes more than 150 projects designed to improve travel between Lynnwood and the Renton/Tukwila area. When combined with SR 167, this north-south corridor forms a 50+-mile transportation system providing travelers with a reliable trip in the express toll lanes, regular lanes, and high-capacity transit (bus rapid transit).	King County, Snohomish County	50 miles	Under Construction
		23	I-405/Renton to Bellevue Widening and Express Toll Lanes Project	The I-405/Renton to Bellevue Widening and Express Toll Lanes (ETLs) project includes multimodal transportation and safety improvements to offer more reliable travel choices and keep drivers, transit riders, and freight moving. The new ETLs will connect to the existing express toll lane system between Bellevue and Lynnwood, as well as the SR 167 High-Occupancy Toll lanes via the I-405/SR 167 Interchange Direct Connector, to create a 40-mile ETL system.	King County	40 miles	Under Construction
		24	East Link Extension	The East Link Project is an extension of the Link light rail system providing urban transportation improvements in the Central Puget Sound metropolitan region. The East Link project will connect to the existing light rail system in downtown Seattle and extend the system east to Mercer Island, Bellevue, and Redmond. The East Link Extension is 14 miles long and includes 10 stations from Seattle's International District to Judkins Park.	King County	14 miles	Under Construction

Theme	Theme Description	Proposed ID	Project Name	Project Description	Project Location (County)	Project Size	Current Project Phase (Planning/Development or Under Construction)
		25A; 25B	Puget Sound Gateway Program	The Puget Sound Gateway Program combines the SR 509 Completion Project in King County and the SR 167 Completion Project in Pierce County to complete critical missing links in Washington State's highway and freight network. The SR 509 Completion Project is building 3 new miles of SR 509, which includes a four-lane expressway between I-5 and SR 509's current end near Sea-Tac Airport, new I-5 ramps, improved I-5 interchanges in south King County, and construction of new bridges. The SR 167 Completion Project constructs 6 new miles of tolled highway between Puyallup and the Port of Tacoma and builds sidewalks and shared-use paths for non-motorized travelers.	King County, Pierce County	9 miles of freeway, 14 miles of new bike/ pedestrian paths, and 4.5 miles of new sidewalks	Under Construction
		26	North Spokane Corridor	The NSC is a 10.5-mile multi-modal corridor. When complete, the NSC will be a 60-mile-per-hour, north/south limited-access facility that connects to I-90 at the south (just west of the existing Thor/Freya interchange) and US 2 (at Farwell Road) and US 395 (at Wandermere) on the north end. Various stages of construction remain to complete the project.	Spokane County	11 miles	Under Construction
Water-Based Transportation	Water-based transportation improvement or maintenance projects.	27	Interstate Bridge Replacement Program	The Interstate Bridge Replacement Program is a joint effort between Oregon and Washington to replace the aging Interstate Bridge across the Columbia River and related interchange improvements within the 5-mile corridor. Improvements include: ▪ Replacing the Columbia River and North Portland Habor bridges ▪ Providing three through lanes on the bridge and at least one auxiliary lane in each direction ▪ Creating a safer shared-use path ▪ Extending light rail from the Portland Expo Center to Vancouver's Evergreen Boulevard and adding three new transit stations ▪ Implementing bus-on-shoulder service ▪ Providing a new arterial bridge from Hayden Island to Marine Drive for local traffic ▪ Modifying seven interchanges within 5 miles ▪ Implementing variable rate tolling	Snohomish County	$6 billion	Planning/Development
		28	Lower Columbia River Channel Dredged Material Maintenance Plan	The U.S. Army Corps of Engineers, in partnership with the Ports of Portland, Vancouver, Woodland, Kalama, and Longview, is developing a joint environmental impact statement and a long-term maintenance plan for the Lower Columbia River. This portion of the river is a 102-mile-long section from Vancouver, Washington, to Astoria, Oregon, and is a critical connection for international commerce. The Lower Columbia River Channel Maintenance Plan, Dredged Material Management Plan is a coordinated, long-term plan for managing dredged material generated by the continued operation and maintenance of the Lower Columbia River Federal Navigation Channel for a minimum of 20 years to continue to provide a 43-foot-deep, 600-foot-wide channel.	Multi-Jurisdictional, Lower Columbia River	102 miles	Planning/Development
		29	SR 520 Portage Bay Bridge and Roanoke Lid Project	The Portage Bay Bridge and Roanoke Lid Project would replace the aging Portage Bay Bridge with a seismically resilient structure that includes improved bus/carpool travel and an extension of the SR 520 Trail. This project also would build a landscaped lid between Seattle's Roanoke Park and North Capitol Hill neighborhoods.	King County	$1.375 billion	Planning/Development
		30	SR 520 Montlake Project	The Montlake Project will improve transportation for both motorized and nonmotorized travel along the corridor with a new SR 520 eastbound	King County	$455 million	Under Construction

Theme	Theme Description	Proposed ID	Project Name	Project Description	Project Location (County)	Project Size	Current Project Phase (Planning/Development or Under Construction)
				bridge over Union Bay. This project also will build a new, 3-acre lid covering the highway in Montlake that will include regional transit stops and open green space. East of the lid, a bicycle and pedestrian bridge will be constructed over SR 520.			
		31	SR 9 – Marsh Road to 2nd Street Vicinity – Widening & Bridge Painting	This project would widen SR 9 between Marsh Road and 2nd Street near the City of Snohomish, build southbound bridges directly to the west of the existing bridges—which would become northbound lanes—over the Snohomish River; and rebuild the on-ramp from 2nd Street to southbound SR 9. It also includes repainting the existing bridge.	Snohomish County	$142 million	Planning/Development
		32	I-5 East Fork Lewis River NB Bridge Replacement	The I-5 East Fork Lewis River NB Bridge Replacement project is a preservation project that would remove and replace the northbound I-5 East Fork Lewis River Bridge, located south of Woodland in Clark County. This bridge crosses over the East Fork of the Lewis River, Paradise Point State Park, and Northwest Toenjes Road, near milepost 18.21.	Clark County	$100 million	Planning/Development
		33	US 395 – NSC Spokane River Crossing	The US 395 – NSC Spokane River Crossing project will construct the North Spokane Corridor bridge that will cross the Spokane River and connect the skyway portion near Spokane Community College to the south and at Carslie Avenue to the north of the river.	Spokane County	$91 million	Under Construction
		34	SR 155 Spur/Okanogan River Bridge Replacement	The SR 155 Spur/Okanogan River Bridge Replacement project would demolish the existing concrete arch bridge over the Okanogan River and replace it with a new, 422-foot-long curved bridge slightly north. The new bridge deck would accommodate two 12-foot vehicle lanes with 4-foot shoulders and a 14-foot-wide shared-use path. Utilities would also be relocated onto the new bridge. New stormwater facilities would be added to treat roadway runoff before it enters the Okanogan River.	Okanogan County	$29.3 million	Planning/Development
		35	Replacement of Granite Falls Bridge #102	The Granite Falls Bridge #102 spans the Stillguamish River and is part of the 52-mile Mountain Loop Scenic Byway between Granite Falls and Darrington. This project proposes to replace the existing bridge, which is 340 feet long and 20 feet wide, with a new bridge that would be 350 feet long and 47 feet wide with bike lanes and sidewalks. The wider and longer design would meet current bridge standards and allow motorists, bicycles, and pedestrians a safer route of travel.	Snohomish County	$28.7 million	Planning/Development
		36	Ames Lake Trestle Bridge Replacement Project	This project will replace the 100-year-old Ames Lake Trestle Bridge with a wider structure and straighter bridge approaches. The improvements are designed to increase sight distance for drivers and provide a safe, unrestricted crossing for trucks and vehicles of all sizes.	King County	$10.8 million	Under Construction
Agriculture	New or modified agricultural land use designations, activities, and/or the development of supporting facilities.	37	Flying A Land Rezone	The Flying A Land Rezone is proposing to rezone its 47 parcels, equaling 197.4 acres, currently zoned Agriculture 5, to Planned Unit Development. The rezone would allow the current use of the property to be consistent and compatible with the zoning code, as well as allow future expansion of existing uses.	Kittitas County	198 acres	Planning/Development
		38	US Golden Farm Irrigation Pond	The US Golden Farm Irrigation Pond project proposes the creation of an “Irrigation Pond” at the site of a decommissioned manure lagoon to support agricultural needs during the growing season. The project also proposes the installation of approximately 850 feet of buried 8-inch-diameter HDPE or PVC pipe between the irrigation pond and the temporary floating pump placed in the Skagit River during in-water work window times. The proposed pond would be approximately 350 feet wide and 350 feet long, on three parcels totaling 81.63 acres in Skagit County.	Skagit County	82 acres	Planning/Development
		39	Swift Creek Poultry Farm	This proposed project would construct a poultry farm on a 59.52-acre parcel adjacent to Swift Creek (the former Ostrom Mushroom Farm site). The proposed development includes the construction of four breeder/	Whatcom County	60 acres	Planning/Development

Theme	Theme Description	Proposed ID	Project Name	Project Description	Project Location (County)	Project Size	Current Project Phase (Planning/Development or Under Construction)
				broiler barns, three rearing barns, a spiker barn, an attached office building, and a manure bunker. The project would result in the construction of approximately 151,225 square feet of new buildings. The proposed buildings and site would be used for raising young chicks and roosters.			
		40	Jungquist Farms Depth of Cover	Trans Mountain has identified two areas where the amount of soil cover over the 16-inch-diameter, welded steel, crude oil conveyance pipeline is low in agricultural fields in Skagit County. The goal of the Jungquist Farms Depth of Cover project is to increase the depth of soil over the pipeline in both areas.	Skagit County	57 acres	Planning/Development
		41	Kang/Nazarene Church/Lange Rezone	The City of Grandview has received applications from PLSA Engineering & Surveying, First Church of the Nazarene, and Gretchen Lange for a proposed rezone from Agriculture to R-2 Medium Density Residential District. The proposed rezone would change approximately 46.78 acres of land in the City of Grandview.	Yakima County	47 acres	Planning/Development
		42	Gibson Rezone	The Gibson Rezone proposes to rezone one parcel equaling 42 acres, currently zoned Agriculture 20 to Forest and Range, due to the lack of capacity on the subject site to carry out agricultural uses. The subject site lacks water sources and suitable soils for agricultural uses. The rezone would allow the current use of the property to be consistent and compatible with the zoning code; a comprehensive plan amendment is not required to complete the rezone.	Kittitas County	42 acres	Planning/Development
		43	Walton Rezone	The Walton Rezone proposed to rezone a 40-acre tract from Extensive Agriculture to Rural Center, located within the community of Trout Lake.	Klickitat County	40 acres	Planning/Development
		44	New Hatton Rezone	The project proposes to change the zoning of approximately 99.41 acres from Prime Agriculture to Rural Residential.	Adams County	99 acres	Planning/Development
Forestry	New or modified timber harvesting projects and associated construction or maintenance activities.	45	Fly By Night Timber Sale	The Fly By Night Timber Sale proposal is for a 629 gross acre timber sale consisting of 13 harvest units, removing approximately 3,265 MBF of commercial timber utilizing a variable retention harvest prescription.	Chelan County, Kittitas County	629 acres	Under Construction
		46	Conk Timber Sale	Forest Practice Application #3026927 and Conk Timber Sale #106237 is a sale of approximately 5,500 MBF of timber on 592 acres. The proposal also includes 2,026 feet of road construction, 2,477 feet of road abandonment, and 53,050 feet of road maintenance.	Okanogan County	592 acres	Planning/Development
		47	Portrait Timber Sale	Portrait Timber Sale #106261 and Forest Practice Application #3026986 is a sale of approximately 3,000 MBF of timber on 351 acres. The proposal includes 7,322 feet of road construction, 1,839 feet of road abandonment, and 31,247 feet of road maintenance.	Okanogan County	351 acres	Planning/Development
		48	Klondike Timber Sale	Klondike Timber Sale #106084 and Forest Practice Application #3026866 is a sale of approximately 2,800 MBF of timber on 348 acres. The proposal includes 19,856 feet of road construction and 31,358 feet of road maintenance.	Ferry County	348 acres	Planning/Development
		49	Forest Practice Application #3027124	The Forest Practice Application #3027124 proposal consists of 341.6 acres of uneven-aged harvest, removing 1,045 MBF of timber in Riverside State Park.	Spokane County	341 acres	Planning/Development
		50	Arden Tree Farms	The Forest Practice Application #3027198 proposal consists of 327 acres, with a harvest of 1,400 MBF of timber.	Pend Oreille County	327 acres	Planning/Development
		51	Syndrome SWT Timber Sale	The Syndrome SWT Timber Sale #106448 and Forest Practice Application #2819440 proposal is a variable-density thinning of 3,453 MBF of timber from 310 acres. The proposal includes 1,858 feet of road construction, 12,754 feet of road reconstruction, and 46,952 feet of pre-haul maintenance.	Snohomish County	310 acres	Planning/Development

Theme	Theme Description	Proposed ID	Project Name	Project Description	Project Location (County)	Project Size	Current Project Phase (Planning/Development or Under Construction)
Mining	New or expanded mining operations.	52	JUB Engineering Quarry	The JUB Engineering Quarry Conditional Use Permit Application proposes to expand an existing mining operation in the Growth Management Act Agricultural District to include the excavation and crushing of approximately 18 million cubic yards of basalt. The property is approximately 360 acres in size and is located in the Kennewick area of unincorporated Benton County.	Benton County	360 acres	Planning/Development
		53	Chelatchie Bluff Surface Mine Overlay Annual Review	The Chelatchie Bluff Surface Mine Overlay Annual Review project proposes to amend the comprehensive and zoning maps to add a surface mining overlay on four parcels totaling 330 acres with a current zoning designation of FR-80 and comprehensive plan designation of Forest Tier - 1. The addition of the SMO designation to these parcels would be followed by an application for a mining permit with the county, upon approval of the proposal.	Clark County	330 acres	Planning/Development
		54	Pioneer Aggregates South Parcel Mine Expansion	The proposed Pioneer Aggregates South Parcel Project would be developed on an approximately 313-acre site located on and to the southeast of the existing Pioneer Aggregates Mine in the City of DuPont, Pierce County. The site includes areas previously undisturbed by mining (termed the “Expansion Area”) and mining deeper within a portion of the existing mine, referred to as the “Re-Mine Area.” The Expansion Area is approximately 188 acres and consists of three subareas. The Re-Mine Area consists of 125 acres in the southeastern portion of the existing mine where current mining activities are permitted above current groundwater levels.	Pierce County	313 acres	Planning/Development
		55	Pasco Gravel Pit Mine	The Pasco Gravel Pit Mine project proposes to develop a mining operation that would extract available sand, gravel, and rock for commercial use. Initial mining, or phase 1, would take place based on the sample results and include the first 25 acres. Future phases would progress in 25-acre increments over the lifetime of the mine.	Franklin County	200 acres	Planning/Development
		56	Proghorn LLC zone change	The project proposes a zone change of approximately 168 acres of Rural Traditional-zoned land to Mineral Land designation. The future use of this project would be determined by market conditions but is anticipated to become a basalt and granite open-pit mine for the purpose of extracting aggregate and producing basalt-aggregate asphalt and granite-aggregate concrete.	Spokane County	168 acres	Planning/Development
		57	Lewisville Mine Expansion	The Lewisville Mine Expansion project proposes to allow the expansion of the existing mining operation to a new area (Phase 3).	Clark County	150 acres	Planning/Development
Recreation	New, expanded, or modified recreational areas or facilities.	58	Miller Peninsula State Park Property Planning	The Washington State Parks and Recreation Commission is developing a long-range plan for its property on Miller Peninsula. This 2,800-acre undeveloped park is located in the north Olympic Peninsula, just east of Sequim and north of Highway 101 in Clallam County. The property includes a trail system for hikers, mountain bikers, and equestrians through a beautiful second-growth forest. It also includes 3 miles of saltwater shoreline on the Strait of Juan de Fuca and Discovery Bay, but most of the shore is high-bank, so shore access is limited.	Clallam County	2,800 acres	Planning/Development
		59	Amendment to Riverside State Park Classification and Management Plan to include Glen Tana Property	The Washington State Parks and Recreation Commission proposes to amend the Classification and Management Plan at Riverside State Park in Spokane, Washington, and purchase adjacent lands to expand the existing park area by 1,068 acres. The plan is a comprehensive planning document that the commission develops to plan and manage future development.	Spokane County	1,068 acres	Planning/Development
		60	Sky Valley Sportsman's Park	The Sky Valley Sportsman's Park project is an undeveloped property in east Snohomish County, owned by the DNR. The property is approximately 640 acres fronting the Sultan Basin Road and is	Spokane County	640 acres	Planning/Development

Theme	Theme Description	Proposed ID	Project Name	Project Description	Project Location (County)	Project Size	Current Project Phase (Planning/Development or Under Construction)
				surrounded by other DNR land. This park is intended to be developed into a multi-purpose shooting range and would be managed through a public-private or public-nonprofit partnership.			
		61	Make Beacon Hill Public – Phase 2	The Make Beacon Hill Public Phase 2 project is proposing improvements to the existing trailheads at John H. Shields Park (Minnehaha Rocks) and Camp Sekani Park. Improvements would include increased and improved parking lots, landscape restoration, pedestrian pathways, and safe access points, play area, adaptive trail, wayfinding, and site amenities.	Spokane County	200 acres	Planning/Development
		62	Deception Pass State Park Zoning Amendment	The Washington State Parks and Recreation Commission acquired 77.85 acres and incorporated it into Deception Pass State Park. The commission is submitting a Comprehensive Plan/Zoning Map Amendment Request to Skagit County to request that the entirety of parcel number P19610 be zoned as Public Open Space of Regional/Statewide Importance.	Skagit County	78 acres	Planning/Development
		63	Flora Park and Cross Country Course (Phase 2)	The proposed Flora Park and Cross Country Course (Phase 2) project intends to increase public access and usability of the nearby shoreline of the Spokane River, improve visibility and water enjoyment, and develop a cross-country running track.	Spokane County	60 acres	Under Construction
Wildlife and Habitat Conservation	New or modified habitat conservation plan areas or habitat restoration.	64	Buckhorn Project	The Buckhorn Project is proposed by the Colville National Forest located east of Oroville, north of Wauconda, and north of Bonaparte Lake, and includes U.S. Forest Service, Bureau of Land Management, DNR, and privately held lands. The purpose of the project is to improve current and future distribution of forest vegetation structure classes and reduce hazardous fuel conditions. Other project activities would focus on improving the health and resilience of forest habitat and local communities while providing renewable forest products, enhancing fish and wildlife habitat, reducing impacts to water quality, supporting Tribal treaty rights, and managing sustainable recreation opportunities across the project area.	Okanogan County	66,115 acres	Planning/Development
		65	Tonata-Trout Project	The Colville National Forest proposes managing forest vegetation in the Tonata-Trout Project Area. The proposed activities include treatments to manage forest health, reduce hazardous fuels, restore and protect water quality, create new recreational opportunities, and establish and improve range developments. The project also includes commercial treatment on about 24,726 acres. Non-commercial treatments (pre-commercial thinning, prescribed burning, pile burning, and/or ladder fuel reduction) would occur on about 12,102 acres. About 20 miles of roads would be reconstructed, and 4.2 miles decommissioned. About 23 miles of new temporary road would be constructed. All open roads within the project area would be designated as open to all vehicles. Associated fish and wildlife habitat improvements would be completed.	Ferry County	48,405 acres	Planning/Development
		66	Little White Salmon Forest Resiliency and Fire Risk Mitigation Project	The Little White Salmon Forest Resiliency and Fire Risk Mitigation Project proposes to increase forest resiliency from climate-related stressors and mitigate fire risk to highly valued resources by treating approximately 12,000 acres of National Forest System lands.	Klickitat and Skamania Counties	12,000 acres	Planning/Development
		67	Cle Elum Ridge Large Landscape Project	The Cle Elum Ridge Large Landscape Project includes the transition of 9,700 acres on Cle Elum Ridge from Central Cascades Forest LLC into public ownership, through purchase by DNR. DNR has indicated that the land would be used for a mix of recreation, conservation, and logging, with a key priority of reducing forest fire risks. The purchase is also meant as a bulwark against “checkerboarding,” whereby land becomes	Kittitas County	9,700 acres	Planning/Development

Theme	Theme Description	Proposed ID	Project Name	Project Description	Project Location (County)	Project Size	Current Project Phase (Planning/Development or Under Construction)
				fragmented among different public and private owners and, as a result, more difficult to manage.			
		68	Beezley Hills	The Beezley Hills project is the proposed acquisition of up to 9,297 acres in the Beezley Hills Unit of the Columbia Basin Wildlife Area. This project would provide habitat on a large tract of shrub-steppe with suitable habitat for pygmy rabbit, greater sage-grouse, and Washington ground squirrel with current occupation or near occupation of these species.	Grant County	9,297 acres	Planning/Development
		69	Hoffstadt Hills	The Hoffstadt Hills project is the proposed acquisition of up to 7,300 acres adjacent to the Hoffstadt Unit of the Mt. St. Helens Wildlife Area and Mt. St. Helens National Monument in Cowlitz County. The primary focus of this acquisition is to protect and enhance elk winter range habitat, as well as steelhead and coho spawning and rearing areas. This protection is essential for landscape-level conservation of the elk herd in the face of continual habitat inundation resulting from efforts to hold back sediment from the Mt. St. Helen's eruption.	Cowlitz County	7,300 acres	Planning/Development
		70	Scroggie Canyon	The Scroggie Canyon project is the proposed acquisition of 742 acres that is bordered on three sides by the Colockum Unit of the Colockum Wildlife Area. This project would conserve shrub-steppe habitat, improve habitat connectivity, and provide opportunity for restoration of this critical ecosystem. Species include elk, mule deer, and bighorn sheep, as well as trout in perennial streams.	Chelan County	742 acres	Planning/Development
		71	Wenas Watershed/Miracle Mile	The Wenas Watershed/Miracle Mile project is the proposed acquisition of 440.17 acres adjacent to the Wenas Wildlife Area in Yakima County. This acquisition would conserve mixed shrub-steppe, riparian, and coniferous forest habitat primarily for elk winter range. The property is utilized by a quarter of all bird species found in the continental United States, making it an excellent area for recreational bird watching.	Yakima County	440 acres	Planning/Development
		72	4-0 Ranch Forest Restoration - Chief Joseph Wildlife Area	The 4-0 Ranch Forest Restoration project is intended to improve ecological integrity ratings, habitat for multiple wildlife species, and forest health in the Chief Joseph Wildlife Area. This project places special emphasis on improving the fire-resiliency for mule deer habitat.	Asotin County	422 acres	Planning/Development
Water Resources	Water resource-related projects intended to improve water supply and quality.	73A; 73B	Chehalis River Basin Flood Damage Reduction Project and Airport Levee Improvements	The Chehalis River Basin Flood Control Zone District is proposing to construct a flood-retention dam and associated temporary reservoir on the Chehalis River near Pe Ell and make changes to the Chehalis-Centralia Airport levee. The district's objective for the project is to reduce damages from major floods from Pe Ell to Centralia triggered by rainfall in the Willapa Hills. The project would raise and widen the Chehalis-Centralia Airport levee and nearby roads to improve the levee protection level during catastrophic floods. The project is not intended to address flooding in all parts of the Chehalis River basin and would not stop regular annual flooding.	Lewis County	$628 million	Planning/Development
		74	Eight-Mile Dam Rebuild and Restoration	The Eight-Mile Dam Rebuild and Restoration project is in response to a state of emergency that was declared in the watershed, after flood damage and erosion at the dam caused by impacts of the Jack Creek Fire in 2017. Emergency repairs made in the summer of 2018 stabilized the dam, but these repairs do not meet current dam safety standards.	Chelan County	180 feet	Planning/Development
		75	Cedar River Municipal Watershed Forest Management Plan	SPU plans to begin implementing the Cedar River Municipal Watershed Forest Management Plan in January 2024 and expects to use the plan to guide development and implementation of specific project actions over the subsequent 27 years. SPU owns and operates the Cedar River Municipal Watershed as a major asset in the City of Seattle's municipal drinking water supply system. This 92,000-acre watershed is near the City of North Bend in	King County	92,000 acres	Planning/Development

Theme	Theme Description	Proposed ID	Project Name	Project Description	Project Location (County)	Project Size	Current Project Phase (Planning/Development or Under Construction)
				King County, Washington, approximately 40 miles east of Seattle. It provides about two-thirds of the supply, serving more than 1.5 million people in the central Puget Sound region.			
		76	Farmland Reserve Water Bank	Farmland Reserves, Inc. proposes to create a water bank in coordination with the Office of Columbia River. Farmland's Bank is intended to serve its own agricultural needs and make water it conserves available to mitigate a variety of others' water needs, including agricultural irrigation, dust control, instream flow, drought relief, and more.	Benton County	10,012 acres	Planning/Development
		77	Odessa Groundwater Replacement Program EL 84.7 Landowner Extension Mainline	This project would complete one of the nine lateral systems in the Odessa Groundwater Replacement Program located in central Washington. The finished EL 84.7 lateral would replace groundwater irrigation with Columbia River surface water for a total of 7,138 acres of land that currently relies on rapidly declining groundwater wells, thereby helping to prevent source water depletion.	Grant County	7,138 acres	Planning/Development
		78	Odessa Groundwater Replacement Program EL 86.4 On-Farm Project	This project is part of the Odessa Groundwater Replacement Program located in the heart of the Columbia River Basin in central Washington. The goal of the Grant County Conservation District's project is to replace groundwater irrigation with Columbia River surface water for 5,426 acres of high-value irrigated farmland currently relying on the rapidly declining Odessa Subarea Aquifer, thereby helping to prevent source water depletion. Without more reliable surface water, farmers will continue to be impacted by declining groundwater levels.	Grant County	5,426 acres	Under Construction
		79	Odessa Groundwater Replacement Program EL 80.6 Landowner Extension Mainline	This project is part of the Odessa Groundwater Replacement Program located in the heart of the Columbia River Basin in central Washington, with the goal to replace groundwater irrigation with Columbia River surface water for 5,222 acres of high-value irrigated farmland currently relying on the rapidly declining Odessa Subarea Aquifer, thereby helping to prevent source water depletion. Once constructed, this project will deliver Columbia Basin Project water from the East Columbia Basin Irrigation District's canal to a total of 10 farms effectively removing 11 wells from pumping groundwater and conserving 15,888 acre-feet (5.1 billion gallons) of water in the aquifer each year.	Grant County	5,222 acres	Under Construction
		80	Springwood Ranch - Yakima Basin Integrated Plan	The Springwood Ranch property totals approximately 3,600 acres with a significant portion intended to be managed by the Kittitas Reclamation District as an off-channel reservoir to capture and hold water early in the year and strategically release it in spring to coincide with juvenile salmon and steelhead migration to improve their survival.	Yakima County	3,600 acres	Planning/Development
		81A through 81M	US 101 - SR 109 Grays Harbor, Jefferson, and Clallam Counties - Remove Fish Barriers	This project will improve fish passages at 29 identified streams and culverts that cross under US 101 and SR 109 in Grays Harbor, Jefferson, and Clallam Counties. Once complete, this project will restore nearly 37 miles of potential habitat across the Olympic Peninsula.	Grays Harbor County; Jefferson County; and Clallam County	$481 million	Under Construction
		82A; 82B	I-90 – Lewis, W. Village Park, Schneider Creeks – fish passage projects	This project proposes to build multiple structures that may include new bridges on I-90 and local roads near Issaquah to restore natural stream conditions in Lewis, West Village Park, and Schneider Creeks. Improvements along Lewis Creek would result in a potential habitat gain of 4,350 meters, West Village Park Creek would result in a potential habitat gain of 820 meters, and Schneider Creek would result in a potential habitat gain of 1,077 meters.	King County	$289 million	Planning/Development
		83	Trafton Floodplain Restoration	Snohomish County Department of Conservation and Natural Resources and the Stillaguamish Tribe are partnering on a floodplain restoration project at Trafton. This project is connected to a larger effort by the Tribe to restore reach-scale river processes and salmon habitat on the lands they own at Trafton. The project footprint would include work on both the	Snohomish County	250 acres	Planning/Development

Theme	Theme Description	Proposed ID	Project Name	Project Description	Project Location (County)	Project Size	Current Project Phase (Planning/Development or Under Construction)
				Tribe's and county's property and would prioritize floodplain restoration and protecting the Whitehorse Trail, which runs adjacent to the project area, from future erosion and avulsion impacts.			
		84	Duckabush Estuary Restoration Project	The Duckabush Estuary is the focus of a coordinated effort to restore scarce estuarine habitat. The Duckabush Estuary Restoration Project would reconnect the Duckabush River to neighboring floodplains and wetlands by modifying local roads, elevating Highway 101 onto an estuary-spanning bridge, and reconnecting historical channels. Estuary channels will be reconnected, restoring natural water and sediment movement and improving habitat for native fish and wildlife, including salmon listed under the Endangered Species Act.	Jefferson County	232 acres	Planning/Development
		85	Thomas' Eddy Restoration Project	The County's restoration work at Thomas' Eddy will reconnect the Snohomish River to its floodplain at Bob Heirman Wildlife Park, and improve opportunities for fishing, hiking and wildlife viewing while restoring critical habitat for wildlife and threatened salmon species. To ensure these goals are met, Snohomish County solicited early input on project design from the public and park users.	Snohomish County	228 acres	Planning/Development
		86	SR 527 - Penny Creek - Fish Passage	The project proposes to build a 26-foot fish-passable structure under SR 527 just south of 164th Street Southeast in Mill Creek. The current 9-foot culvert causes water to flow too fast for fish to continue upstream. The new bridge span will open more than 8 miles of habitat.	Snohomish County	$8 million	Planning/Development
		87	SR 3, SR 16, and SR 166, Gorst Vicinity - Remove Fish Barriers	This proposed project would remove barriers to fish migration under SR3, SR 16, and SR 166 in Kitsap County. New bridges or larger culverts will replace five outdated culverts. Work includes construction of a roundabout at the SR 3, SR 16, and West Sam Christopherson Avenue intersection.	Kitsap County	$192.6 million	Planning/Development
		88	I-90 - Sunset Creek - Fish Passage	WSDOT is currently building bridges over Sunset Creek along both directions of I-90, Southeast Eastgate Way, and Southeast 36th Street in Bellevue. These bridges will replace culverts that block fish passage and allow natural stream conditions to return in Sunset Creek.	King County	$109.5 million	Under Construction
		89A through 89D	Grays Harbor County Fish Passage Barriers - Camp Creek	This project is replacing five outdated culverts under US 12 and SR 8 in Grays Harbor County between Montesano and the Thurston County line for improved fish migration.	Grays Harbor County	$109 million	Under Construction

AIM = Aerospace Innovation Manufacturing; BPA = Bonneville Power Administration; BESS = battery energy storage system; dba = doing business as; DNR = Washington State Department of Natural Resources; ETL = Express Toll Lane; HDPE = high-density polyethylene; I = Interstate; kV = kilovolts; MBF = thousand board feet; MW = megawatts; NSC = North Spokane Corridor; PVC = polyvinyl chloride; SMO = Surface Mining Overlay; SPU = Seattle Public Utilities; SR = State Route; US = US Highway; WSDOT = Washington State Department of Transportation

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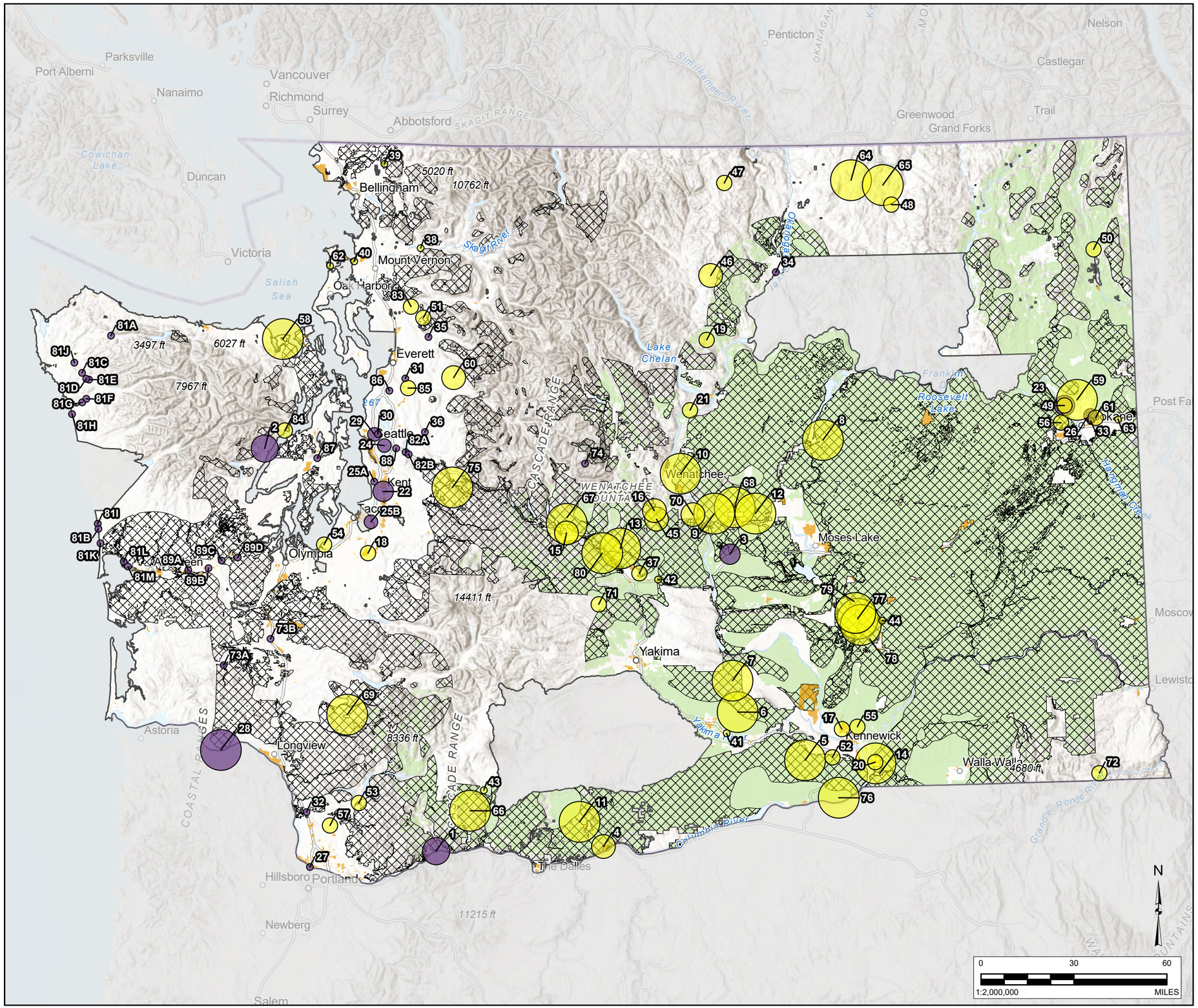

LEGEND

Linear Based RFAs - Miles

- Less than 10 miles
- 10 - 20 miles
- 20 - 50 miles
- 50 - 100 miles
- Greater than 100 miles

Site Based RFAs - US Acres

- 40 - 100 acres
- 100 - 500 acres
- 500 - 1,000 acres
- Greater than 1,000 acres

- Green Hydrogen Energy Facilities Programmatic EIS Study Area
- Solar Energy Facilities Programmatic EIS Study Area
- Wind Energy Facilities Programmatic EIS Study Area

EFSEC

Energy Facility Site Evaluation Council

REFERENCES AND NOTES

1. THE RFAS WERE SELECTED BASED ON THE STUDY AREA FOR THIS DRAFT PROGRAMMATIC EIS.
2. APPROXIMATE PROJECT LOCATIONS LIE AT THE CENTROID OF EACH PROJECT SYMBOL
3. LINEAR PROJECTS INCLUDE: DAM CONSTRUCTION AND IMPROVEMENTS, FISH PASSAGEWAY IMPROVEMENTS AND BARRIER REMOVAL, TRANSPORTATION, MULTIMODAL TRANSPORTATION PROJECTS, BRIDGE CONSTRUCTION AND IMPROVEMENTS, AND TRANSMISSION LINE PROJECTS
4. SITE BASED PROJECTS INCLUDE: AGRICULTURE, COMMUNITY GROWTH AND LAND DEVELOPMENT, ENERGY GENERATION, WILDLIFE AND HABITAT RESTORATION, FORESTRY, MINING, AND RECREATION.
5. GREEN HYDROGEN, SOLAR, AND WIND STUDY AREAS ARE NOT SPECIFIC PROJECTS. THESE STUDY AREAS ARE FOR A PROGRAMMATIC EIS WHERE PROJECTS ARE MORE LIKELY TO BE DEVELOPED.
6. REFERENCE LAYER CREDITS: WA STATE PARKS GIS, ESRI, TOMTOM, GARMIN, FAO, NOAA, USGS, BUREAU OF LAND MANAGEMENT, EPA, NPS, USFWS, ESRI, USGS
7. REFER TO TABLE 4-1, PRESENT AND REASONABLY FORESEEABLE ACTIONS, FOR PROJECT DETAILS.

PROJECT

DRAFT PROGRAMMATIC EIS
HIGH-VOLTAGE TRANSMISSION

TITLE

REASONABLY FORESEEABLE ACTIONS (RFAS)

YYYY-MM-DD 2025-03-24 CONSULTANT wsp FIGURE 4.2-1

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4.3 Analysis of Cumulative Impacts

Cumulative impacts for this Draft Programmatic EIS are not quantifiable given the broad size and scale of the Study Area and are, therefore, discussed in general qualitative terms. This cumulative impact analysis assumes that all laws, regulations, siting and design considerations, best management practices (BMPs), general conditions, and avoidance criteria identified throughout this Draft Programmatic EIS would be met. When impact determinations are identified as moderate or high, it is assumed that the appropriate mitigation measures from this Draft Programmatic EIS would be adopted by the applicant to minimize impacts.

4.3.1 Criteria for Assessing a Potentially Significant Cumulative Impact

This Draft Programmatic EIS has established thresholds for cumulative impacts, which are described for each resource in **Table 4.3-1**.

Table 4.3-1: Criteria for Assessing Potentially Significant Cumulative Impacts

Chapter Section	Element of the Environment	High Impact Determination Description
Section 3.2	Earth Resources	A project, in combination with RFAs, would have significant and potentially severe cumulative impacts on earth resources if they collectively result in permanent soil disturbance, including significant erosion, compaction, and potential loss of soil fertility. Significant cumulative impacts could also result from substantial changes to geological formations, which could permanently affect stability, thereby increasing risk of landslides or other geotechnical issues.
Section 3.3	Air Quality	A project, in combination with RFAs, would have significant and potentially severe cumulative impacts on air quality if considerable amounts of emissions are released and there is a risk of exceeding relevant air quality standards and regulations. Adverse effects on air quality would be permanent and affect a larger area, not just localized to the construction site.
Section 3.4	Water Resources	A project, in combination with RFAs, would have significant and potentially severe cumulative impacts on water resources if they collectively result in permanent, significant water quality degradation, water access reduction, redirection, or wetland destruction and potential loss of hydrological formations. There would be substantial cumulative changes to watershed or river basins, wetlands and floodplains, or groundwater aquifers, which could permanently affect the water resources of the area. This might result in a permanent, cumulative increased risk of drought, flood, or other water issues.
Section 3.5	Vegetation	A project, in combination with RFAs, would have significant and potentially severe cumulative impacts on vegetation if they collectively result in permanent, significant changes to the resiliency and adaptability of the species or populations thereby impacting the viability of the species or populations. Populations would be at risk of extirpation. Adverse cumulative impacts would also result from permanent, significant impacts to the functionality and ecosystem services provided by the ecosystem, rendering the ecosystem non-functional.
Section 3.6	Habitat, Wildlife, and Fish	A project, in combination with RFAs, would have significant and potentially severe cumulative impacts on habitat, wildlife, and fish if they collectively have an incremental change that is expected to exceed the resiliency and adaptability of the species or populations thereby permanently impacting the viability of the species or populations.

Chapter Section	Element of the Environment	High Impact Determination Description
Section 3.7	Energy and Natural Resources	A project, in combination with RFAs, would have significant and potentially severe cumulative impacts if they collectively consume energy and natural resources such that it permanently effects availability of resources and the environment.
Section 3.8	Public Health and Safety	A project, in combination with RFAs, would have significant and potentially severe cumulative impacts if they collectively result in permanent, substantial exposure to hazardous materials or EMF, extreme occupational hazards, and high risks of wildfire. Significant cumulative impacts would occur if frequent and extended power outages adversely impact the health and safety of affected individuals.
Section 3.9	Land and Shoreline Use	A project, in combination with RFAs, would have significant and potentially severe cumulative impacts on land and shoreline use if they collectively result in permanent, significant adverse changes to or conflicts with existing land and shoreline uses. Permanent, significant adverse impacts would occur from conflicts with relevant goals or policies. Significant adverse impacts on military utilized airspace or civilian airfield operations would affect the military's ability to conduct flight training and/or operations. Significant adverse impacts on agricultural production or loss of GMA Agricultural lands would affect the ability of a farm to remain profitable and continue operations.
Section 3.10	Transportation	A project, in combination with RFAs, would have significant and potentially severe cumulative impacts on transportation if changes to transportation infrastructure or operations have permanent, measurable consequences on supply chains or the management and distribution of people or materials. Significant cumulative impacts would also result when prolonged road closures or detours cause major inconvenience to commuters. Additionally, significant cumulative impacts would occur when there is permanent, substantial interference with electronic devices and communication systems, or there is an increased risk of accidents and hazards.
Section 3.11	Public Services and Utilities	A project, in combination with RFAs, would have significant and potentially severe cumulative impacts on public services and utilities if they collectively result in permanent, adverse impacts on the demand for public services or utilities, emergency response times, existing utility infrastructure, or the risk of power outages at public service facilities.
Section 3.12	Visual Quality	A project, in combination with RFAs, would have significant and potentially severe cumulative impacts on visual quality if they collectively result in permanent, uncharacteristic, and extensive changes to the existing aesthetic and/or scenic character of the area.
Section 3.13	Noise and Vibration	A project, in combination with RFAs, would have significant and potentially severe cumulative impacts on noise and vibration if they collectively result in permanent impacts on sensitive receptors and/or structures. Permanent loss of hearing would occur.
Section 3.14	Recreation	A project, in combination with RFAs, would have significant and potentially severe cumulative impacts on recreational resources if they collectively affect the environmental and natural landscape such that they permanently affect the resource.

Chapter Section	Element of the Environment	High Impact Determination Description
Section 3.15	Cultural and Historic Resources	A project, in combination with RFAs, would have significant and potentially severe cumulative impacts on cultural and historic resources if they collectively result in physical or visual impacts on National Historic Landmarks, Tribal Resources, or Traditional Cultural Places that result in changes to the character of the property's use or of physical features within the property's setting that contribute to its historic significance, introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features.
Section 3.16	Socioeconomics	A project, in combination with RFAs, would have significant and potentially severe cumulative impacts on socioeconomics if they collectively result in permanent adverse impacts on the general welfare, social conditions and economic environment. Additionally, a significant cumulative impact on environmental justice would occur if they collectively result in a permanent, disproportionate impact on vulnerable populations and/or overburdened communities.

EIS = Environmental Impact Statement; GMA = Growth Management Act; RFA = reasonably foreseeable action

4.3.2 Cumulative Impact Determination

This Draft Programmatic EIS provides an assessment of potential cumulative impacts and a cumulative impact determination[5] for each element of the environment. The cumulative impact determination identifies whether transmission facility development would result in a probable significant cumulative adverse impact. This determination is a qualitative assessment of potential compounding and incremental impacts from the development of transmission facilities.

This assessment identifies probable significant cumulative adverse impacts based on professional judgment and information available at the time of writing. A precautionary approach has been taken for the assessment where information is currently unknown or unavailable.

4.3.3 No Action Alternative

Although no significant adverse impacts were identified for the No Action Alternative, this cumulative impact analysis evaluated what would likely occur if this Draft Programmatic EIS was not implemented. Under the No Action Alternative, project-specific applications would be evaluated according to current regulatory framework and permitting procedures. Cumulative impacts for each element of the environment would continue to be evaluated on a project-specific basis, and permits would be issued based on project-specific conditions.

4.3.4 Action Alternative

This section evaluates potential cumulative impacts resulting from the Action Alternative for each element of the environment. **Table 4.3-2** identifies the impacts on each element of the environment that could contribute to a significant adverse impact. As evaluated in Chapter 3, all significant direct and indirect adverse impacts could be reduced to a less than significant level with the implementation of applicable general conditions, avoidance criteria, and mitigation measures.

[5] An assessment of whether transmission facility development would result in a probable significant cumulative adverse impact. This determination is a qualitative assessment of potential compounding and incremental impacts from the development of transmission facilities and past, present, and reasonably foreseeable actions.

Table 4.3-2: Summary of Resource Impacts

Chapter Section	Element of the Environment	Impact Identified
Section 3.2	Earth Resources	• Alteration of topography and drainage patterns • Increased soil erosion and/or accretion • Compaction of soil • Damage from a Geological Event or Geohazard
Section 3.3	Air Quality	• Increased fugitive dust emissions • Increased emissions from fuel-burning equipment • Increased SF_6 emissions

Section 3.4	Water Resources	• Impacts on water quality, including:
		  ○ Changes in sedimentation
		  ○ Changes in water chemistry
		• Impacts on water quantity, including:
		  ○ Increased water usage
		  ○ Altered hydrology
		  ○ Temporary water diversions
		  ○ Groundwater extraction
		• Damage to infrastructure

Section 3.5	Vegetation	• Direct impacts and mortality, including:
		  ○ Loss of habitat
		  ○ Loss of species or populations
		  ○ Loss of ecosystem functionality
		• Indirect impacts, including:
		  ○ Introduction or spread of invasive plants or noxious weeds
		  ○ Surface runoff
		  ○ Deposition of dust
		  ○ Introduction of hazardous substances
		• Fragmentation

Section 3.6	Habitat, Wildlife, and Fish	• Direct habitat loss • Indirect habitat loss • Mortality of species • Barriers to movement • Fragmentation
Section 3.7	Energy and Natural Resources	• Consumption of non-renewable resources • Consumption of renewable resources • Consumption of energy
Section 3.8	Public Health and Safety	• Increase in accidents and injuries • Exposure to hazardous materials • Increased risk of wildfire • Exposure to EMF • Excess heat generation • Inundation of vaults in floodplains
Section 3.8	Land Use	• Incompatible land use • Conflict with relevant goals and policies • Loss of function and value of shorelines • Loss of function and value of agricultural lands and rangelands • Conflicts with military utilized airspace and civilian airfield operations

Chapter Section	Element of the Environment	Impact Identified

Section 3.10	Transportation	• Impacts on vehicular transportation and infrastructure, including:
		  ○ Closures and diversions
		  ○ Increased traffic and increased collision risk
		  ○ Impacts from access road construction
		  ○ Impacts on road authority
		• Impacts on waterborne vessels and infrastructure, including:
		  ○ Closures and diversions
		  ○ Increased collision risk
		  ○ Impacts from infrastructure modification
		• Impacts on rail transportation and infrastructure, including:
		  ○ Closures and diversions
		  ○ Increased collision risk
		  ○ Impacts on rail stability
		  ○ Impacts from infrastructure modification
		• Impacts on air transportation and infrastructure[6], including:
		  ○ Impacts from airspace restrictions
		  ○ Increased collision risk
		  ○ Decreased visibility

Section 3.11	Public Services and Utilities	• Conflicts with existing utility infrastructure • Increased solid waste production • Increased water demand • Increased demand for fire protection services, law enforcement, and emergency responders • Increased emergency response times • Increased risk of power outages at public service facilities
Section 3.12	Visual Quality	• Degradation of scenic natural resources • Degradation of aesthetics • Degradation of night sky
Section 3.13	Noise and Vibration	• Increased noise at sensitive receptors • Increased ground-borne vibration at off-site structures • Hearing loss
Section 3.14	Recreation	• Temporary closure or restricted access • Permanent closure • Increase in use • Change in integrity • Increased risk of wildfire
Section 3.15	Cultural and Historic Resources	• Physical impacts on historic and cultural resources • Visual impacts on historic and cultural resources • Physical impacts on TCPs and Tribal resources • Visual impacts on TCPs and Tribal resources

[6] Section 3.09, Land and Shoreline Use analyzes impacts on military utilized airspace and civilian airfield operations

Chapter Section	Element of the Environment	Impact Identified

Section 3.16	Socioeconomics	• Degradation of the natural and built environment, including:
		  ○ Noise and vibration
		  ○ Air quality
		  ○ Visual quality
		  ○ Land and shoreline use, and recreation
		• Changes in housing availability
		• Changes in home values
		• Changes in fiscal conditions and employment

EMF = electromagnetic field; SF6 = sulfur hexafluoride; TCP = Traditional Cultural Place

4.3.4.1 Earth Resources

The construction, operation and maintenance, and upgrade or modification of transmission facilities could impact earth resources through alteration of topography and drainage patterns, soil erosion and/or accretion, compaction, and geological instability. As discussed in Section 3.2, there are many factors associated with these activities that could contribute to potential impacts, including vegetation removal, grading, stormwater runoff, sediment transport, soil composition, water infiltration, and seismic activity. Construction of transmission facilities often involves alterations to the topography or drainage patterns during clearing and grading, the construction of access roads, and foundation excavation, thereby leading to increased soil erosion and accretion. The duration of these impacts would be short-term and can generally by controlled through implementation of standard BMPs and mitigation measures outlined in Section 3.2, Earth Resources. Impacts on earth resources are generally anticipated to be greater with the construction of underground transmission facilities due to the significant surface disruption involved with open trenching.

Cumulative impacts from RFAs could also affect earth resources. As shown in **Table 4.2-1**, this Draft Programmatic EIS considered a variety of RFAs that are underway or could occur in the state. Transmission facility development, combined with other RFAs related to energy generation and transmission, mining, forestry, agriculture, community growth, and both land- and water-based transportation, could contribute to adverse cumulative impacts on earth resources. These RFAs would directly and/or indirectly increase soil erosion and compaction, resulting in potential adverse impacts. These RFAs include, but are not limited to, the following:

- Horse Heaven Wind Farm
- Hop Hills Solar Energy Project
- Shelton-Fairmount No. 1 Transmission Line Rebuild Project
- Wanapum to Mountain View
- JUB Engineering Quarry
- Pioneer Aggregates South Parcel Mine Expansion
- Fly By Night Timber Sale
- Conk Timber Sale

- Swift Creek Poultry Farm
- Jungquist Farms Depth of Cover
- Wallula Gap Business Park
- Bullfrog Flats Development
- Interstate (I) 405/SR 167 Corridor Program
- I-405/Renton to Bellevue Widening and Express Toll Lanes Project
- Lower Columbia River Channel Maintenance Plan
- Interstate Bridge Replacement Program

While some RFAs could contribute to adverse cumulative impacts, others may help mitigate adverse effects on earth resources. RFAs related to recreation, wildlife and habitat conservation could reduce the potential for future soil erosion and compaction. Beneficial RFAs include, but are not limited to, the following:

- Miller Peninsula State Park Property Planning
- Amendment to Riverside State Park Classification and Management Plan to include Glen Tana Property
- Tonata-Trout Project
- Little White Salmon Forest Resiliency and Fire Risk Mitigation Project

Cumulative Impact Determination: The cumulative impact on earth resources would depend on the size, scale, and timing of a project-specific application in combination with RFAs within the geographic setting and timing. Adverse impacts on earth resources are primarily associated with construction. Adverse impacts would be localized, and the duration would be short term. Furthermore, significant adverse impacts would be minimized with the implementation of general conditions, avoidance criteria, and mitigation measures. The construction, operation and maintenance, and upgrade or modification of transmission facilities would not be likely to contribute to a probable significant cumulative adverse impact on earth resources.

4.3.4.2 Air Quality

The construction, operation and maintenance, and upgrade or modification of transmission facilities could impact air quality in several ways. Potential adverse impacts could include temporary increases in emissions from the use of equipment and vehicles during construction and routine maintenance. Construction could also increase fugitive dust emissions resulting from grading, vegetation clearing and removal, building access roads, traveling on site using unpaved surfaces, and blasting for tower footings. Additionally, fugitive emissions from sulfur hexafluoride (SF_6) can be linked to electricity transmission and distribution equipment of overhead facilities (EPA 2024). SF_6 can be emitted from the seals and joints of the equipment if not properly installed, maintained, or managed. Significant adverse impacts would be minimized with the implementation of mitigation measures identified in Section 3.3, Air Quality.

Other RFAs, including those related to community growth, land- and water-based transportation, forestry, and mining projects, are likely to contribute to cumulative air quality impacts. Construction activities related to these

RFAs could temporarily increase air pollutants in a manner similar to the Action Alternative. These RFAs include, but are not limited to:

- Wallula Gap Business Gap
- Bullfrog Flats Development
- I-405/Renton to Bellevue Widening and Express Toll Lanes Project
- I-90 - Snoqualmie Pass East Project (Phase 3)
- Lower Columbia River Channel Maintenance Plan
- Interstate Bridge Replacement Program
- Fly By Night Timber Sale
- Conk Timber Sale
- JUB Engineering Quarry
- Pioneer Aggregates South Parcel Mine Expansion

Furthermore, according to the Washington State Department of Ecology (Ecology), smoke from wildfires is the largest source of air particulate pollution in Washington. In recent years, Washington has experienced extended smoke events from regional wildfires in the Pacific Northwest (Ecology n.d.). Although an increase in the number and size of wildfires could continue to contribute to the degradation of air quality, several state and local RFAs intend to improve fire resiliency of forests and natural habitats and thus could reduce the prevalence and intensity of these impacts. These RFAs include:

- Buckhorn Project
- Little White Salmon Forest Resiliency and Fire Risk Mitigation Project
- Cle Elum Ridge Large Landscape Project
- 4-0 Ranch Forest Restoration - Chief Joseph Wildlife Area

Other RFAs, such as those related to renewable energy generation and sustainable transportation, could reduce the long-term release of air pollutants due to the decrease in the overall use of fossil fuel power plants or single-passenger vehicle trips. These RFAs include:

- Goldendale Energy Project
- Horse Heaven Wind Farm
- East Link Extension
- Puget Sound Gateway Program

Cumulative Impact Determination: The cumulative impact on air quality would depend on the size, scale, and timing of a project-specific application in combination with RFAs within the geographic setting and timing. Adverse

impacts on air quality are primarily associated with construction activities, and the duration of these impacts would be short term. Furthermore, significant adverse impacts would be minimized with the implementation of general conditions, avoidance criteria, and mitigation measures. The construction, operation and maintenance, and upgrade or modification of transmission facilities would not be likely to contribute to a probable significant cumulative adverse impact on air quality.

4.3.4.3 Water Resources

The construction of transmission facilities could impact water quality and quality. Temporary water diversions, altered hydrology, and the increased use of water for construction activities, such as concrete mixing and dust control, can impact water availability. If not managed properly, increased soil erosion and sediment transport from erodible sources, such as blasting sites and soil stockpiles, can increase the concentration of suspended solids and sedimentation in surface waterbodies. Additionally, transmission facility infrastructure or construction sites could be damaged due to inundation during a flood event or storm surge. Transmission facility development would be required to comply with current water quality regulatory requirements and BMPs. Additionally, mitigation measures identified in this Draft Programmatic EIS would further minimize potential significant adverse impacts on water quality and quantity.

Cumulative impacts from RFAs could also affect water resources. RFAs related to energy generation and transmission, community growth, forestry, mining, agriculture, and land and water-based transportation, could contribute to both direct and indirect adverse cumulative impacts on water resources. Direct impacts could include increased water usage, temporary water diversions, groundwater extraction, and altered hydrology. Indirect impacts could include increased impervious areas, resulting in soil erosion and sediment transport, which could have adverse impacts on water quality. These RFAs include, but are not limited to:

- Horse Heaven Wind Farm
- Hop Hills Solar Energy Project
- Cascade Renewable Transmission Project
- Shelton-Fairmount No. 1 Transmission Line Rebuild
- Wallula Gap Business Park
- Bullfrog Flats Development
- Fly by Night Timber Sale
- Conk Timber Sale
- JUB Engineering Quarry
- Pioneer Aggregates South Parcel Mine Expansion
- Flying A Land Rezone
- US Golden Farm Irrigation Pond
- I-405/Renton to Bellevue Widening and Express Toll Lanes Project

- I-90 - Snoqualmie Pass East Project (Phase 3)
- Lower Columbia River Maintenance Plan
- Interstate Bridge Replacement Program

Although the RFAs identified above could contribute to adverse cumulative impacts, there are other RFAs, such as those related to water resources, recreation, and wildlife and habitat conservation, that could have a beneficial cumulative impact on water resources. These RFAs could improve aquifer recharge, water availability, and reliability and restore river and floodplain processes. RFAs with potential beneficial impacts on water resources could include the following:

- Odessa Groundwater Replacement Program EL 86.4 On-Farm Project
- Trafton Floodplain Restoration
- Miller Peninsula State Park Property Planning
- Flora Park and Cross Country Course (Phase 2)
- Scroggie Canyon
- Wenas Watershed/Miracle Mile

Cumulative Impact Determination: The cumulative impact on water resources would depend on the size, scale, and timing of a project-specific application in combination with RFAs within the geographic setting and timing. Adverse impacts on water resources are primarily associated with construction activities. Adverse impacts would be localized, and the duration of these impacts would be short-term. Furthermore, significant adverse impacts would be minimized with the implementation of general conditions, avoidance criteria, and mitigation measures. The construction, operation and maintenance, and upgrade or modification of transmission facilities would not be likely to contribute to a probable significant cumulative adverse impact on water resources.

4.3.4.4 Vegetation

The construction of transmission facilities would require vegetation clearing for permanent structure placement, access and maintenance roads, rights-of-way (ROWs), and substations. Underground transmission facilities may require more grubbing and excavation to facilitate construction than overhead transmission facilities. Following construction, some vegetative communities may be compatible with restoration objectives in the transmission ROWs, such as grasslands; however, deep-rooted species would be incompatible with underground facilities, and tall shrub and tree-dominated ecosystems would be incompatible with overhead facilities.

Indirect impacts on vegetation may result from the spread of invasive plants, sedimentation, dust, accidental spill of hazardous material, and use of herbicides. These impacts could extend beyond the active construction or maintenance site into adjacent areas, resulting in degradation of adjacent ecosystems. Additionally, construction of transmission facilities could create new fragmentation on the vegetative landscape, increasing edge effects where ecosystems were previously intact. Creating new transmission ROW through natural ecosystems is expected to result in long-term ecological changes by dividing larger vegetation patches into smaller, fragmented habitats.

Other RFAs throughout the state, such as those related to community growth, energy generation and transmission, forestry, mining, and transportation, could contribute to cumulative impacts on vegetation. These RFAs could result in direct and indirect impacts similar to those described above for transmission facilities. Many development projects require vegetation clearing for construction and have the potential to spread invasive plants, increase sedimentation, and use herbicides for maintenance. Such RFAs include, but are not limited to, the following:

- Wallula Gap Business Park
- Bullfrog Flats Development
- Horse Heaven Wind Farm
- Hops Hills Solar Energy Project
- Shelton-Fairmount No. 1 Transmission Line Rebuild Project
- Wanapum to Mountain View
- Fly By Night Timber Sale
- Conk Timber Sale
- JUB Engineering Quarry
- Pioneer Aggregates South Parcel Mine Expansion
- I-405/SR 167 Corridor Program
- I-405/Renton to Bellevue Widening and Express Toll Lanes Project

However, some RFAs focused on conservation and habitat restoration may have beneficial impacts on vegetation by restoring, expanding, or creating new recreation and conservation areas. In some instances, these RFAs could still contribute to adverse cumulative impacts on vegetation as a result of construction-related activities. However, they would generally result in beneficial cumulative impacts on vegetation. These RFAs include, but are not limited to the following:

- Make Beacon Hill Public – Phase 2
- Sky Valley Sportsman’s Park
- Cedar River Municipal Watershed Forest Management Plan
- Duckabush Estuary Restoration Project
- Tonata-Trout Project
- Scroggie Canyon

Cumulative Impact Determination: The cumulative impact on vegetation would depend on the size, scale, and timing of a project-specific application in combination with RFAs within the geographic setting and timing. Adverse

impacts on vegetation would be minimized through the implementation of general conditions, avoidance criteria, and mitigation measures. However, despite efforts to minimize adverse impacts, the long-term incremental loss and impacts on vegetation from the construction, operation and maintenance, and upgrade or modification of transmission facilities would likely contribute to probable significant cumulative adverse impacts.

4.3.4.5 Habitat, Wildlife, and Fish

The construction, operation and maintenance, and upgrade or modification of transmission facilities could impact habitat, wildlife, and fish resources in several ways. Adverse impacts on habitat, wildlife, and fish can include direct and indirect habitat loss, mortality, barriers to wildlife movement, and habitat fragmentation.

Direct habitat loss could occur as a result of clearing and grubbing for the construction and development of transmission facilities. Direct habitat loss is expected to be more pronounced in the western portion of the state, in ecoregions such as the Coast Range, Puget Lowland, Cascades, North Cascades, Eastern Cascade Slopes and Foothills, and Northern Rockies. Naturally open ecosystems generally found in central and eastern Washington in the Columbia Plateau ecoregion and portions of the Blue Mountain ecoregion are likely to be less impacted by direct habitat loss because portions of these habitats can be spanned by transmission lines. Direct habitat loss could impact many different wildlife groups, including birds, mammals, amphibians and reptiles, invertebrates, fish, and special status species. Direct habitat removal, either temporary or permanent, may have a greater impact on special status species due to their already limited or fragmented habitat. Furthermore, special status species are also vulnerable to loss or changes of important features in their ranges required for denning, nesting, or foraging (WDFW 2015).

Indirect habitat loss could occur as a result of a change in habitat quality or perceived change associated with the development of a project. Transmission facility development could require clearing forests or portions of a forest for ROW or access roads. This activity would create a new forest edge that can change light regimes and changes in exposure to wind, thereby affecting soil conditions and vegetation composition, and ultimately, habitat quality. Indirect impacts on habitat, wildlife, and fish could result from construction-related noise, light, increased human presence and vehicle traffic, the spread of invasive species, or structures in the landscape that change wildlife movement or behavior.

Transmission facility development could create both physical and perceived barriers to wildlife movement. Physical barriers, such as construction fencing, sediment and erosion control measures, and material laydowns, would be removed at the end of the construction phase. However, permanent barriers could include fencing, roads, vehicle traffic, and overhead transmission facilities. Furthermore, transmission facility development could result in the loss of habitat and microhabitat features that support important linkages between habitats that are used by wildlife, resulting in habitat fragmentation and barriers to movement. Similar to loss of other habitat types, conversion of treed habitat to low-growing or no vegetation near transmission facilities could be considered a loss of habitat for species that will not use open habitat for movement.

Vegetation clearing and grubbing would likely pose the greatest risk for wildlife mortality. Wildlife-vehicle collisions could also occur when wildlife crosses roads to access habitat patches. The operation of overhead transmission facilities is the primary cause of electrocution and collisions of wildlife, particularly for aerial species such as birds and bats. Wildlife mortality could also occur through changes in predator-prey dynamics and collisions with maintenance equipment and vehicles. Risk of wildlife mortality during the operation and maintenance of an underground transmission line system is expected to be limited to vehicle strikes and crushing during line maintenance.

Cumulative impacts from RFAs could also affect earth resources. Many other RFAs identified in **Table 4-1** could also contribute to cumulative impacts on habitat, wildlife, and fish. RFAs such as those related to community growth, energy generation and transmission, forestry, mining, and land- and water-based transportation could result in direct and indirect impacts related to habitat loss, mortality, barriers to wildlife movement, and habitat fragmentation. Specifically, RFAs include, but are not limited to, the following:

- Bullfrog Flats Development
- Mission Ridge Expansion
- Horse Heaven Wind Farm
- Hop Hills Solar Energy Project
- Cascade Renewable Transmission Project
- Wanapum to Mountain View
- Fly By Night Timber Sale
- Conk Timber Sale
- JUB Engineering Quarry
- Pioneer Aggregates South Parcel Mine Expansion
- I-405/SR 167 Corridor Program
- North Spokane Corridor
- Lower Columbia River Maintenance Plan
- SR 520 Montlake Project

A number of RFAs throughout the state are anticipated to improve conditions or conserve habitat for wildlife. These RFAs include new or expanded conservation areas, removal of fish barriers, forest management areas, and restoration areas. Although some of these RFAs could result in temporary construction-related impacts, they are anticipated to have an overall beneficial cumulative impact on habitat, wildlife, and fish. These RFAs include, but are not limited to, the following:

- Hoffstadt Hills
- Scroggie Canyon
- US 101 - SR 109 Grays Harbor, Jefferson, and Clallam Counties - Remove Fish Barriers
- I-90 – Lewis, W. Village Park, Schneider Creeks – fish passage projects
- Cedar River Municipal Watershed Forest Management Plan
- Little White Salmon Forest Resiliency and Fire Risk Mitigation Project

- Trafton Floodplain Restoration
- Duckabush Estuary Restoration Project

Cumulative Impact Determination: The cumulative impact on habitat, wildlife, and fish would depend on the size, scale, and timing of a project-specific application in combination with RFAs within the geographic setting and timing. Adverse impacts on habitat, wildlife, and fish would be minimized with the implementation of general conditions, avoidance criteria, and mitigation measures. However, despite efforts to minimize adverse impacts on habitat, wildlife, and fish, the long-term incremental loss and impacts from the construction, operation and maintenance, and upgrade or modification of transmission facilities would likely contribute to probable significant cumulative adverse impacts.

4.3.4.6 Energy and Natural Resources

Development of transmission facilities would result in the consumption of non-renewable and renewable resources, including metal, aggregate, concrete, fuel, oil, water, and electricity. As described in Section 3.7, Energy and Natural Resources, the construction of underground transmission facilities would generally require more raw materials than overhead transmission facilities. As a result of the raw materials being globally abundant and available, the changes are not anticipated to hinder supply chains or the management and distribution of natural resources. Transmission facilities could also improve the reliability and service of electricity resources, which would have a beneficial impact on energy resources.

Other RFAs may increase or decrease overall adverse cumulative impacts on energy and natural resources. RFAs related to community growth, energy generation and transmission, and land- and water-based transportation would likely require large quantities of renewable and non-renewable resources for construction, including aggregate, concrete, fuel, oil, water, and electricity for construction and operation. These RFAs would decrease or limit the available amount of energy and natural resources, depending on the size and timing. Such RFAs may include:

- Wallula Gap Business Park
- Bullfrog Flats Development
- Horse Heaven Wind Farm
- Hops Hills Solar Energy Project
- Cascade Renewable Transmission Project
- Wanapum to Mountain View
- I-405/SR 167 Corridor Program
- I-405/Renton to Bellevue Widening and Express Toll Lanes Project
- Lower Columbia River Maintenance Plan
- SR 520 Montlake Project

Other RFAs such as expanded, improved, or new energy facilities, water resources, mining, and forestry projects could increase the available amount of renewable and non-renewable resources. Although these RFAs could increase available resources for consumption, they would likely still require fuel, water, electricity, and aggregates for construction and maintenance. RFAs that could contribute to beneficial cumulative impacts on energy and natural resources include:

- Goldendale Energy Project
- Horse Heaven Wind Farm
- Cedar River Municipal Watershed Forest Management Plan
- Trafton Floodplain Restoration
- JUB Engineering Quarry
- Pioneer Aggregates South Parcel Mine Expansion
- Fly By Night Timber Sale
- Conk Timber Sale

Cumulative Impact Determination: The cumulative impact on energy and natural resources would depend on the size, scale, and timing of a project-specific application in combination with RFAs within the geographic setting and timing. Adverse impacts on energy and natural resources are primarily associated with construction activities, and the duration of these impacts would be short-term. Furthermore, adverse impacts would be minimized with the implementation of general conditions, avoidance criteria, and mitigation measures. The construction, operation and maintenance, and upgrade or modification of transmission facilities would not be likely to contribute to a probable significant cumulative adverse impact on energy and natural resources.

4.3.4.7 Public Health and Safety

Transmission facility development has the potential to impact public health and safety in several ways. Adverse impacts could result from increases in potential occupational injuries during construction, maintenance, and/or upgrade or modification activities. Other potentially adverse impacts could include increased risk of fires and power outages; the generation or release of solid, hazardous, and toxic materials and waste; and exposure to electromagnetic fields (EMF). Additionally, impacts could result from the leakage of insulating fluids, excess heat generation, and inundation of vaults located in floodplains. Transmission facility development would be required to comply with current design standards, and applicable laws and regulations regarding hazardous waste and occupational safety, which would reduce these adverse impacts to some extent but not completely eliminate them.

Adverse and beneficial cumulative impacts on public health and safety could result from other RFAs, depending on the nature of the RFA. RFAs identified in **Table 4.2-1**, including those related to community growth, energy generation and transmission, land- and water-based transportation, forestry, mining, agriculture, and water resources, have the potential to contribute to adverse cumulative impacts on public health and safety. These RFAs could result in impacts on public health and safety similar to those identified for the Action Alternative. RFAs

that have the potential to contribute to adverse cumulative impacts on public health and safety include, but are not limited to:

- Wallula Gap Business Park
- Bullfrog Flats Development
- Horse Heaven Wind Farm
- Hop Hills Solar Energy Project
- Cascade Renewable Transmission Project
- Shelton-Fairmount No. 1 Transmission Line Rebuild Project
- I-405/SR 167 Corridor Program
- I-405/Renton to Bellevue Widening and Express Toll Lanes Project
- Interstate Bridge Replacement Program
- SR 520 Montlake Project
- Fly By Night Timber Sale
- Klondike Timber Sale
- JUB Engineering Quarry
- Pioneer Aggregates South Parcel Mine Expansion
- Swift Creek Poultry Farm
- Jungquist Farms Depth of Cover
- Chehalis River Basin Flood Damage Reduction Project
- Eightmile Dam Rebuild and Restoration

Beneficial impacts on public health and safety could result from improved electricity service and reliability from energy-generating and transmission projects, such as:

- Goldendale Energy Project
- Horse Heaven Wind Farm
- Cascade Renewable Transmission Project
- Shelton-Fairmount No. 1 Transmission Line Rebuild Project

Cumulative Impact Determination: The cumulative impact on public health and safety would depend on the size, scale, and timing of a project-specific application in combination with RFAs within the geographic setting and timing. Adverse impacts on public health and safety would be localized, and the duration of these impacts would

be short-term. Adverse impacts on public health and safety would be minimized with the implementation of general conditions, avoidance criteria, and mitigation measures. The construction, operation and maintenance, and upgrade or modification of transmission facilities would not be likely to contribute to a probable significant cumulative adverse impact on public health and safety.

4.3.4.8 Land and Shoreline Use

The construction, operation and maintenance, and upgrade or modification of transmission facilities could impact land and shoreline uses in several ways. Adverse impacts could result from being incompatible with or convert land uses on site or those adjacent to the project—particularly, military and civilian airfields, shorelines, agricultural lands, and natural resource lands. Other adverse impacts could result from being inconsistent with planning documents and programs, damaging agricultural lands, restricting crop types, and presenting obstacles for natural resource operations or activities.

Cumulative impacts from RFAs related to community growth, energy generation and transmission, and agriculture are likely to have the greatest adverse cumulative impact on land and shoreline uses across the state. These RFAs include, but are not limited to, the following:

- Wallula Gap Business Park
- Copperstone Planned Development
- Hop Hills Solar Energy Project
- Wautoma Solar Energy Project
- Cascade Renewable Transmission Project
- Shelton-Fairmount No. 1 Transmission Line Rebuild Project
- Flying A Land Rezone
- Kang/Nazarene Church/Lange Rezone

A number of RFAs throughout the state intend to address and preserve critical areas and land use, including those related to water resources and wildlife and habitat conservation, and thus could contribute beneficial cumulative impacts. These RFAs may include, but are not limited to, the following:

- Cedar River Municipal Watershed Forest Management Plan
- Trafton Floodplain Restoration
- Tonata-Trout Project
- Little White Salmon Forest Resiliency and Fire Risk Mitigation Project

Cumulative Impact Determination: The cumulative impact on land and shoreline use would depend on the size, scale, and timing of a project-specific application in combination with RFAs within the geographic setting and timing. Adverse impacts on land and shoreline use would be minimized with the implementation of general conditions, avoidance criteria, and mitigation measures. However, despite efforts to minimize adverse impacts on land and shoreline use, the long-term incremental loss and impacts from the construction, operation and

maintenance, and upgrade or modification of transmission facilities would likely contribute to a probable significant cumulative adverse impact on land and shoreline use.

4.3.4.9 Transportation

The construction of transmission facilities could have temporary and permanent adverse impacts on vehicular, waterborne, rail, and air traffic. Construction activities could require temporary closures or detours of roads and navigable waterways resulting in delays and increased vehicular congestion. Construction activities near rail lines or airfields could lead to temporary disruptions and delays for passengers and operators. Operation of overhead transmission facilities could generate EMF that may interfere with communication systems associated with waterborne vessels, railroads, and aircraft. However, mitigation measures outlined in this Draft Programmatic EIS would be implemented as part of project-level applications to minimize significant adverse impacts.

Other RFAs with overlapping construction timeframes and that are within the vicinity of a transmission facility project may cumulatively contribute to transportation impacts. Construction activities related to land- and water-based transportation, community growth, energy generation and transmission, and forestry are anticipated to have the greatest potential for contributing to adverse cumulative impacts on transportation. These RFAs would likely require road closures, detours, delays, and/or increased congestion on roadways. Cumulatively contributing RFAs include, but are not limited to:

- I-405/SR 167 Corridor Program
- I-405/Renton to Bellevue Widening and Express Toll Lanes Project
- Lower Columbia River Maintenance Plan
- Interstate Bridge Replacement Program
- Bullfrog Flats Development
- FRED310 Industrial Development
- Horse Heaven Wind Farm
- Hop Hills Solar Energy Project
- Shelton-Fairmount No. 1 Transmission Line Rebuild Project
- Puget Sound Energy - Underground Electric Cable Replacement Program
- Fly By Night Timber Sale
- Conk Timber Sale

Cumulative Impact Determination: The cumulative impact on transportation would depend on the size, scale, and timing of a project-specific application in combination with RFAs within the geographic setting and timing. Adverse impacts on transportation are primarily associated with construction. Adverse impacts would be localized, and the duration of these impacts would be short-term. Furthermore, adverse impacts would be minimized with the implementation of general conditions, avoidance criteria, and mitigation measures. The

construction, operation and maintenance, and upgrade or modification of transmission facilities would not be likely to contribute to a probable significant cumulative impact on transportation.

4.3.4.10 Public Services and Utilities

Development of transmission facilities could impact public services and utilities in a variety of ways. Adverse impacts could include creating conflicts with existing utilities and obstacles for emergency responders, increasing the demand for emergency responders, increasing solid waste production and water demand, and increasing the risk of power outages at public service facilities. A beneficial impact of transmission facility development could include improved electricity service and reliability.

Cumulative impacts from RFAs could also affect public services and utilities. Several energy-generating and transmission facility RFAs were identified that could have a cumulatively beneficial impact on electricity service and reliability across the state. These RFAs include the following:

- Goldendale Energy Project
- Horse Heaven Wind Farm
- Cascade Renewable Transmission Project
- Shelton-Fairmount No. 1 Transmission Line Rebuild Project

In addition, several wildlife and habitat conservation RFAs were identified that could reduce the demand for emergency responders, particularly fire protection services. These RFAs may include the following:

- Little White Salmon Forest Resiliency and Fire Risk Mitigation Project
- Cle Elum Ridge Large Landscape Project

Although there is a statewide emphasis on improving electricity service and reliability, other RFAs could have an adverse impact on public services and utilities. RFAs related to community growth and land- and water-based transportation are likely to have the greatest adverse impact on public services and utilities. Impacts from these RFAs would likely result in an increased demand in utilities and public services, as well as increased emergency response service times. RFAs that may contribute to an adverse cumulative impact on public services and utilities include, but are not limited to, the following:

- Bullfrog Flats Development
- Mission Ridge Expansion
- I-405/SR 167 Corridor Program
- I-405/Renton to Bellevue Widening and Express Toll Lanes Project
- Interstate Bridge Replacement Program
- SR 520 Montlake Project

Cumulative Impact Determination: The cumulative impact on public services and utilities would depend on the size, scale, and timing of a project-specific application in combination with RFAs within the geographic setting and

timing. Adverse impacts on public services and utilities are primarily associated with construction activities, and the duration of these impacts would be short-term. Furthermore, adverse impacts would be minimized with the implementation of general conditions, avoidance criteria, and mitigation measures. The construction, operation and maintenance, and upgrade or modification of transmission facilities would not be likely to contribute to a probable significant cumulative adverse impact on public services and utilities.

4.3.4.11 Visual Quality

The construction, operation and maintenance, or upgrade or modification of transmission facilities could degrade existing natural landscapes and scenic resources, as well as introduce new sources of light and glare. During construction, site preparation could include vegetation clearing and grubbing, as well as earthwork and grading that may alter natural topographic variations. The impact of natural vegetation removal may be visually prominent, especially in forested areas where the clearing of the linear ROW corridor may be conspicuous. Construction also has the potential to temporarily introduce lighting related to the transportation of materials and equipment to the project site that may occur at night.

Development of transmission facilities generally requires large, permanently cleared corridors, which could pass through forests, fields, and other natural areas. This can disrupt the visual continuity of the landscape and detract from the natural character of the area. The presence of tall towers and extensive wiring from overhead transmission facilities can also alter the scenic quality of previously undisturbed or minimally impacted areas. Additionally, the large size of transmission towers, combined with their strongly vertical form and their angular geometry, may contrast strongly with the character of nearby rural landscapes, as well as residential communities.

Many RFAs identified in **Table 4.2-1** could contribute to adverse cumulative impacts on visual quality. Most development RFAs would modify the existing landscape character from construction through operation and maintenance. Construction of RFAs could degrade the existing visual setting through the introduction of equipment, materials, and lighting. Operation of RFAs could result in permanent impacts on the visual landscape, contributing to an overall adverse cumulative impact on the visual quality of the state. These RFAs include:

- Wallula Gap Business Park
- Mission Ridge Expansion
- Horse Heaven Wind Farm
- Desert Claim Wind Power Project
- I-405/SR 167 Corridor Program
- I-405/Renton to Bellevue Widening and Express Toll Lanes Project
- Interstate Bridge Replacement Program
- SR 520 Montlake Project

Cumulative Impact Determination: The cumulative impact on visual quality would depend on the size, scale, and timing of a project-specific application in combination with RFAs within the geographic setting and timing. Adverse impacts on visual quality would be minimized with the implementation of general conditions, avoidance

criteria, and mitigation measures. However, despite efforts to minimize adverse impacts on visual quality, the long-term incremental impacts on visual quality from the construction, operation and maintenance, and upgrade or modification of transmission facilities would likely contribute to probable significant cumulative adverse impacts.

4.3.4.12 Noise and Vibration

The construction, operation and maintenance, and upgrade or modification of transmission facilities could result in adverse impacts related to noise and vibration. Construction activities would require the use of construction equipment similar to that used during typical public works projects; however, some atypical sources of noise may include blasting and rock breaking, implosive devices used during conductor stringing, and helicopter operations. These activities could result in increased noise at sensitive receptors and ground-borne vibration. Operational noise from overhead transmission facilities could result from corona discharge and new substations. Underground transmission facilities would result in similar impacts, except there would be no operational noise impacts. Significant adverse impacts resulting from the development of transmission facilities would be minimized with the implementation of established state and local government noise limits, and mitigation measures identified in Section 3.13, Noise and Vibration.

Other RFAs could also create new or additive sources of noise and vibration. Noise and vibration could result from RFAs related to community growth, energy generation and transmission, transportation (terrestrial and water-related), forestry, and mining. RFAs that could result in noise and vibration impacts include, but are not limited to, the following:

- Copperstone Planned Development
- Mission Ridge Expansion
- Horse Heaven Wind Farm
- Hop Hills Solar Energy Project
- Puget Sound Energy - Underground Electric Cable Replacement Program
- Energize Eastside
- East Link Extension
- Puget Sound Gateway Program
- Interstate Bridge Replacement Program
- SR 520 Portage Bay Bridge and Roanoke Lid Project
- Portrait Timber Sale
- Forest Practice Application #3027124
- JUB Engineering Quarry
- Pioneer Aggregates South Parcel Mine Expansion

Cumulative Impact Determination: The cumulative impact on noise and vibration would depend on the size, scale, and timing of a project-specific application in combination with RFAs within the geographic setting and timing. Adverse impacts on noise and vibration are primarily associated with construction. Adverse impacts would be localized, and the duration of these impacts would be short-term. Furthermore, adverse impacts would be minimized with the implementation of general conditions, avoidance criteria, and mitigation measures. The construction, operation and maintenance, and upgrade or modification of transmission facilities would not be likely to contribute to a probable significant cumulative impact on noise and vibration.

4.3.4.13 Recreation

The construction, operation and maintenance, or upgrade or modification of transmission facilities may adversely impact recreational resources in several ways. Adverse impacts could include temporary or permanent closures or restricted access to recreational areas, adverse changes to the quality of the recreational experience, adverse impacts on the integrity of the recreational resource, and an increase in health and safety risks for recreational users.

Overlapping impacts from RFAs could contribute to adverse cumulative impacts on recreational resources. A variety of RFAs may have adverse cumulative impacts on recreational resources, including community growth, land- and water-based transportation, and energy generation and transmission. These RFAs include, but are not limited to, the following:

- Bullfrog Flats Development
- Mission Ridge Expansion
- I-405/SR 167 Corridor Program
- I-405/Renton to Bellevue Widening and Express Toll Lanes Project
- Lower Columbia River Maintenance Plan
- Interstate Bridge Replacement Program
- Horse Heaven Wind Farm
- Hop Hills Solar Energy Project
- Wanapum to Mountain View
- Shelton-Fairmount No. 1 Transmission Line Rebuild Project

Other RFAs are intended to improve or increase recreational opportunities. Additionally, a number of RFAs are anticipated to improve the quality or conditions for recreational activities, such as fishing, hunting, camping, and hiking. These RFAs include those related to recreation, water resources, and wildlife and habitat conservation. RFAs include, but are not limited to, the following:

- Miller Peninsula State Park Property Planning
- Flora Park and Cross Country Course (Phase 2)
- US 101 - SR 109 Grays Harbor, Jefferson, and Clallam Counties - Remove Fish Barriers

- I-90 – Lewis, W. Village Park, Schneider Creeks – fish passage projects
- Tonata-Trout Project
- Scroggie Canyon

Cumulative Impact Determination: The cumulative impact on recreational resources would depend on the size, scale, and timing of a project-specific application in combination with RFAs within the geographic setting and timing. Adverse impacts on recreational resources would be minimized with the implementation of general conditions, avoidance criteria, and mitigation measures. However, despite efforts to minimize adverse impacts on recreational resources, it is expected that the long-term incremental impacts on recreational resources from the construction, operation and maintenance, and upgrade or modification of transmission facilities would likely contribute to probable significant cumulative adverse impacts.

4.3.4.14 Cultural and Historic Resources

The construction of transmission facilities could impact historic and cultural resources in two primary ways: physically and visually. Construction could physically or visually damage or destroy resources or elements that contribute to historic properties, including historic districts, National Historic Landmarks, farmsteads, landscapes, historic trails/byways, Tribal resources, archaeological sites, and Traditional Cultural Places. Furthermore, loss of vegetation and construction of transmission facilities within the boundaries of National Historic Landmarks or properties listed on the National Register of Historic Properties can visually impact these resources if setting is an important aspect of the historic property's integrity. Overall, adverse visual impacts on historic resources during construction of underground transmission facilities would be far less than for overhead transmission facilities. However, adverse physical impacts from ground disturbance for construction of conduits and vaults related to underground facilities would be greater than for aboveground transmission lines. Adverse physical impacts from ground-disturbing activities, including access roads and staging areas, would be similar to impacts for aboveground transmission lines.

Other RFAs in the Study Area identified in **Table 4.2-1** could contribute to cumulative impacts on cultural and historic resources. Community growth, land- and water-based transportation, energy generation and transmission, and mining-related RFAS could result in impacts similar to those of the Action Alternative. Adverse cumulative impacts from RFAs may affect the location, setting, feeling, and/or association of historic and cultural resources, resulting in a potential loss of the integrity of these resources. RFAs include, but are not limited to, the following:

- Wallula Gap Business Park
- Bullfrog Flats Development
- I-405/SR 167 Corridor Program
- Puget Sound Gateway Program
- Replacement of Granite Falls Bridge #102
- SR 520 Montlake Project
- Horse Heaven Wind Farm

- Hop Hills Solar Energy Project
- Shelton-Fairmount No. 1 Transmission Line Rebuild Project
- Wanapum to Mountain View
- Chelatchie Bluff Surface Mine Overlay Annual Review
- Pioneer Aggregates South Parcel Mine Expansion

Cumulative Impact Determination: The cumulative impact on historic and cultural resources would depend on the size, scale, and timing of a project-specific application in combination with RFAs within the geographic setting and timing. Adverse impacts on historic and cultural resources would be minimized with the implementation of general conditions, avoidance criteria, and mitigation measures. However, despite efforts to minimize adverse impacts on historic and cultural resources, the long-term incremental loss and impacts on historic and cultural resources from the construction, operation and maintenance, and upgrade or modification of transmission facilities would likely contribute to probable significant cumulative adverse impacts.

4.3.4.15 Socioeconomics

Transmission facility development could impact socioeconomics and environmental justice communities, including both urban and rural people of color populations, low-income populations, and overburdened communities, in a variety of ways. Adverse impacts could include increased noise and air pollutant levels, restricted access to land resources and recreational areas, new sources of noise that disrupt and affect educational performance, and decreased available housing. Additionally, overhead transmission facilities could create adverse impacts on visual quality that result in decreased property values. Beneficial impacts from the development of transmission facilities could include enhanced fiscal conditions, improved reliability of electricity, and increased employment opportunities.

Many other RFAs identified in **Table 4.2-1** could contribute to cumulative impacts on socioeconomics and environmental justice communities, including those related to community growth, energy generation and transmission, transportation, mining, forestry, and agriculture. These RFAs are anticipated to result in impacts similar to those of the Action Alternative, such as increasing noise and air pollutants during construction, requiring road closures or detours, and having adverse impacts on the visual quality of the surrounding respective project area. RFAs that could contribute to adverse cumulative impacts include, but are not limited to, the following:

- Wallula Gap Business Park
- Bullfrog Flats Development
- Horse Heaven Wind Farm
- Hop Hills Solar Energy Project
- Shelton-Fairmount No. 1 Transmission Line Rebuild Project
- Wanapum to Mountain View
- I-405/SR 167 Corridor Program

- I-405/Renton to Bellevue Widening and Express Toll Lanes Project
- JUB Engineering Quarry
- Pioneer Aggregates South Parcel Mine Expansion
- Fly By Night Timber Sale
- Conk Timber Sale
- Swift Creek Poultry Farm
- Jungquist Farms Depth of Cover

Additionally, some RFAs related to energy generation and transmission, transportation (terrestrial and water-related), and recreation could have beneficial cumulative impacts on socioeconomics and environmental justice. Energy generation and transmission RFAs could provide more renewable and reliable electric power. For example, transportation improvement RFAs and recreation-related RFAs could improve the quality of life for environmental justice communities by decreasing long-term commuting times and providing access to more recreational facilities. These RFAs include, but are not limited to, the following:

- Goldendale Energy Project
- Horse Heaven Wind Farm
- I-405/SR 167 Corridor Program
- East Link Extension
- SR 520 Portage Bay Bridge and Roanoke Lid Project
- SR 520 Montlake Project
- Cascade Renewable Transmission Project
- Shelton-Fairmount No. 1 Transmission Line Rebuild Project
- Make Beacon Hill Public – Phase 2
- Flora Park and Cross Country Course (Phase 2)

Cumulative Impact Determination: The cumulative impact on socioeconomics and environmental justice communities would depend on the size, scale, and timing of a project-specific application in combination with RFAs within the geographic setting and timing. Adverse impacts on socioeconomics and environmental justice communities would be minimized with the implementation of general conditions, avoidance criteria, and mitigation measures. However, despite efforts to minimize adverse impacts on socioeconomics and environmental justice communities, it is expected that the long-term adverse impacts from the construction, operation and maintenance, and upgrade or modification of transmission facilities would likely contribute to probable significant cumulative adverse impacts.

4.4 Summary of Findings

As described in the preceding sections, this Draft Programmatic EIS considers the potential cumulative effects of the Action Alternative. **Table 4.4-1** summarizes the potential cumulative impacts of the Action Alternative in combination with other present projects and RFAs across the state. As outlined in General Condition Gen-7 – Cumulative Impact Assessment, the SEPA Lead Agency for project-specific applications would be required to analyze cumulative adverse impacts, identify appropriate mitigation measures, and determine significance based on the physical setting of the site-specific project.

Table 4.4-1: Summary of Potential Cumulative Impacts

Element of the Environment	Activities Associated with a Potential Cumulative Impact	Associated Potential Cumulative Impact	Probable Significant Cumulative Adverse Impact?
Earth Resources	• Grading • Removing vegetation • Excavating • Building access roads • Siting and constructing transmission facilities in geologically unstable areas	• Alteration of topography and drainage patterns • Increased soil erosion and/or accretion • Compaction of soil • Damage from a geological event or geohazard	No
Air Quality	• Grading • Removing vegetation • Excavating • Building access roads • Moving equipment and vehicles over unpaved surfaces • Disrupting soils susceptible to erosion • Using portable generators, heavy equipment, and concrete batch plants • Installing and handling gas-insulated switchgear and other electrical equipment that use SF_6	• Increased fugitive dust emissions • Increased emissions from fuel-burning equipment • Increased SF_6 emissions	No

Water Resources	• Creating temporary water diversions
	• Altering hydrology patterns
	• Using water for construction activities, such as concrete mixing and dust control
	• Increasing soil erosion and sediment transport due to construction activities
	• Flooding or storm surges
		• Impacts on water quality, including:
		  ○ Changes in sedimentation
		  ○ Changes in water chemistry
		• Impacts on water quantity, including:
		  ○ Increased water usage
		  ○ Altered hydrology
		  ○ Temporary water diversions
		  ○ Groundwater extraction
		• Damage to infrastructure
			No

Vegetation	• Removing vegetation
	• Building new access or maintenance roads
	• Creating new ROWs
	• Spreading invasive species
	• Increasing sedimentation or dust due to construction activities
		• Direct impacts and mortality, including:
		  ○ Loss of habitat
		  ○ Loss of species or populations
		  ○ Loss of ecosystem functionality
		• Indirect impacts, including:
		  ○ Introduction or spread of invasive plants or noxious weeds
			Yes

Element of the Environment	Activities Associated with a Potential Cumulative Impact	Associated Potential Cumulative Impact	Probable Significant Cumulative Adverse Impact?
	• Using herbicides • Accidentally spilling hazardous materials	○ Surface runoff ○ Deposition of dust ○ Introduction of hazardous substances • Fragmentation	
Habitat, Wildlife, and Fish	• Grading • Removing vegetation • Excavating • Changes in vegetation composition, exposure to wind, soil conditions, noise levels, light regimes, and human presence • Increasing collisions with vehicles • Destructing nests/dens • Introducing nuisance or invasive species • Changes in water flow or quality • Constructing fences or sediment fences	• Direct habitat loss • Indirect habitat loss • Mortality of species • Barriers to movement • Fragmentation	Yes
Energy and Natural Resources	• Using resources such as metal, aggregate, concrete, fuel, and oil • Using resources such as land and water • Using resources such as electricity	• Consumption of non-renewable resources • Consumption of renewable resources • Consumption of energy	No
Public Health and Safety	• Handling motor vehicles and equipment • Increased exposure to extreme weather events • Working at extreme heights • Electricity-related risks such as electric shock • Increased exposure to hazardous substances • Conducting hot-work activities • Operating combustion engines and motor vehicles over vegetated areas • Generating EMF • Generating heat during the operation of underground transmission facilities • Flooding or storm surges	• Increase in accidents and injuries • Exposure to hazardous materials • Increased risk of wildfire • Exposure to EMF • Excess heat generation • Inundation of vaults in floodplains	No

Element of the Environment	Activities Associated with a Potential Cumulative Impact	Associated Potential Cumulative Impact	Probable Significant Cumulative Adverse Impact?
Land and Shoreline Use	• Being inconsistent with existing land uses • Being inconsistent with goals or policies in relevant planning and program documents • Interfering with natural resource operations, such as farming, due to equipment laydown and staging, and constructing access roads • Soil erosion and sedimentation due to clearing vegetation, constructing foundations and laying materials within or adjacent to shorelines • Siting and constructing overhead facilities within or close proximity to military utilized airspace and civilian airports	• Incompatible land use • Conflict with relevant goals and policies • Loss of function and value of shorelines • Loss of function and value of agricultural lands and rangelands • Conflicts with military utilized airspace and civilian airfield operations	Yes
Transportation	• Creating temporary road closures • Creating temporary detours • Constructing access roads • Moving heavy construction vehicles and equipment • Generating EMF	• Impacts on vehicular transportation and infrastructure, including: o Closures and diversions o Increased traffic and increased collision risk o Impacts from access road construction o Impacts on road authority • Impacts on waterborne vessels and infrastructure, including: o Closures and diversions o Increased collision risk o Impacts from infrastructure modification • Impacts on rail transportation and infrastructure, including: o Closures and diversions o Increased collision risk o Impacts on rail stability o Impacts from infrastructure modification	No

Element of the Environment	Activities Associated with a Potential Cumulative Impact	Associated Potential Cumulative Impact	Probable Significant Cumulative Adverse Impact?

		• Impacts on air transportation and infrastructure[7], including:
		  ○ Impacts from airspace restrictions
		  ○ Increased collision risk
		  ○ Decreased visibility	

Public Services and Utilities	• Impacting existing utility infrastructure • Creating excess solid waste from excavating, clearing vegetation and soils, packing materials, etc. • Using water for dust or fire control, concrete mixing, and revegetation efforts • Increasing risks of fires, worker injuries, vehicular collisions, theft, vandalism, and trespassing • Creating temporary road closures, detours, and increased traffic	• Conflicts with existing utility infrastructure • Increased solid waste production • Increased water demand • Increased demand for fire protection services, law enforcement, and emergency responders • Increased emergency response times • Increased risk of power outages at public service facilities	No
Visual Quality	• Grading • Removing vegetation • Excavating • Open trenching for underground transmission facilities • Creating new ROW corridors • Building access roads, fencing, bridges, temporary laydown areas, turnaround areas, and watercourse crossings • Assembling foundations, structures, and substations • Transporting materials and equipment at night	• Degradation of scenic natural resources • Degradation of aesthetics • Degradation of night sky	Yes
Noise and Vibration	• Transporting materials and equipment • Staging materials • Assembling transmission structures and other project features • Constructing access roads • Increasing vehicle traffic from commuting workers and trucks • Blasting and rock breaking • Using implosive devices during conductor stringing	• Increased noise at sensitive receptors • Increased ground-borne vibration at off-site structures • Hearing loss	No

[7] Section 3.09, Land and Shoreline Use analyzes impacts on military utilized airspace and civilian airfield operations

Element of the Environment	Activities Associated with a Potential Cumulative Impact	Associated Potential Cumulative Impact	Probable Significant Cumulative Adverse Impact?
	• Using helicopter • Conducting open-trenching operations • Conducting horizontal directional drilling operations • Conducting trenchless crossing operations • Corona discharge		
Recreation	• Grading • Removing vegetation • Excavating • Open trenching for underground transmission facilities • Creating new ROW corridors for overhead and underground transmission facilities • Increasing publicity of recreational facilities • Using recreational facilities • Welding, vehicle ignition, and blasting	• Temporary closure or restricted access • Permanent closure • Increase in use • Change in integrity • Increased risk of wildfire	Yes
Cultural and Historic Resources	• Grading • Removing vegetation • Excavating • Compacting soils • Creating new ROW corridors for overhead and underground transmission facilities • Creating a modern intrusion • Replacing gates or fences for access roads • Collocating conduits on historic bridges	• Physical impacts on historic and cultural resources • Visual impacts on historic and cultural resources • Physical impacts on TCPs and Tribal resources • Visual impacts on TCPs and Tribal resources	Yes

Socioeconomics and Environmental Justice	• Grading
	• Removing vegetation
	• Excavating
	• Transporting materials and equipment
	• Staging materials
	• Assembling transmission structures and other project features
	• Creating an increase in fugitive dust emissions, emissions from fuel-burning equipment, and SF_6 emissions
	• Creating new ROW corridors
		• Degradation of the natural and built environment, including:
		  ○ Noise and vibration
		  ○ Air quality
		  ○ Visual quality
		  ○ Land and shoreline use, and recreation
		• Changes in housing availability
		• Changes in home values
		• Changes in fiscal conditions and employment
			Yes

Element of the Environment	Activities Associated with a Potential Cumulative Impact	Associated Potential Cumulative Impact	Probable Significant Cumulative Adverse Impact?
	• Constructing access roads • Blasting and rock breaking • Conducting open-trenching operations • Conducting horizontal directional drilling operations • Conducting trenchless crossing operations • Generating corona discharge • Generating EMF • Creating an influx of construction workers looking for temporary housing • Requiring land acquisitions that displace residents or housing units • Imposing a tariff for the additional cost of undergrounding a transmission facility • Creating temporary road closures • Creating temporary detours • Vehicle traffic from commuting workers and trucks • Creating an increase in employment opportunities • Increasing the earnings of workers and sole proprietors • Increasing tax revenue		

4.5 Phased Environmental Review for Cumulative Impacts

All applicants are required to apply general condition Gen-7 as part of their project-specific applications. This general condition requires applicants to prepare an updated RFA list based on the project-specific application, in coordination with the SEPA Lead Agency. The applicant would prepare the updated RFA list based on the geographic setting of the project-level application and the SEPA Lead Agency would consider the geographic setting for each element of the environment, as outlined in **Table 4.5-1**. More detail on the geographic settings provided in **Table 4.5-1** can be found in the respective resource section in Chapter 3. The SEPA Lead Agency would analyze cumulative adverse impacts, identify appropriate mitigation measures, and determine significance.

Table 4.5-1: Geographic Setting for Environmental Resources

Resource	Geographic Setting
Earth Resources	▪ Project Site and Immediate Vicinity ▪ Soil and Geology ▪ Seismic Hazards ▪ Previous Earthworks
Air Quality	▪ Project Site and Immediate Vicinity ▪ Air Basin
Water Resources	▪ Project Site and Immediate Vicinity ▪ Watershed and River Basins ▪ Wetlands and Floodplains ▪ Groundwater Aquifers
Vegetation	▪ Project Site and Immediate Vicinity ▪ A Local Study Area Surrounding the Project Site
Wildlife, Habitat, and Fish	▪ Project Site and Immediate Vicinity ▪ Protected Areas ▪ Aquatic Ecosystems ▪ Critical Habitat ▪ Sensitive Species Habitat ▪ Migration Corridors
Energy and Natural Resources	▪ Project Site and Immediate Vicinity ▪ Affected Geography
Public Health and Safety	▪ Project Site and Immediate Vicinity
Land and Shoreline Use	▪ Project Site and Immediate Vicinity ▪ Agriculture and Rangelands ▪ Shorelines ▪ Military Utilized Airspace and Civilian Airfields
Transportation	▪ Project Site and Immediate Vicinity ▪ Transportation corridors ▪ Transportation Infrastructure ▪ Airspace and Flight Paths ▪ Safety and Reliability
Public Services and Utilities	▪ Project Site and Immediate Vicinity ▪ Existing Utilities

Resource	Geographic Setting
Visual Quality	▪ Project Site and Immediate Vicinity ▪ Assessment Zone ▪ Viewshed
Noise and Vibration	▪ Project Site and Immediate Vicinity ▪ Existing Noise Environment ▪ Climate and Elevation
Recreation	▪ Project Site and Immediate Vicinity ▪ Viewshed
Historic and Cultural Resources	▪ Project Site and Immediate Vicinity ▪ Viewshed
Socioeconomics	▪ Project Site and Immediate Vicinity ▪ Vulnerable Populations and Overburdened Communities

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