

# Chapter 21 Air Quality

Words in **bold** and acronyms are defined in Chapter 32, Glossary and Acronyms.

This chapter describes existing air quality in the project area, and how the project alternatives could affect air quality. Related information can be found in Chapter 22, Greenhouse Gases.

## 21.1 Affected Environment

The airsheds in the project area are regulated by the Southwest Clean Air Agency (SWCAA) in Washington and the Department of Environmental Quality (ODEQ) in Oregon (SWCAA 2011). Both the SWCAA and ODEQ are delegated by the EPA to implement requirements of the Clean Air Act (CAA) and their own air quality programs. However, the SWCAA, ODEQ, and EPA do not have air quality rules or permitting programs for transmission lines.

Both the SWCAA and the ODEQ operate monitoring stations throughout their respective jurisdictional areas. Based on data collected, the action alternatives are within airsheds that are in “attainment or unclassified” for the national ambient air quality standards (NAAQS) for all pollutants. The pollutants for which the airsheds are “in attainment or unclassified” are carbon monoxide, nitrogen dioxide, ozone, sulfur dioxide, lead, and particulate matter (PM) including PM 2.5 (less than 2.5 microns in aerodynamic diameter), PM 10 (less than 10 microns in diameter (PM 10), and total suspended particulate. The Portland, Oregon and Vancouver, Washington areas are considered “**maintenance areas**” for carbon monoxide, meaning that, at one time, they were classified as “**non-attainment**,” but currently demonstrate compliance with the NAAQS. The Portland and Vancouver metro areas have met the carbon monoxide standard since 1996.

Portions of the West Alternative, Segment 52 and the Sundial substation site (common to all action alternatives), are in the Portland/Vancouver metro area where there are more industrial sources of air pollution and higher levels of traffic congestion that create more air emissions. Longview, Washington is the second most populated portion of the project area (it is crossed by the West and Crossover alternatives and Central Option 2), experiencing moderate amounts of traffic-related air emissions and possible sources of air pollution from lumber mills and yards.

For the remaining portions of the action alternatives, the landscape is rural with few or no sources of industrial air pollution. Local air pollutant emissions in the rural areas are limited primarily to windblown dust from agricultural or logging operations and tailpipe emissions from traffic along highways and local roads.

Since regional visibility can be affected by air quality, some areas within the U.S. have been given elevated visibility status. Congress has required that air quality be preserved, protected, and enhanced in specific areas of national or regional natural, recreational, scenic, or historic value. These areas are defined as Class 1 areas. None of the action alternatives pass through or near the border of any Class 1 areas in Washington or Oregon.

## 21.2 Environmental Consequences

General impacts that would occur for the action alternatives are discussed below. Impacts would be similar for all action alternatives.

### 21.2.1 Impact Levels

Impacts would be **high** where project activities would cause the following:

- A permanent regional reduction in air quality
- A change in air quality that is a likely risk to human health and safety

Impacts would be **moderate** where project activities would cause the following:

- A permanent localized reduction in air quality
- A change in air quality that is a possible, but unlikely risk to human health and safety

Impacts would be **low** where project activities would cause the following:

- A temporary reduction in air quality near construction and vegetation clearing sites
- A change in air quality that is an insignificant or very unlikely risk to human health and safety

**No** impact would occur to air quality if there would be no measureable air emission increase above background levels and there is no increased hazard to human health and safety.

### 21.2.2 Impacts Common to Action Alternatives

#### 21.2.2.1 Construction

Air quality impacts created by construction of the transmission line, substations, and access roads would be common to all action alternatives. The primary type of air pollution during construction would be particulate matter (PM), including dust from disturbed soils becoming airborne (fugitive dust) and combustion pollutants from equipment exhaust.

Construction is described in detail in Chapter 3, Project Components and Construction, Operation and Maintenance Activities. Construction activities that could create dust include road building and grading, on-site travel on unpaved surfaces, work area clearing and preparation for tower removal or construction, and blasting for tower footings. Many soils that would be crossed by the project are susceptible to erosion (see Chapter 14, Geology and Soils), and any disruption to these soils from these activities could create fugitive dust. Gravel used as surface material on unpaved access roads would reduce the amount of particulate matter released into the air. Using water on heavily travelled roads may be necessary during dry periods.

Vegetation removal may also emit fugitive dust. The action alternatives cross mostly forested land on proposed new or existing right-of-way. Most existing rights-of-way have been vacant for decades and the vegetation has not been cleared. Scattered among forested areas, the West Alternative contains open patches of land used for agriculture and pasture. The more eastern alternatives have similar open patches of land where acres of timber have been harvested and replanted with young trees. Erosion control measures and reseeding used on disturbed areas would reduce the amount of fugitive dust produced.

After merchantable timber is removed, clearing tall brush and low-growing trees and vegetation would produce debris that would need to be disposed of by lop and scatter, chipping, wood waste recycling, or transported to a landfill. These activities could create particulate matter including fugitive dust. No debris would be burned. Wind-caused erosion of disturbed areas could also contribute to fugitive dust.

Heavy equipment and vehicles, including those with diesel internal combustion engines, would emit pollutants such as carbon monoxide, carbon dioxide, sulfur oxides, PM 2.5, oxides of nitrogen, volatile organic hydrocarbons, aldehydes, and polycyclic aromatic hydrocarbons. All mobile equipment is required to comply with SWCAA, ODEQ, and EPA air quality standards.

The amount of pollutants emitted from construction equipment and vehicles would be comparable to the operation of agricultural and logging equipment in rural areas, and to land development activities in more urban and suburban areas.

Because construction activities would be localized and short-lived, impacts would be **low**. Substation construction would last from 13 to 24 months in one location, but would be localized in a small area; the first two phases of the three-phase substation construction would involve outdoor work with potential to impact air quality (see Chapter 3). Mitigation measures listed in Chapter 3 would be implemented to minimize the impacts that would occur. Under the action alternatives impacts to regional air quality from construction would be **low**.

### **21.2.2.2 Operation and Maintenance**

Transmission line operation would cause limited air emissions. During operation, high electric field strength causes a breakdown of air at the surface of the conductors called corona. Corona is most noticeable when the transmission line is wet from high humidity, fog, or precipitation. Small amounts of ozone and nitrogen oxides are produced as a result of corona. However, studies have shown that the resulting ambient concentrations are generally not detectable above background levels and would not have significant effects on humans, plants, or animals (Arora 1995). Potential emissions would be very small, temporary, and localized.

Maintenance of the transmission line, access roads, and substations would be infrequent and have minimal impact on air quality both locally and regionally. During the life of the project, BPA would perform routine maintenance and inspect transmission lines, make emergency repairs, occasionally access the substations, and manage vegetation to ensure the lines are not compromised. These activities would require maintenance vehicles to travel along paved and unpaved access roads. This would lead to temporary fugitive emissions of dust and exhaust from maintenance vehicles. Unpaved access roads may need additional blading and rocking to repair surface deterioration from vehicles and weather. These activities would be infrequent and temporary.

Impacts during operation and maintenance would be **low** because they would be temporary, can be mitigated, and are not a major influence to air quality on the regional scale. Discharges from corona would also have **no** impact to regional air quality because pollutants would be emitted intermittently and would not be detectable above background levels.

### **21.2.3 Recommended Mitigation Measures**

Mitigation measures included as part of the project are identified in Table 3-2. BPA is considering the following additional mitigation measures to further reduce or eliminate adverse air impacts by the action alternatives. If implemented, these measures would be completed before, during, or immediately after project construction unless otherwise noted.

- Covering material transport vehicles to prevent materials from becoming airborne
- Lopping and scattering cleared vegetation within the right-of-way

### **21.2.4 Unavoidable Impacts**

Unavoidable impacts on air quality would include fugitive dust and vehicle emissions.

### **21.2.5 No Action Alternative**

Under the No Action Alternative, air emissions for construction, operation, and maintenance of the proposed project would not occur. However, urban traffic emissions and fugitive dust emissions from existing agricultural, forest, and industrial practices would continue. If the No Action Alternative leads to lower system reliability, it is possible that transmission line outages could occur, causing businesses and residents to use emergency generators, if available, or wood-burning stoves. The particulates emitted by these sources would create impacts in areas where they occur. Such emissions would be short-lived and widely dispersed throughout the outage area.

# Chapter 22 Greenhouse Gases

This chapter describes greenhouse gases and how the project alternatives could affect greenhouse gas emissions.

Words in **bold** and acronyms are defined in Chapter 32, Glossary and Acronyms.

## 22.1 Affected Environment

Greenhouse gases (GHGs) are chemical compounds found in the earth's atmosphere that absorb and trap infrared radiation as heat. Global atmospheric GHG concentrations are a product of continuous emission (release) and removal (storage) of GHGs over time. In the natural environment, this release and storage is largely cyclical. For example, through the process of photosynthesis, plants capture atmospheric carbon as they grow and store it in the form of sugars. When plants decay or are burned, the stored carbon is released back into the atmosphere, available to be taken up again by new plants (Ecological Society of America 2008). In forests, the carbon can be stored for long periods of time, and because they are so productive and long-lived, forests have an important role in carbon capture and storage and can be thought of as temporary carbon reservoirs. There is also a large amount of GHGs stored deep underground in the form of fossil fuels, and soils store carbon in the form of decomposing plant material and serve as the largest carbon reservoir on land.

Human activities such as deforestation, soil disturbance, and burning of fossil fuels disrupt the natural cycle by increasing the GHG emission rate over the storage rate, which causes a net increase of GHGs in the atmosphere. When forests are permanently converted to farmland, for example, or when new buildings or roads displace vegetation, the GHG storage capacity of the disturbed area is reduced. Carbon dioxide (CO<sub>2</sub>), nitrous oxide (N<sub>2</sub>O), and methane (CH<sub>4</sub>) emissions increase when soils are disturbed (Kessavalou, et al. 1998), and burning fossil fuels releases GHGs that have been stored underground for thousands of years and cannot be readily replaced. The resulting buildup of heat in the atmosphere from increased GHG levels increases temperatures, which causes warming of the planet through a greenhouse-like effect (U.S. Energy Information Administration [EIA] 2009).

The principal GHGs emitted into the atmosphere through human activities are CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, and fluorinated gases, such as hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF<sub>6</sub>) (EPA 2015a).

- **Carbon dioxide** is the major GHG emitted (EPA 2015a; Houghton 2010). CO<sub>2</sub> enters the atmosphere from activities such as land use changes, the burning of fossil fuels (e.g., coal, natural gas, oil, and wood products), and the manufacturing of cement. CO<sub>2</sub> emissions from the combustion of coal, oil, and gas constitute 84 percent of all U.S. GHG emissions (EPA 2015a). Before the industrial revolution, CO<sub>2</sub> concentrations in the atmosphere were roughly stable at 280 parts per million. By 2010, CO<sub>2</sub> levels had increased to 390 parts per million, a 40 percent increase, because of human activities (EPA 2015b).
- **Methane** is emitted during the processing and transport of fossil fuels, through intensive animal farming, and by the degradation of organic waste. Concentrations of CH<sub>4</sub> in the atmosphere have increased more than 2.5 times that of preindustrial levels (EPA 2015b).

- **Nitrous oxide** is emitted during agricultural and industrial activities and during the combustion of fossil fuels and solid waste. Atmospheric levels of N<sub>2</sub>O have increased 18 percent since the beginning of industrial activities (EPA 2015b).
- **Fluorinated gases**, including HFCs, PFCs, and SF<sub>6</sub>, are synthetic compounds emitted through industrial processes. They sometimes replace ozone-depleting compounds such as chlorofluorocarbons (CFCs) in insulating foams, refrigeration, and air conditioning. Fluorinated gases, particularly SF<sub>6</sub>, are often used in substation equipment. SF<sub>6</sub> is used as an electrical insulator in high-voltage substation equipment such as circuit breakers, transformers, and ground switches. Although fluorinated gases are emitted in small quantities, fluorinated gases can trap more heat than CO<sub>2</sub> and are considered gases with a high global warming potential (EPA 2015a).

Total human-caused GHG emissions were the highest in human history from 2000 to 2010 and reached 49 gigatons of **carbon dioxide equivalent (CO<sub>2</sub>e)** per year in 2010 (Intergovernmental Panel on Climate Change [IPCC] 2014). Annual GHG emissions grew on average by 1.0 gigaton of CO<sub>2</sub>e (2.2 percent) per year from 2000 to 2010 compared to 0.4 gigaton of CO<sub>2</sub>e (1.3 percent) increase per year from 1970 to 2000. Growing levels of these GHGs could increase the Earth's temperature by between 2.0 and 11.5 degrees Fahrenheit by 2100 (EPA 2015a). In the Pacific Northwest Region, an increase in annual temperature between 3.3 and 9.7 degrees Fahrenheit may occur between 2070 and 2099, depending on future total global emissions of GHGs (Mote et al. 2014).

This increase in Earth's temperature may cause accelerated melting of arctic sea ice and glaciers, decreased periods of ice cover on lakes and rivers, changes in hydrology from early melting and decreased snow packs, changes in growing seasons and plant hardiness zones, changes in surface water characteristics, and increased extreme weather (Melillo, et al. 2014). All of these changes could have a ripple effect on agricultural production, human health, public infrastructure, water supplies, hydropower generation, and terrestrial, aquatic, and marine ecosystems. While models predict atmospheric concentrations of all GHGs and temperatures will increase over the next century due to human activity, the extent and rate of change from an individual project or action is difficult to predict, especially on a global scale.

To lessen BPA's system contribution to GHG emissions, BPA developed a climate change roadmap (BPA 2008), which included the adoption of a new Strategic Business Objective and a Key Agency Target related to climate change. The climate change roadmap identified measuring BPA's overall GHG emissions as a key starting point for BPA to manage its overall GHG footprint. As a result, BPA started collecting GHG data in 2009 to complete an inventory of existing GHG emissions. The GHG reporting serves as a benchmark for quantifying reductions in GHG emissions from various activities and functions and helps BPA to quantify the value of potential remedies for reducing emissions, estimating the costs of changing current practices and prioritizing future GHG emission reduction actions. In 2009, BPA became a founder and member of The Climate Registry, a nonprofit collaboration that sets standards to calculate, verify and report GHG emissions. BPA has completed and published a GHG inventory for 2009, 2010, 2011, and 2012. The Climate Registry has been third-party verified and is publically available.

In 2012, BPA's system-wide direct emissions from stationary and mobile combustion and fugitive sources totaled 88,524 metric tons of CO<sub>2</sub>e (The Climate Registry 2013). These direct emissions were calculated from the use of vehicles, air transportation, building operation, and

transmission line operation. The GHG emissions reported to The Climate Registry also includes a quantification of the SF<sub>6</sub> emissions from BPA facilities. In addition to reporting SF<sub>6</sub> emissions to The Climate Registry, BPA joined the USEPA's SF<sub>6</sub> Emission Reduction Partnership in 1999, which includes voluntarily reporting of SF<sub>6</sub> emissions.

Models predict that atmospheric concentrations of all GHGs will continue to increase over the next century, but the extent and rate of change is difficult to predict, especially on a global scale.

## 22.2 Environmental Consequences

General impacts that would occur for the action alternatives are discussed below. Impacts would be similar for all action alternatives.

### 22.2.1 Impact Levels

Impacts would be **high** where project activities would cause the following:

- Estimated GHG emissions or sequestration losses exceed 4 million metric tons of CO<sub>2</sub>e, the approximate GHG emissions from a major industrial combustion source (e.g., a 500-MW coal-fired generation facility).

Impacts would be **moderate** where project activities would cause the following:

- Estimated emissions exceed the annual Mandatory Reporting of Greenhouse Gases threshold outlined by the EPA, or 25,000 metric tons of CO<sub>2</sub>e, but are below the level of a baseload (500-MW) coal-fired generating facility. Assuming an average emission factor of 2,100 CO<sub>2</sub>e per megawatt hour (MWh) from coal consumption for electric generation, a 500-MW coal-fired generation facility would emit about 4 million metric tons of CO<sub>2</sub>e annually (EIA 2000). The annual emission or sequestration loss range with a moderate impact would be between 25,000 and 4 million metric tons of CO<sub>2</sub>e.

Impacts would be **low** where project activities would cause the following:

- Estimated GHG emissions do not exceed the annual Mandatory Reporting of Greenhouse Gases threshold of 25,000 metric tons of CO<sub>2</sub>e as outlined by the EPA.

**No** impact would occur where project activities would not create GHG emissions or sequestration losses.

### 22.2.2 Impacts Common to Action Alternatives

Direct GHG emissions from non-generating utility projects, such as this one, are primarily limited to vehicle and equipment emissions, and the impacts to GHG concentrations from these projects are typically low. The ongoing operation of new substation equipment could cause SF<sub>6</sub> emissions if it leaked from the newly installed equipment. Tree removal does not immediately emit GHGs and is not considered a direct emission, though tree removal could cause a permanent loss of a carbon storage reservoir.

GHG emission estimates were calculated for the action alternatives using currently accepted guidance and methodologies developed by the EPA and Climate Registry, and are described

below. Each action alternative would contribute to atmospheric GHG concentrations from the following sources:

- During construction, through the use of gasoline and diesel powered vehicles, including cars, trucks, construction equipment, and helicopters, and through soil-disturbing activities and vegetation removal (i.e., conversion of a forested area to an access road or cleared transmission line right-of-way)
- During operation and maintenance, through the use of gasoline and diesel powered vehicles and helicopters for routine patrols of the transmission line right-of-way, maintenance work (i.e., vegetation management, site-specific repairs of roads and transmission line towers), emergency maintenance, and environmental resource review

In general, GHG emissions are inventoried for CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, and high-**global warming potential** (GWP) gases in terms of CO<sub>2</sub>e, which is computed by multiplying the mass of the gas being measured (e.g., CH<sub>4</sub>) by its estimated GWP (e.g., CO<sub>2</sub>=1, CH<sub>4</sub>=25, N<sub>2</sub>O =298). For the proposed project, estimated emissions were calculated for each GHG based on project activities and converted to CO<sub>2</sub>e, based on the GWP of the GHG emitted. The contributions from each gas were then combined to get the overall estimated CO<sub>2</sub>e emissions. These calculations were done for both project construction and project operation and maintenance.

### 22.2.2.1 Construction

Direct GHG emissions come from construction workers commuting to and from the site, operating construction equipment (e.g., dozers, augers, backhoes, graders, heavy-duty trucks, and front-end loaders), and helicopter operation. To ensure that the potential contributions to GHG concentrations from the project are adequately considered, the conservative analysis was based on the following assumptions:

- Emissions were calculated based on a five-year (60-month) construction period.
- An average of 45 vehicles (e.g., standard pick-up trucks) per day would be needed to transport all construction personnel, with an average round trip distance of 100 miles per vehicle, per day.
- An average of two vehicles (e.g., standard pick-up trucks) per week would be needed to transport BPA staff to the project site, with an average round trip distance of 100 miles per vehicle.
- The fuel economy of a standard pick-up truck was estimated at 17 miles per gallon (mpg).
- An average of two helicopter round trips per day would be made for 20 months, with an estimated fuel economy of 4 mpg and an average round trip distance of 100 miles.
- An average of 40 pieces of 250-horsepower construction equipment would be operating at full power for eight hours per day, five days per week.

Estimation of GHG emissions from non-tree vegetation and soil disturbance was not included in this analysis. Research has shown that these emissions are short-lived and return to background levels within several hours (Kessavalou et al. 1998; Aalde et al. 2006). Carbon that would be stored in removed vegetation would be offset by the growth and accumulation of carbon in soils and new vegetation. Given that the methodology used to estimate vehicle emissions was



overestimated, the low levels of GHG emissions from temporary soil disruption that would occur are considered to be accounted for in the overall construction emission rates.

Table 22-1 displays estimated GHG emissions for those construction activities that contribute to GHG emissions.

### Summary of GHG Contributions

The assumptions described above were used to estimate the overall GHG emissions for the projects proposed construction period (see Table 22-1). While all GHG emissions can be considered important in that they contribute to global GHG concentrations and climate change, the total estimated CO<sub>2</sub>e emissions from the project would be very low compared to emissions from significant industrial combustion sources and other regional sources.

To provide context of the relative contribution level these GHG emissions represent, the EPA's mandatory reporting threshold for annual GHG emissions is 25,000 metric tons of CO<sub>2</sub>e. This threshold is about equal to the amount of CO<sub>2</sub> generated by operating 4,400 passenger vehicles per year. This threshold requires federal reporting of GHG emissions, but does not require any other action (EPA 40 Code of Federal Regulations [CFR] Parts 86, 87, 89 et al.).

Construction would cause an estimated 60,571 metric tons of CO<sub>2</sub>e emissions over a five-year period (see Table 22-1) or 18,586 CO<sub>2</sub>e metric tons per year during the construction period, which would be roughly equivalent to the output of 3,913 passenger vehicles per year.

**Table 22-1 Estimated Greenhouse Gas Emissions from Construction Activities<sup>1</sup>**

Estimated GHG Emissions from Construction of the Action Alternatives	CO <sub>2</sub> Emissions (in CO <sub>2</sub> e Metric Tons)	CH <sub>4</sub> Emissions (in CO <sub>2</sub> e Metric Tons)	N <sub>2</sub> O Emissions (in CO <sub>2</sub> e Metric Tons)	Total CO <sub>2</sub> e <sup>2</sup> Emissions (in Metric Tons)
Peak construction transportation	3,056	2,472	11,506	17,033
BPA employee transportation	2,716	2,197	10,227	15,141
Helicopter operation	181	4	1	185
Peak construction equipment operation	60,110	75	386	60,571
Annualized average emissions over 60-month construction period	13,213	950	4,424	18,586
Notes:				
1. Ozone is not included as O <sub>3</sub> emissions from transmission line corona would be small, temporary, and localized.				
2. CH <sub>4</sub> and N <sub>2</sub> O emissions have been converted into units of CO <sub>2</sub> e using the IPCC GWP factors of 25 GWP for CH <sub>4</sub> and 298 GWP for N <sub>2</sub> O (EPA 2014a).				
Sources: EIA 2009, EPA 2011a				

### 22.2.2.2 Operation and Maintenance

GHG emissions would also occur during operation and maintenance of the line, roads, and substations. To provide a conservative analysis and ensure that the potential contributions to GHG concentrations from the project are adequately considered, analysis was based on the expected annual occurrence of approximately 60 routine patrols, 160 routine maintenance work visits, 40 emergency maintenance visits, eight natural resource reviews, and two aerial

inspections via a helicopter. The helicopter and vehicles would most likely access the transmission line from the Portland or Vancouver metro area. The average round trip would be about 100 miles. While annual variations would likely occur, operation and maintenance activities were conservatively assumed to be generally consistent over a 50-year period, the effective operating life of a transmission line.

During operation of the new substation, the Castle Rock and Sundial substations' equipment could cause GHG emissions by using SF<sub>6</sub> as an electrical insulator in 25 breakers with six bushings each (total of 150 bushings at ultimate buildout). The breakers would have 1,645 pounds of average nameplate capacity (total volume of gas). BPA's overall annual SF<sub>6</sub> leakage rates have ranged from 0.6 to 1.4 percent (1 percent average) during the 2010 and 2013 reporting periods. The overall system-wide leakage rate includes leaks from equipment with a wide range of ages and equipment subject to corrosive environmental conditions such as corrosive salt water fog. As equipment ages and seals deteriorate, leakage rates typically increase. BPA monitors and repairs excessively leaking equipment as they are detected.

For the purposes of this analysis, the SF<sub>6</sub> leakage rate was assumed to be 1 percent of nameplate capacity per year. Many manufacturers guarantee no or minimal leakage rates for new equipment (Blackman et al. 2006) and BPA required a manufactured leakage rate of less than 0.5 percent annually on all new equipment. Therefore, the 1 percent assumed leakage rate is likely a conservative estimate.

### Summary of GHG Contributions

Operation and maintenance of the right-of-way, transmission line, and access roads would cause an estimated 3,578 CO<sub>2</sub>e per year (see Table 22-2), which would be roughly equivalent to the output of 753 passenger vehicles a year for all subsequent years of operations and maintenance.

**Table 22-2 Estimated Greenhouse Gas Emissions from Operation and Maintenance<sup>1</sup>**

Estimated GHG Emissions from the Action Alternatives	CO <sub>2</sub> Emissions	CH <sub>4</sub> Emissions (in CO <sub>2</sub> e Metric Tons)	N <sub>2</sub> O Emissions (in CO <sub>2</sub> e Metric Tons)	SF <sub>6</sub> Emissions (in CO <sub>2</sub> e Metric Tons)	Total CO <sub>2</sub> e <sup>2</sup> Emissions (in Metric Tons)
During Annual Operations and Maintenance	721	222	2,636	--	3,578
During Annual Substation Operation and Maintenance	--	--	--	4,253	4,253
Annualized Average Emissions <sup>3</sup> Over 50 Years	721	222	2,636	4,253	7,831
Notes:					
1. Ozone is not included as O <sub>3</sub> emissions from transmission line corona would be small, temporary, and localized.					
2. CH <sub>4</sub> and N <sub>2</sub> O emissions have been converted into units of CO <sub>2</sub> e using the IPCC GWP factors of 25 GWP for CH <sub>4</sub> and 298 GWP for N <sub>2</sub> O (EPA 2014a).					
3. Annual averages are based on the assumption that the effective operating life of the transmission line is 50 years.					
Sources: EIA 2009, EPA 2011a					

Operation and maintenance of substation equipment would cause an estimated 4,253 CO<sub>2</sub>e per year, which would be roughly equivalent to operating 895 passenger vehicles a year for all subsequent years. Averaging the direct contribution to GHGs over the operating life of the project (50 years) would cause an average annual GHG emissions of about 7,831 metric tons of CO<sub>2</sub>e (1,649 passenger vehicles). Given this relatively low level of annualized emissions, the impact on global GHG concentrations from project operations and maintenance would be **low**.

### 22.2.2.3 Tree Sequestration Reduction

Based on the carbon cycle, trees act as temporary carbon reservoirs. Peak solid carbon storage occurs when a tree is fully mature. Alternatively, minimum solid carbon storage may occur when a forested area is permanently converted to a non-forested area, such as farmlands.

Project construction would remove trees for right-of-way and new towers, substations, and new and improved access roads, permanently converting land within the cleared area to a non-forested land use. Essentially, the cleared area is permanently maintained at the minimum level of carbon storage.

All action alternatives would have the potential to lose sequestration potential. Central Alternative using Central Option 1 would lose the most (813,464 metric tons CO<sub>2</sub>e) and West Alternative using West Option 1 would lose the least (226,803 metric tons CO<sub>2</sub>e) (see Table 22-3). These estimates assume that removed trees are at full maturity and would remain in that state to provide full sequestration potential. This estimate is conservative as most of the removed trees are not at full maturity (e.g. at full sequestration potential) and many trees would not have reached maximum maturity through natural attrition or other human-related disturbances. Most of the action alternatives cross lands managed for timber harvest so most of the trees are not at maximum maturity and never will be. Because sequestration losses for each action alternative are between the 25,000 CO<sub>2</sub>e and 4 million CO<sub>2</sub>e threshold, impacts on GHG concentrations from tree removal would be **moderate**.

**Table 22-3 Estimated Greenhouse Gas Storage Potential of Removed Trees**

Tree Clearing Activity	Mature Forest <sup>1</sup>		Forest <sup>2</sup>		Production Forest <sup>3</sup>		Total CO <sub>2e</sub> Storage Loss (metric tons) <sup>4,5</sup>
	Acres	Total CO <sub>2e</sub> Storage Loss (metric tons) <sup>4</sup>	Acres	Total CO <sub>2e</sub> Storage Loss (metric tons) <sup>4</sup>	Acres	Total CO <sub>2e</sub> Storage Loss (metric tons) <sup>4</sup>	
<b>West Alternative</b>	23	23,698	285	213,598	0	0	237,296
West Option 1	N/C	N/C	-14	-10,493	N/C	N/C	-10,493
West Option 2	+5	+5,151	-10	-7,495	+9	5,970	+3,626
West Option 3	+3	+3,091	+27	+20,236	+21	13,929	+37,256
<b>Central Alternative</b>	12	12,364	228	170,878	910	603,603	786,845
Central Option 1	N/C	N/C	+1	+750	+39	+25,869	+26,619
Central Option 2	+5	+5,152	+35	+26,232	-76	-50,411	-19,027
Central Option 3	+3	+3,091	+53	+39,722	-175	-116,077	-73,264
<b>East Alternative</b>	10	10,303	163	122,163	961	637,431	769,898
East Option 1	+5	+5,512	+13	+9,743	-56	-37,144	-22,250
East Option 2	-6	-6,182	+21	+15,739	N/C	N/C	+9,557
East Option 3	N/C	N/C	-6	-4,497	+22	+14,593	+10,096
<b>Crossover Alternative</b>	37	38,122	239	179,123	588	390,020	607,265
Crossover Option 1	-1	-1,030	+16	+11,991	N/C	N/C	+10,961
Crossover Option 2	+1	+1,031	+2	+1,498	N/C	N/C	+2,530
Crossover Option 3	+1	+1,031	+28	+20,985	+16	+10,613	+32,628

Notes:

1. Mature forest calculation based on regional estimate of timber volume and carbon stocks for Douglas fir stands at full maturity forest (125 years) in Pacific Northwest, West – 281 tons of carbon stock per acre.
2. Forest calculation based on regional estimate of timber volume and carbon stocks for Douglas fir stands 75 years in age in Pacific Northwest, West – 204.4 tons of carbon stock per acre.
3. Production forest calculation based on regional estimate of timber volume and carbon stocks for Douglas fir stands in high productivity sites with high-intensity management, estimated 55 year rotation cycle in Pacific Northwest, West – 180.9 tons of carbon stock per acre.
4. All calculations assume that 100 percent of the carbon stored would be converted to CO<sub>2</sub>.
5. The sum of individual entries may not match totals depicted due to rounding.

## 22.2.3 Recommended Mitigation Measures

Mitigation measures included as part of the project are identified in Table 3-2. Mitigation measures related to air emissions in Table 3-2, and such measures in Chapter 21, Air Quality, would help reduce contributions of the action alternatives to greenhouse gases. BPA is considering the following additional mitigation measures to further reduce contributions of the action alternatives to greenhouse gases. If implemented, these measures would be completed during or immediately after project construction unless otherwise noted.

- Install any new SF<sub>6</sub>-filled substation breakers with a manufacturer-guaranteed leakage rate no greater than 0.5 percent per year for the life of the breaker.

- Continue BPA's SF<sub>6</sub> monitoring process to calculate and report, in compliance with EPA requirements, the quantity of SF<sub>6</sub> leaked from BPA substation equipment annually.

### **22.2.4 Unavoidable Impacts**

Unavoidable impacts would include slight increases in GHG emissions.

### **22.2.5 No Action Alternative**

The No Action Alternative would have **no** GHG impacts because no new transmission lines, towers, access roads, or substations would be constructed. Impacts from operation and maintenance of existing lines and substations would continue unchanged.

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# Chapter 23 Intentional Destructive Acts

Intentional destructive acts, that is, acts of sabotage, terrorism, vandalism, and theft, sometimes occur at power facilities, including transmission lines and substations. Vandalism and thefts are most common, especially theft of metal and other materials that can be sold. BPA has seen a significant increase in metal theft from its facilities when the price of metal is high on the salvage market. Since 2003, over 900 thefts have been reported with about \$2.9 million in material losses. BPA estimates that the average monetary damage for each crime is \$150,000, but the actual amount is likely much higher since this number does not factor in all the labor-related costs associated with repairing the damage.

Words in **bold** and acronyms are defined in Chapter 32, Glossary and Acronyms.

The impacts to the transmission system from vandalism and theft, though expensive, have not generally caused service disruptions to BPA's service area. Stealing equipment from electrical substations, however, can be extremely dangerous. Nationwide, many thieves have been electrocuted while attempting to steal equipment from energized facilities. Some examples: the July 2011 electrocution death of a man attempting to steal copper from a Duke Energy substation in South Carolina; the August 2011 electrocution death of a man attempting to steal copper from an Entergy substation in Louisiana; the August 2011 severe burning of a woman attempting to steal copper from a Puget Sound Energy substation in Washington; the October 2011 electrocution death of a man attempting to steal copper from a Duke Energy substation in North Carolina; and the December 2011 electrocution death of a man attempting to steal copper from a Memphis Light Gas & Water substation in Tennessee.

Federal and other utilities use physical deterrents such as fencing, cameras, warning signs, rewards, etc., to help deter theft, vandalism, and unauthorized access to facilities. BPA also is in the process of replacing much of its solid copper wire with copper-coated steel wire, posting signage that indicates a trade has been made, and installing surveillance cameras to deter future break-ins. Transmission towers and overhead transmission conductors, however, are mostly on unfenced utility rights-of-way. Although towers are constructed on footings in the ground and are difficult to dislodge, they remain vulnerable to potential vandalism. In an effort to help prevent intentional destructive acts, BPA established a Crime Witness Program that offers up to \$25,000 for information that leads to the arrest and conviction of individuals committing crimes against BPA facilities. Anyone having such information can call BPA's Crime Witness Hotline at 1-800-437-2744. The hotline is confidential, and rewards are issued in such a way that the caller remains anonymous.

Acts of sabotage or terrorism on electrical facilities in the Pacific Northwest are rare, though some have occurred. In the past, these acts generally focused on attempts to destroy large steel transmission line towers. For example, in 1999, a large transmission line steel tower in Bend, Oregon, was toppled. In June 2011, at BPA's Alvey Substation near Eugene, Oregon, almost \$1 million in damages was incurred when unknown individuals were able to breach a security fence and damage equipment in the substation yard during an attempt to disrupt transmission service. In 2014, there were four incidents of insulators damaged by firearms on a high-voltage power line near Joint Base Lewis-McChord in Tacoma, Washington.

Depending on the size and voltage of the line, destroying towers or other equipment could cause electrical service to be disrupted to utility customers and other end-users. The effects of these acts would be as varied as those from the occasional sudden storm, accident or blackout, and would depend on the particular configuration of the transmission system in the area. For example, when a storm affects transmission lines, residential customers can lose power for heating, cooking, refrigeration, lighting, etc. and can experience impacts related to those functions unless they have backup generators. Similarly, commercial, industrial and municipal customers can experience impacts when infrastructure such as machinery, traffic signals, light rail, or elevators stops functioning.

In some situations intentional destructive acts would have no noticeable effect on electrical service as power can be rerouted around an area because of redundancies built into the transmission system. In other situations, service could be disrupted in the local area, or, if an intentional destructive act caused damage to a major piece of transmission system equipment or a large part of the transmission system, a much greater area could be left without power.

During scoping and in response to the Draft EIS, BPA received comments about the increased risk of terrorism to the transmission system and to nearby landowners if a new line is built next to an existing line or lines. BPA also received comments about the increased risk to landowners if a new line is built on new right-of-way in areas where no lines exist now.

It is difficult to predict the likelihood of, and increased risk for, terrorist or sabotage acts from building the project near, next to, or far from existing transmission system facilities. New transmission towers, overhead conductor, and new substation facilities would increase the risk incrementally on BPA's 15,000 circuit-mile transmission system. Placing a new line next to an existing line may increase the risk more than building the line far from existing facilities. However, given the extensive security measures that BPA, public and private utilities, energy resource developers, and federal agencies such as the U.S. Department of Homeland Security have and are continuing to implement to help prevent such acts and protect their facilities, along with the inherent difficulty in significantly affecting such large and well-constructed facilities as transmission towers and substation sites, it is considered extremely remote and unlikely that a significant terrorist or sabotage act would occur. Accordingly, the incremental increase in risk to landowners from the presence of the proposed project would be minimal. If such acts did occur, the problem area would be isolated quickly and electricity rerouted as much as possible to keep the system functioning. In addition, it is expected that federal, state, and local agencies would respond quickly if any such act posing any human or natural resource risks occurs.



# Chapter 24 Short-Term Uses versus Long-Term Productivity

NEPA requires that an EIS include a discussion of the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity (42 USC 4332(C)(iv) (see also 40 CFR 1502.16). This chapter discusses whether construction and operation of the proposed project could cause short-term uses of the environment that would affect, either positively or negatively, the long-term productivity of the environment. For the purposes of this chapter, "short term" generally refers to the more immediate period of time during which the proposed project would be constructed, whereas "long term" refers to an indefinite period beyond this timeframe.

Words in **bold** and acronyms are defined in Chapter 32, Glossary and Acronyms.

Short-term uses of the environment associated with the action alternatives are generally the same as the environmental impacts described for each environmental resource in Chapters 5 through 22 of this EIS. These impacts include both temporary and permanent "use" of the physical environment as a result of developing the proposed project and energy and resource use during project construction and maintenance. In considering the affect of these uses on long-term productivity, four main types of long-term productivity are considered: soil productivity, hydrological productivity, biological productivity, and economic productivity.

## 24.1 Soil Productivity

While maintenance of long-term soil productivity is mainly a concern in areas that are in agricultural use, this concern also can arise anywhere that soils provide an economic or ecological benefit. Construction of the project would affect soil productivity through land clearing, grading, and occupation by project facilities. At tower and substation sites and along access roads, project construction would have a long-term negative effect on soil productivity since these soils would be taken out of use for the life of the project or longer if facilities are abandoned and not restored. In areas between tower and substation sites and outside of access roads, the proposed project would not be expected to affect long-term soil productivity since these areas would be restored, either actively or naturally, to general pre-project conditions, and the soils in these areas could be put to other uses in the long term.

## 24.2 Hydrological Productivity

Wetlands, groundwater resources, and floodplains contribute to long-term hydrological productivity by providing filtration, habitat for sensitive species, and essential recharge for agricultural and municipal use. Construction of the project would affect wetlands through land clearing, grading, and occupation by project facilities. At tower and substation sites and along access roads, project construction would have a long-term effect on wetlands unless recovery efforts were made to offset disturbance. Impacts to wetlands would vary depending on which alternative is selected. In areas between towers, wetlands would be permanently converted from forested to non-forested wetlands; altering these wetlands could affect their long-term productivity.

Water bodies and floodplains would lose some productivity in the short term from increased sedimentation from erosion during construction, and increased amounts of pollutants that could enter construction sites from construction equipment and soil-disturbing activities. Culverts placed in streams and drainages for new or improved access roads would cause short-term productivity losses for aquatic species. Where construction requires removing tall-growing riparian vegetation along stream banks, water temperatures could increase, and short- and long-term aquatic species productivity could be affected if the vegetation is not replaced.

Substation and access road sites could contribute to long-term effects to groundwater quality by increasing the potential for pollutant discharge into groundwater.

In areas between tower and substation sites and outside of access roads, the project would not affect long-term floodplain or groundwater productivity since those areas would be restored, either by BPA or through natural recovery, to similar pre-project conditions.

## 24.3 Biological Productivity

Plant communities, fish, and wildlife contribute to biological productivity; their long-term productivity provides an ecological and recreational benefit in sensitive or remote areas. Project construction would affect biological resources through land clearing, grading, and occupation by project components.

During construction, all tall-growing trees and shrubs within the 150-foot-wide right-of-way and substation sites would be permanently removed. In some cases where forest dominates the landscape, danger trees would be removed outside of the 150-foot right-of-way and around substation sites. After construction, natural recovery and vegetation restoration would take place in some areas but in others, vegetation and habitat would be permanently altered. Where danger trees are removed, trees would be allowed to grow back and could recover in the long term (unless removed again at a much later time). However, trees and shrubs within the right-of-way would not be permitted to grow beyond allowable limits during the life of the project. Long-term productivity could be restored if the area is later reclaimed.

Fish habitat would be degraded as construction activities increase erosion and sedimentation, and riparian vegetation is removed. The loss or alteration of stream and riparian habitats from installing culverts at access road crossings could impede water movement, and alter stream and wetland hydrology, although culvert replacements using better designs could improve movement. Impacts to hydrology could result in long-term productivity impacts to fish resources, unless the area is restored.

Transmission line construction would also impact wildlife. Substantial habitat could be permanently lost, altered, and fragmented. The noise and increased human activity related to construction could decrease some wildlife species' breeding success, and in some cases cause direct mortality. At the same time, habitat alteration can encourage the increase of species that can best adapt to the altered habitats, potentially increasing species diversity. Over the long term, species that are highly adaptable or who avoid areas during short-term construction activities could return once construction is complete.

## 24.4 Economic Productivity

Timber production, agriculture, urban and suburban development, and industrial uses can contribute to economic productivity. Transmission line construction and operation could affect the economic productivity of some resources by limiting their long-term revenue potential, but could contribute to long-term revenue potential in sectors that benefit from a reliable transmission system.

Project construction would affect economic productivity through land clearing, grading, and occupation by project components. At tower and substation sites and along access roads, project construction would have a long-term negative effect on land used for agriculture or timber production since those areas would be taken out of use for the life of the project. In areas between tower and substation sites and outside of access roads, the project would not be expected to affect long-term economic productivity for agricultural activities such as grazing or unsupported crops less than four feet at maturity, since these areas would be restored, either actively by BPA or naturally, to pre-project conditions. Crops that exceed height restrictions in the right-of-way could be permanently excluded from production, but could be put to other agricultural uses in the long term. Timber production land would have long-term productivity losses both in the right-of-way and outside of the right-of-way (danger trees), and in areas where transmission line placement limits accessibility (stranded use).

Project components could remove existing urban and suburban uses, such as homes, commercial structures, and industrial facilities. Some areas could be excluded from future types of urban development. These losses could contribute to long-term loss in economic productivity through the loss of jobs and revenue if alternative locations are not available for redevelopment or relocation. In areas between tower and substation sites and outside of access roads, some activities within urban and suburban land use could return to previous uses (recreation), provided those activities do not interfere with the safe operation of the transmission facilities.

The project could create a long-term increase to economic productivity by providing a more reliable transmission system. Increased reliability could create a long-term economic benefit to existing businesses that rely on transmission service for production output. Transmission system reliability could also attract new industrial and commercial business to the area, which would provide a long-term increase in economic productivity through increased revenue and jobs.

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# Chapter 25 Irreversible or Irretrievable Commitment of Resources

NEPA requires that an EIS include a discussion of any irreversible and irretrievable commitments of resources that would be involved in the Proposed Action should it be implemented (42 USC 4332(C)(v) (see also 40 CFR 1502.16). An irreversible commitment of resources occurs when a nonrenewable resource such as minerals or petroleum-based fuels is used for the construction or operation of the project. Because these nonrenewable resources are “used up,” or consumed, this use cannot be reversed except possibly over an extremely long period of time (e.g., hundreds of thousands or millions of years), and thus are considered irreversible. An irretrievable commitment of resources, on the other hand, involves the loss of productive use or value of renewable resources such as timber or rangeland for a period of time.

Words in **bold** and acronyms are defined in Chapter 32, Glossary and Acronyms.

Implementation of any of the action alternatives would consume natural and man-made resources for transmission line, substation, and access road construction, operation and maintenance. The following sections describe potential commitments of resources by general resource area. This chapter does not address the No Action Alternative because there would be no project-related irreversible and irretrievable commitments of resources under that alternative.

## 25.1 Project Materials

Materials such as aluminum, steel, other metals, wood, gravel, sand, plastics, and various forms of petroleum products would be consumed during the construction and maintenance of the transmission line, substations, and access roads. Most of these materials are not renewable and could be irreversibly committed if not recycled (metals and glass) or reused (sand and gravel) during maintenance or at the end of the life of the project.

## 25.2 Geology and Soils

Project construction would cause irreversible alterations to topography, particularly during construction of new access roads and at the Castle Rock area substation sites. Vegetation clearing, access road construction, and tower placement would increase soil erosion potential throughout the project area. Long-term impact of soil erosion would be preventable once erodible soils were revegetated and stabilized following construction, however, an irretrievable loss of soil stability and increased soil compaction and landslide potential would occur between construction and revegetation.

## 25.3 Biological Resources

The project would cause an irretrievable removal of natural habitat from access road, tower, and substation sites. Vegetation (including wetlands) removal and conversion along the right-of-way would represent an irreversible commitment of biological resources if areas were not restored after construction or if transmission facilities were retired but not removed. Likewise, if former

low-growing vegetation cover and composition did not recover after construction, an irreversible commitment of resources would occur. Alteration of stream channels and riparian habitat during construction and improvement of access roads, and construction and operation of the transmission line and substations would represent an irreversible commitment of fish habitat and riparian function if areas were not restored after construction or if transmission facilities were retired and removed. Resulting wildlife losses (species and habitat) from these permanent alterations and during construction and operation of the project would represent an irretrievable commitment of biological resources.

## **25.4 Cultural Resources**

Any loss of cultural resources (archaeological sites, historic trails, structures, cultural landscapes, and traditional cultural properties) would be irreversible, because they are nonrenewable resources. Prior to construction, archaeological sites would be delineated and avoided either by siting towers and roads to avoid sensitive areas, through excavation of sensitive resources before construction, or by using other avoidance measures identified when resource areas are known. Visual elements that alter the character or setting of cultural resource sites could cause an irretrievable reduction in site integrity. The commitment would be irreversible if facilities were retired but not removed.

If existing substations, transmission lines and towers that are eligible for listing on the NRHP are altered or replaced as part of the project, it could cause an irreversible and irretrievable commitment of those resources based on the historic nature of some of BPA's transmission infrastructure.

## **25.5 Land Clearing and Use**

The project would commit land for right-of-way clearing, substations, transmission towers, access roads, and construction staging areas. Construction areas that would not be occupied by project facilities could be used for other uses after construction is complete except where portions of the project could create stranded use. Use of these areas for construction would not be an irreversible commitment of resources, but the temporary loss of productive use of these lands for other purposes during construction would be irretrievable. Land used for transmission facilities also would represent an irretrievable property commitment during transmission facilities' operation and maintenance. The commitment would become irreversible if any facilities were retired but not removed, or if after removal some areas of the natural landscape could not be restored to their prior use.

## **25.6 Greenhouse Gases**

The project would cause an irretrievable commitment of resources (primarily tall-growing trees and shrubs) available to sequester greenhouse gas emissions that help to minimize the effects of climate change. Should any transmission facilities be retired and removed at a later date, those areas that previously supported carbon sequestering vegetation could be restored. Fuel combustion by construction equipment and the carbon that would not be sequestered from vegetation removal along the right-of-way and access roads would represent an irreversible contribution of greenhouse gas emissions into the atmosphere.

# Chapter 26 Cumulative Impacts

The Council on Environmental Quality (CEQ) regulations for implementing the National Environmental Policy Act require the assessment of cumulative impacts in the decision-making process for proposed federal projects. Cumulative impacts are defined as the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions (40 CFR 1508.7). As stated in the CEQ handbook, "Considering Cumulative Effects under the National Environmental Policy Act" (CEQ 1997), cumulative impacts should be analyzed in terms of the specific resource, ecosystem, and human community being affected and should focus on effects that are truly meaningful.

Words in **bold** and acronyms are defined in Chapter 32, Glossary and Acronyms.

This chapter provides an analysis of potential cumulative impacts related to the Proposed Action, the I-5 project. The analysis was accomplished using the following four steps:

## Step 1 - Identify Potentially Affected Resources

Resources were identified that potentially could be cumulatively affected by the I-5 project when combined with other actions (see Section 26.1, Affected Resources and Resource Boundaries).

## Step 2 - Establish Boundaries

Spatial (i.e., location) and temporal (i.e., time) boundaries were established for the consideration of other potentially cumulative actions (see Section 26.1, Affected Resources and Resource Boundaries).

## Step 3 - Identify Potentially Cumulative Actions

Other past, present, and reasonably foreseeable future actions were identified that have contributed, or could contribute, to cumulative impacts on the resources identified in Step 1 (see Section 26.2, Cumulative Actions). These actions fall within the spatial and temporal boundaries established in Step 2.

## Step 4 - Analyze Cumulative Impacts

For each resource, the actions identified in Step 3 were analyzed in combination with the impacts of the I-5 project. This analysis describes the overall cumulative impact related to each resource and the I-5 project's contribution to this cumulative impact (see Section 26.3, Cumulative Impacts Analysis).

## 26.1 Affected Resources and Resource Boundaries

To identify resources that could be cumulatively affected by the I-5 project and other actions (Step 1), BPA considered a large geographic area within the general vicinity of the project area and the likelihood that various other actions, with a wide range of potential effects on many

resources, have taken or could take place within this area. Accordingly, BPA determined that all of the same resources described in the affected resource chapters in this EIS (see Chapters 5 through 22) should be considered in the cumulative analysis.

BPA then established reasonable boundaries for the consideration of other past, present, and reasonably foreseeable future actions (Step 2). These boundaries are in terms of where the other actions are located (e.g., spatial boundaries), and when in time these actions took place or will take place (e.g., temporal boundaries). Accordingly, for each resource, the spatial boundary is the area where other past, present, and reasonably future actions have, are, or could take place and create cumulative impacts on the affected resource when combined with the impacts of the I-5 project. Appropriate spatial boundaries can vary for each resource; the boundaries identified for this analysis are described by resource (see Section 26.3, Cumulative Impacts Analysis).

The temporal boundary describes how far into the past, and forward into the future, other actions should be considered in the cumulative impact analysis. For the purposes of this analysis, past and present actions that have shaped the landscape since about the first European settlement in the general vicinity (i.e., since about the early to mid 1800s) are considered, to the extent that they have had lasting effects contributing to cumulative impacts. The reasonably foreseeable nature of potential future actions helps define the forward-look temporal boundary. While BPA acknowledges that the proposed project could exist for 50 or more years and could contribute to cumulative impacts during that timeframe, it would be speculative to consider actions beyond what is reasonably foreseeable (see Section 26.2.2, Reasonably Foreseeable Future Actions). Given this limitation, the forward-looking temporal boundary has been established generally at about 10 years following the expected completion of construction of the proposed project, which is a reasonable timeframe by which the reasonably foreseeable future actions identified in Section 26.2.2 likely would be implemented.

## **26.2 Cumulative Actions**

After establishing appropriate spatial and temporal boundaries, BPA identified other past, present, and reasonably foreseeable future actions potentially contributing to cumulative effects along with the I-5 project (Step 3). To identify these other actions, BPA used information gathered in the course of developing the analysis of direct impacts related to the I-5 project, reviewed web posted project lists, and consulted various federal, tribal, state, local jurisdictions, and project sponsors. The following discussion provides more information on how potentially cumulative past, present, and reasonably foreseeable future actions were identified; and describes the cumulative actions that have been identified for the cumulative analysis in this EIS.

### **26.2.1 Past and Present Actions**

Past actions relevant to the cumulative analysis in this EIS are those that have previously taken place and are largely complete, but that have lasting effects on one or more resources that also would be affected by the I-5 project. For these past actions, CEQ has issued a guidance memo entitled "Guidance on Consideration of Past Actions in Cumulative Effects Analysis." This guidance states that consideration of past actions is only necessary in so far as it informs agency decision-making. Typically the only types of past actions considered are those that continue to have present effects on the affected resources. In addition, the guidance states that "[a]gencies



are not required to list or analyze the effects of individual past actions unless such information is necessary to describe the cumulative effect of all past actions." Accordingly, agencies are allowed to aggregate the effects of past actions without "delving into the historical details of individual past actions." In this EIS, impacts from past actions are largely captured in the sections of each resource chapter that discuss the affected environment (see Chapters 5 through 22).

Present actions are those that are currently occurring and also result in impacts to the same resources as would be affected by the I-5 project. Present actions generally include on-going land management and use activities (such as farming), and ongoing or recently completed residential, commercial, and industrial development. Similar to past actions, relevant present actions have largely been captured in Chapters 5 through 22 of this EIS.

The following summarizes some of the more significant past and present actions in the general vicinity of the proposed project that have created cumulative impacts relevant to this analysis:

**Agricultural use**—Beginning with European settlement in the early to mid 1800s, thousands of acres of land were converted from native prairie and floodplain to agriculture and pasture. These uses tend to be located in the flatter, lower elevation areas near the cities of Camas, Vancouver, and the Columbia River crossing. The conversion of undeveloped land to cropland largely stopped in the mid 1900s as most available and agriculturally suitable lands had already been converted. In recent years, as suburban development has expanded, agricultural land has been subdivided for residential development, reducing the amount of agricultural use.

**Timber clearing**—European settlers also cleared native forest from thousands of acres for agricultural and other uses. Much of the tree clearing for agriculture took place on the flatter, lower elevation areas suitable for agriculture. In addition, as communities throughout the Lower Columbia River region were being developed in the late 1800s and early 1900s, nearby foothills and other wooded areas often were partially or fully cleared so trees could be used for houses, barns, fences, and other structures in and near these communities. Some cleared areas were allowed over time to revegetate and have become forested once again, while other areas were subsequently developed for other uses and remain occupied by these uses.

**Timber harvest**—Over the years, large areas of native forest have been converted into timber stands managed for timber harvests. Timber harvest in the Lower Columbia River region began in the 1860s (NMFS and USFWS 2006); however, at that time, the general practice was to clear cut an area rather than actively manage it for ongoing production, as is more the standard practice today. Today, most lands managed for timber harvest in the general vicinity are in Cowlitz County. Additional timber lands are in the eastern part of Clark County. The large tracts of forest under timber harvest management in these counties exist in various age classes across the landscape as harvests are rotated. Most recent timber harvests have been on private timber company lands and state lands managed by WDNR. Federal lands, such as on the Gifford Pinchot National Forest, have supported timber harvest as well. Cowlitz and Clark counties support thousands of acres of timber harvest per year.

**Development of the Portland/Vancouver metro area**—European settlement of the Portland-Vancouver metro area began in the early 1820s with the establishment of Fort Vancouver. Fort Vancouver served as the center of fur trading for the Pacific Northwest for many years. The U.S. military established the Columbia Barracks in 1849. Later called Vancouver Barracks, they served as a military epicenter for the Pacific Northwest until it was

abandoned in the mid-nineteenth century. The City of Vancouver incorporated in 1857 and steadily grew. Vancouver industry was critical to the success of World Wars I and II. During World War I, lumber milled in Vancouver was used to build planes and during World War II, the Kaiser Shipyard produced many ships integral to the war effort. Aluminum smelters across the region, including the Reynolds plant (originally built in 1941 by the federal government and now removed) in the Portland area, produced aluminum also used in the war effort.

The development of Portland began in 1843 as roads were built, forest cleared, and buildings constructed. Portland incorporated in 1851 and development increased rapidly after the Civil War as the shipping industry grew. Portland's shipping industry focused on exporting lumber, fish, and agricultural products to other West Coast cities and the world. By the late 1890s, Portland was the largest city in the Pacific Northwest and currently, is second only to Seattle, Washington for population. Today, the Portland/Vancouver metro area is the 23rd largest metropolitan area in the U.S. and the largest in the general project vicinity. This metro area has a diverse mix of commercial, industrial, and residential uses, in addition to large open spaces and public uses. Overall development activity in the Portland/Vancouver metro area tends to come in waves, depending on many various factors such as economic activity, sector growth, and general population changes. For example, development in this metro area slowed during the national economic downturn of the late 2000s, but has increased in recent years as the nation's – and the region's – economy has recovered. The Portland/Vancouver metro area currently covers over 191 square miles and will likely expand as adjacent communities develop.

**Development of the Longview/Kelso metro area**—The Longview/Kelso metro area is the second largest populated area in the general project vicinity. European settlement of the Longview/Kelso area began in the late 1840s with establishments of the town of Kelso to the east of the Cowlitz River and the Monticello settlement to the west of the Cowlitz River. While development of Kelso steadily occurred over the years (including incorporation of the City of Kelso in the 1890s), the area around the Monticello settlement consisted largely of sparsely populated wilderness and rural homesteads until the Long-Bell Lumber Company decided in the 1910s to build two lumber mills in the area. Realizing the need for workers for these mills, the Company acquired lands and began development of a planned city to support the mills. Soon afterwards in 1924, the City of Longview was incorporated. Today, the Longview/Kelso area has a highly developed mix of commercial, industrial, and residential uses, and various public uses and open space areas. Combined, the two cities cover about 35 square miles, but various rural residential, commercial, and other uses have been developed in surrounding areas as well.

**Development of other towns and communities**—There are also several smaller towns and communities located in Clark, Cowlitz and Multnomah counties. Clark County has a population of about 350,000 and has several cities and towns, including Battleground, Camas, La Center, Ridgefield, Washougal and Yacolt as well as Vancouver (described above). Clark County's development transitioned from mainly agriculture, lumber and fishing to shipbuilding and aluminum during the World Wars. Today, Clark County's development is a mix of commercial and industrial uses.

Cowlitz County is less populated than Clark County with a population of about 94,000 and has several cities including Castle Rock, Kalama and Woodland, and Longview and Kelso (described above). Cowlitz County's early development focused on timber production and was strongly influenced by the many waterways within and around the county, such as the Columbia, Lewis, Kalama, Coweeman, Toutle and Cowlitz rivers. Today, Cowlitz County still provides lumber for

domestic and international use. Tourism in Cowlitz County also expanded with the eruption of Mount St. Helens in 1980.

Multnomah County is Oregon's most populous county and includes the cities of Fairview, Gresham, Maywood Park, Troutdale, Wood Village and Portland (described above). Similar to Clark County, Multnomah County's early development focused on lumber and fishing. Today, development focuses on manufacturing, transportation, and tourism. Shipping is also a major industry and the Port of Portland exports more wheat than any other U.S. port.

**Rural residential development**—Rural residential development is scattered throughout many portions of the general vicinity. Clark County has several census-designated places. Census-designated places are “closely settled, named, unincorporated communities that generally contain a mixture of residential, commercial, and retail areas similar to those found in incorporated places of similar sizes” (U.S. Census 2012). Census-designated places include Amboy, Brush Prairie, Felida, Hazel Dell, Hockinson Mill Plain, Minnehaha Orchards, and Salmon Creek. These areas tend to have similar characteristics to cities and towns (commercial and residential areas), but lack a municipal government. Other rural areas in Clark County include Chelatchie, Heisson and Sifton.

Cowlitz County also has a few census designated places: Longview Heights, West Longview and West Side Highway. It also has several unincorporated areas, such as Ariel, Carrolls, Lexington, Silver Lake, Toutle and Yale. These areas are marked by a mix of residential and some commercial development.

Multnomah County does not have any census-designated places, but has several unincorporated communities including Bonneville, Corbett, Dunthorpe, Riverwood, Springdale and Warrendale. The development in these communities is mainly residential with some light commercial uses.

**Highway and rail development**—Many interstate and state highways run through the general vicinity including the following: I-5, a major transportation route that extends from the U.S.-Mexico border to the U.S.-Canada border; I-205 in Multnomah and Clark counties; SR 14, 500, 501, 502 and 503, (in Clark County); SR 503, SR 4, 411, 432, and 504 (in Cowlitz County); and I-84 (Multnomah County). In Multnomah County, state highways 26 and 30 run south of the project area. These highways bisect native prairie, forest, riparian areas, and agricultural lands, and in many cases, have facilitated greater urban and industrial development.

Clark and Multnomah counties' railway development expanded with the completion of a railroad bridge connecting Portland and Vancouver in 1908. That same year, the Spokane, Portland and Seattle Railway (SPS) was completed, which brought increased population and development to the Portland/Vancouver metro area. The SPS Railway later became part of the Burlington Northern Santa Fe (BNSF) Railway, which still operates today. Like BNSF, Union Pacific also operates and serves several of the ports including the Port of Portland and Port of Kalama (discussed below). Amtrak also operates the *Coast Starlight*, which stops in Portland, Vancouver, and Kelso-Longview. In addition to these railroads, the Chelatchie Prairie Railroad is the only short line operating in Clark County. Similar to Clark and Multnomah counties, railroad development shaped the settlement of Cowlitz County. The Northern Pacific Railroad created Kalama when it chose its present location as the starting point for its line to Tacoma, Washington. Timber companies, such as Weyerhaeuser, also historically operated railroads in

Cowlitz County to transport their products to domestic and world markets. Similar to highways, railroads bisect native prairie, forest, riparian areas, and agricultural lands.

**Ports and Airports**—Urban and commodity development in the lower Columbia River region, as well as throughout the Columbia River basin, has also led to the development of many shipping ports and airports in this area. Shipping ports have been developed along the Columbia River primarily to handle the export of goods such as timber or grains grown or produced in the region, as well as the import of goods from other countries to destinations in the project vicinity, the Pacific Northwest, and throughout the U.S. (see Table 26-1). At some of these ports, proposals to use the port to export propane or crude oil are also under consideration. These ports typically are located next to railroad lines and highways to facilitate the transport of goods, and often include other facilities such as industrial parks and marinas.

**Table 26-1 Existing Port Facilities in the Project Vicinity (River Mile)**

Name of Port	Location	Primary Uses	Key Features
Longview	Columbia River Mile 66	Marine Terminals, Industrial Park, Boat Launches	Eight deep draft vessel marine terminal berths; 3,752 feet of docks; ship loader and conveyor systems; harbor cranes; 743-acre industrial park; 500,000 square feet of warehouse space; 3 Port-funded boat launches
Kalama	Columbia River Mile 75	Marine Terminals, Industrial Park, Marina	Six deep draft vessel marine terminal berths; 3,537 feet of docks, 75-acre industrial park; 222 marina moorage slips
Woodland	Columbia River Mile 85	Industrial Parks	110 acres of industrial park
Ridgefield	Columbia River Mile 92	Boat launches, Industrial Park, Research Park	Two boat/kayak launches; 75-acre industrial park; 30-acre research park
Vancouver	Columbia River Mile 104	Marine Terminals, Industrial Park	Thirteen deep draft vessel marine terminal berths; 370+ acres of marine terminals; ship loader and conveyor systems; harbor cranes; 724,000 square feet of dockside warehousing; 250 acres of dockside open storage; 800 acres of industrial park
Portland	Columbia River Mile 104; Willamette River Mile 0.0 to 6.5	Marine Terminals, Industrial Parks	Four marine terminals; 1,035 acres of marine terminals; ship loader and conveyor systems; harbor cranes; 4,380 acres of industrial parks
Camas-Washougal	Columbia River Mile 121.7	Marina, Industrial Park	350+ marina moorage slips; marina fueling and guest docks; 430-acre industrial park

Airports also have been developed to help ship goods and transport people. These airports have been developed with typical airport infrastructure, such as terminals, runways, hangars, parking

structures/lots, and roadways. Portland International Airport, which occupies about 3,000 acres near the I-205 crossing of the Columbia River, is the largest airport in the area. This airport opened in 1940 and serves both civil and military aircraft. There are also several general aviation airfields (e.g., Pearson Field and Grove Field) along with a number of private airfields (e.g., Green Mountain Airport and Goheen Airport near Battleground) that have been developed. These airfields range from a few acres to several hundred acres.

**Transmission lines**—BPA and other utilities have built numerous transmission and distribution lines, substations, and other ancillary facilities (see Section 2.2.1, Transmission Line Route Segments).

**Power generation development**—Power generation facilities include hydroelectric dams, and natural gas, coal, and biomass plants. The hydroelectric generation facilities located along the Lewis River, which follows the Clark and Cowlitz county line, were developed in the 1930s and 1950s. These facilities created three main water impoundments—Lake Merwin, Yale Lake, and Swift Reservoir, which inundated lands, forested areas, and habitats along the Lewis River. Most natural gas-fired facilities in the region have been developed in the last two decades as gas supply pipelines have been extended through the area, although some were developed in the 1970s. Examples include PGE’s 516-MW Beaver and 410-MW Port Westward facilities near Clatskanie, Oregon; Clark Public Utilities’ 248-MW River Road facility near Vancouver; and Puget Sound Energy’s 319-MW Mint Farm facility in Longview. These gas facilities have generally converted open areas into industrial uses with air and water emissions. The primary coal and biomass generation facilities are those owned by Weyerhaeuser and Longview Fiber at their paper pulp mill facilities near Longview. Georgia-Pacific also operates a biomass generation facility near Camas. Development of generation facilities at these locations typically involved expansions of existing developed industrial uses that created incremental increases in air and water emissions.

## 26.2.2 Reasonably Foreseeable Future Actions

Reasonably foreseeable future actions are those actions that are likely to occur and affect the same resources as the I-5 project. For a future action to be considered reasonably foreseeable, there must be a level of certainty that it will occur. This level of certainty is typically met by the submission of a formal project proposal or application to the appropriate jurisdiction, approval of such a proposal or application, inclusion of the future action in a formal planning document, or other similar evidence. For future actions in the proposal stage, the future action also must be sufficiently defined in terms of location, size, design, and other relevant features to permit meaningful consideration in the cumulative analysis.

BPA contacted various entities, including government agencies, ports and public utilities, throughout the general vicinity to identify reasonably foreseeable future actions. Several entities provided project proposal lists or directed BPA to their planning documents, such as capital facility or transportation plans, which list reasonably foreseeable future actions. BPA staff also searched Ecology’s State Environmental Policy Act (SEPA) Register, which provided a current list of all projects requiring NEPA and/or SEPA review.

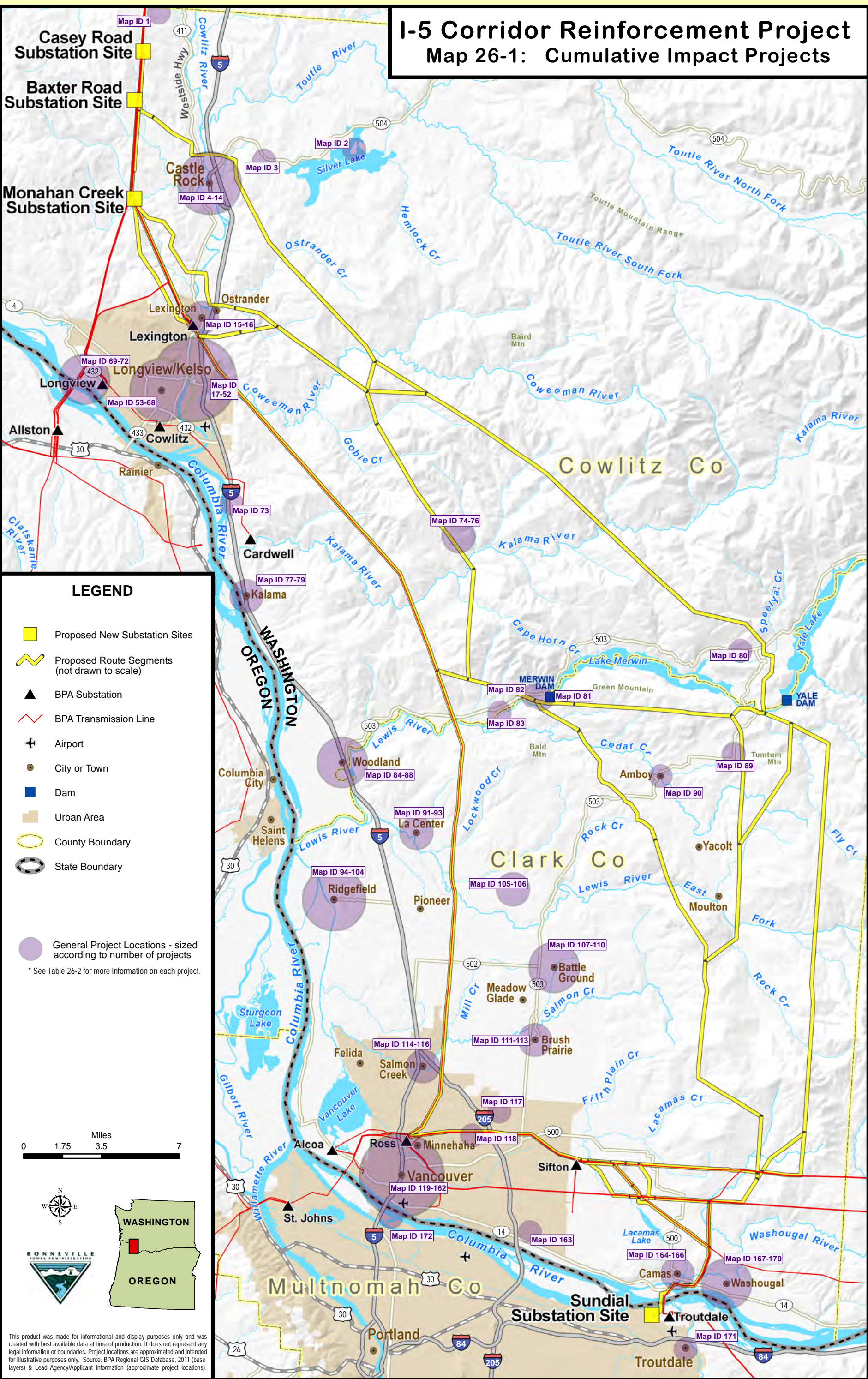
Tables 26-2 and 26-3 list information about the reasonably foreseeable projects considered in the cumulative impact analysis; based on currently available information. Table 26-2 lists projects that were identified when preparing the Draft EIS and were included in the Draft EIS. Table 26-3 lists additional projects that were identified after issuance of the Draft EIS. The

tables provide a brief description of each of these projects, identify the entity (or entities) that proposed the project and/or is primarily responsible for reviewing and approving the project, provide general location information for each project, and note the current status (i.e., proposed, approved, under construction, on hold, unknown, ongoing, completed, or canceled) of each project. The projects in Tables 26-2 and 26-3 are generally sorted by the primary involved entity in the following order: federal government, Tribes, state agencies, county and local agencies, ports, and utilities. The general location of the projects identified in Table 26-2 is shown on Map 26-1, which is keyed to the Map IDs identified in Table 26-2. Maps 26-2A through 26-2D also show the general locations of projects in Table 26-3.

While Tables 26-2 and 26-3 identify specific reasonably foreseeable future actions that are known at this time, BPA acknowledges that other future actions and development likely will be proposed over time. Given the level of development and land management practices already in place, new development will continue as population growth and demand for resources increase. The regional road and highway system likely will expand as commercial and residential development encroaches into what are now rural areas. Further development of utility infrastructure such as natural gas pipelines, electrical distribution lines, telecommunications, and cell towers likely will be ongoing. Marine terminals, ports, and commercial/industrial districts will be further developed to meet market demands for products and services. Timber harvests will also continue to occur over time both due to planned harvest cycles and through sales of timber trust resources to supply the State of Washington income to operate many programs including their public schools. Rural development activity also is expected to continue.

# I-5 Corridor Reinforcement Project

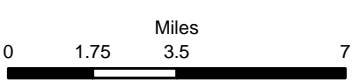
## Map 26-1: Cumulative Impact Projects



### LEGEND

- Proposed New Substation Sites
- Proposed Route Segments (not drawn to scale)
- BPA Substation
- BPA Transmission Line
- Airport
- City or Town
- Dam
- Urban Area
- County Boundary
- State Boundary

General Project Locations - sized according to number of projects  
 \* See Table 26-2 for more information on each project.

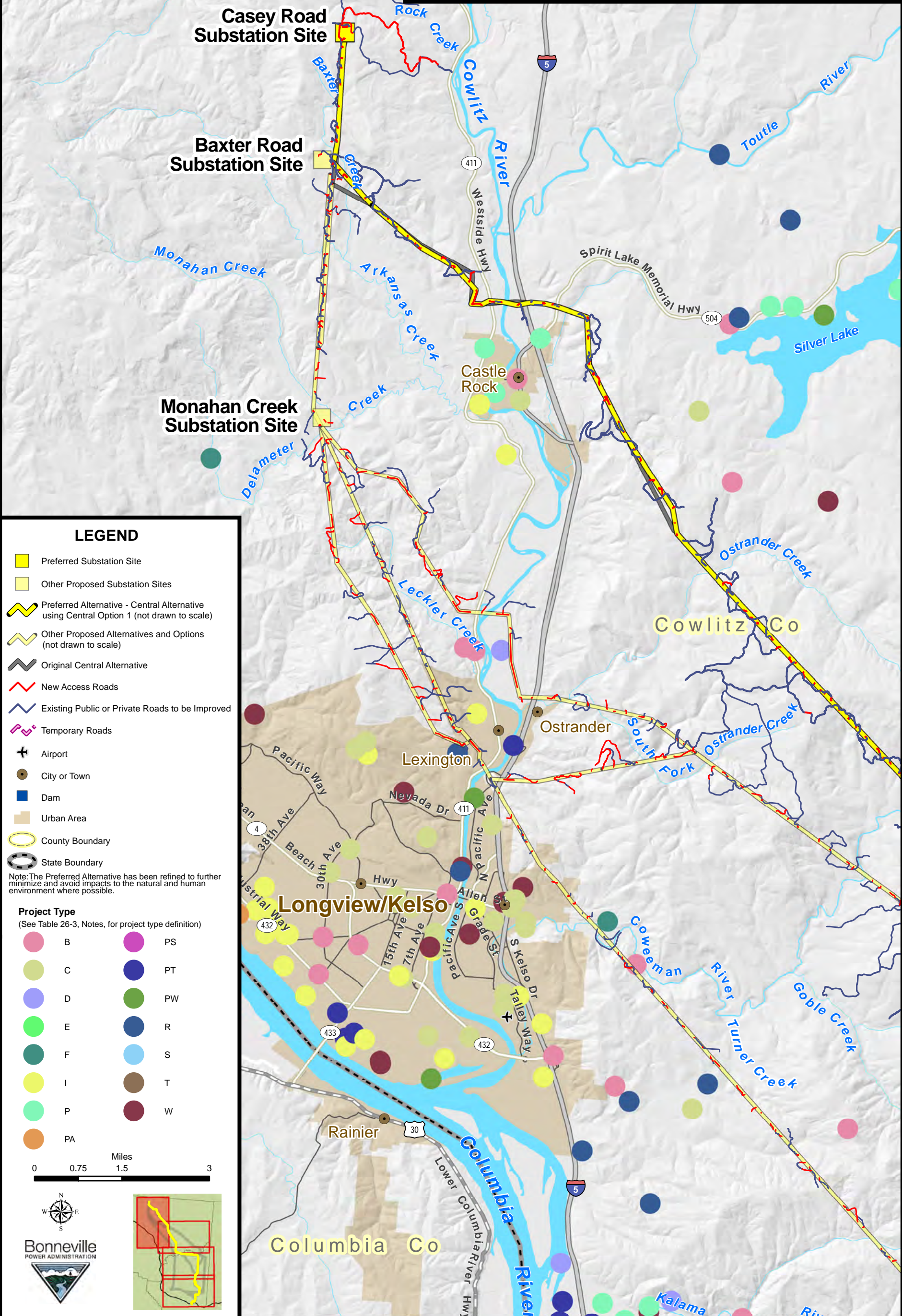


This product was made for informational and display purposes only and was created with best available data at time of production. It does not represent any legal information or boundaries. Project locations are approximated and intended for illustrative purposes only. Source: BPA Regional GIS Database, 2011 (base layers) & Lead Agency/Applicant Information (approximate project locations).

Map 26-1: Cumulative Impact Projects

# I-5 Corridor Reinforcement Project

## Map 26-2A: Reasonably Foreseeable Actions since the Draft EIS



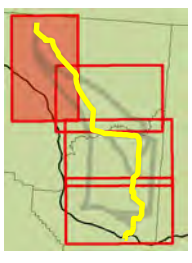
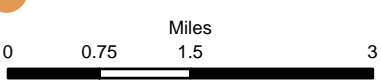
### LEGEND

- Preferred Substation Site
- Other Proposed Substation Sites
- Preferred Alternative - Central Alternative using Central Option 1 (not drawn to scale)
- Other Proposed Alternatives and Options (not drawn to scale)
- Original Central Alternative
- New Access Roads
- Existing Public or Private Roads to be Improved
- Temporary Roads
- Airport
- City or Town
- Dam
- Urban Area
- County Boundary
- State Boundary

Note: The Preferred Alternative has been refined to further minimize and avoid impacts to the natural and human environment where possible.

**Project Type**  
(See Table 26-3, Notes, for project type definition)

<span style="display: inline-block; width: 15px; height: 15px; background-color: pink; border-radius: 50%; margin-right: 5px;"></span> B	<span style="display: inline-block; width: 15px; height: 15px; background-color: magenta; border-radius: 50%; margin-right: 5px;"></span> PS
<span style="display: inline-block; width: 15px; height: 15px; background-color: lightgreen; border-radius: 50%; margin-right: 5px;"></span> C	<span style="display: inline-block; width: 15px; height: 15px; background-color: darkblue; border-radius: 50%; margin-right: 5px;"></span> PT
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<span style="display: inline-block; width: 15px; height: 15px; background-color: lightblue; border-radius: 50%; margin-right: 5px;"></span> P	<span style="display: inline-block; width: 15px; height: 15px; background-color: maroon; border-radius: 50%; margin-right: 5px;"></span> W
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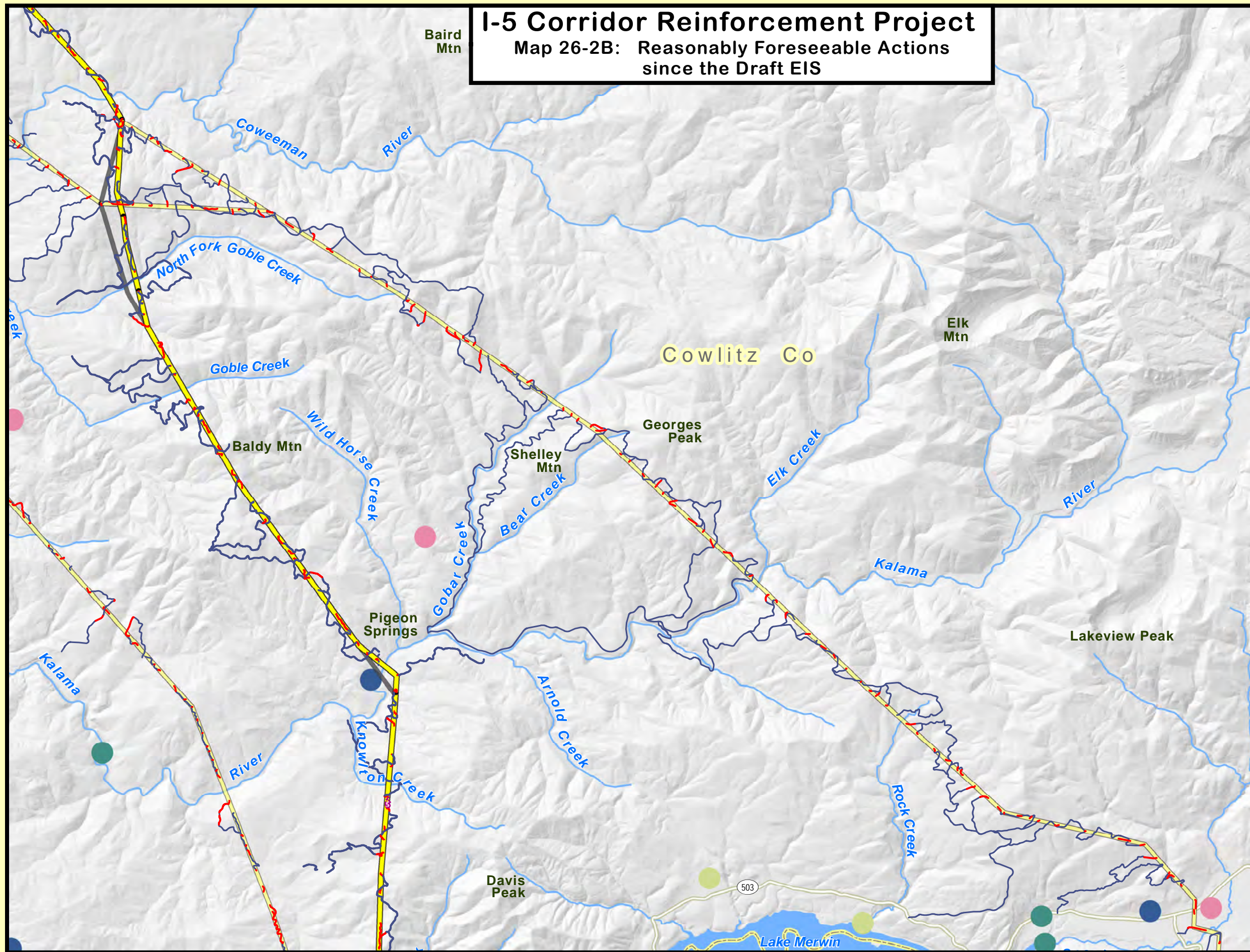
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Map 26-2A: Reasonably Foreseeable Actions since the Draft EIS



# I-5 Corridor Reinforcement Project

## Map 26-2B: Reasonably Foreseeable Actions since the Draft EIS



### LEGEND

- Preferred Substation Site
- Other Proposed Substation Sites
- Preferred Alternative - Central Alternative using Central Option 1 (not drawn to scale)
- Other Proposed Alternatives and Options (not drawn to scale)
- Original Central Alternative
- New Access Roads
- Existing Public or Private Roads to be Improved
- Temporary Roads
- ✈ Airport
- City or Town
- Dam
- County Boundary
- State Boundary

Note: The Preferred Alternative has been refined to further minimize and avoid impacts to the natural and human environment where possible.

#### Project Type

(See Table 26-3, Notes, for project type definition)

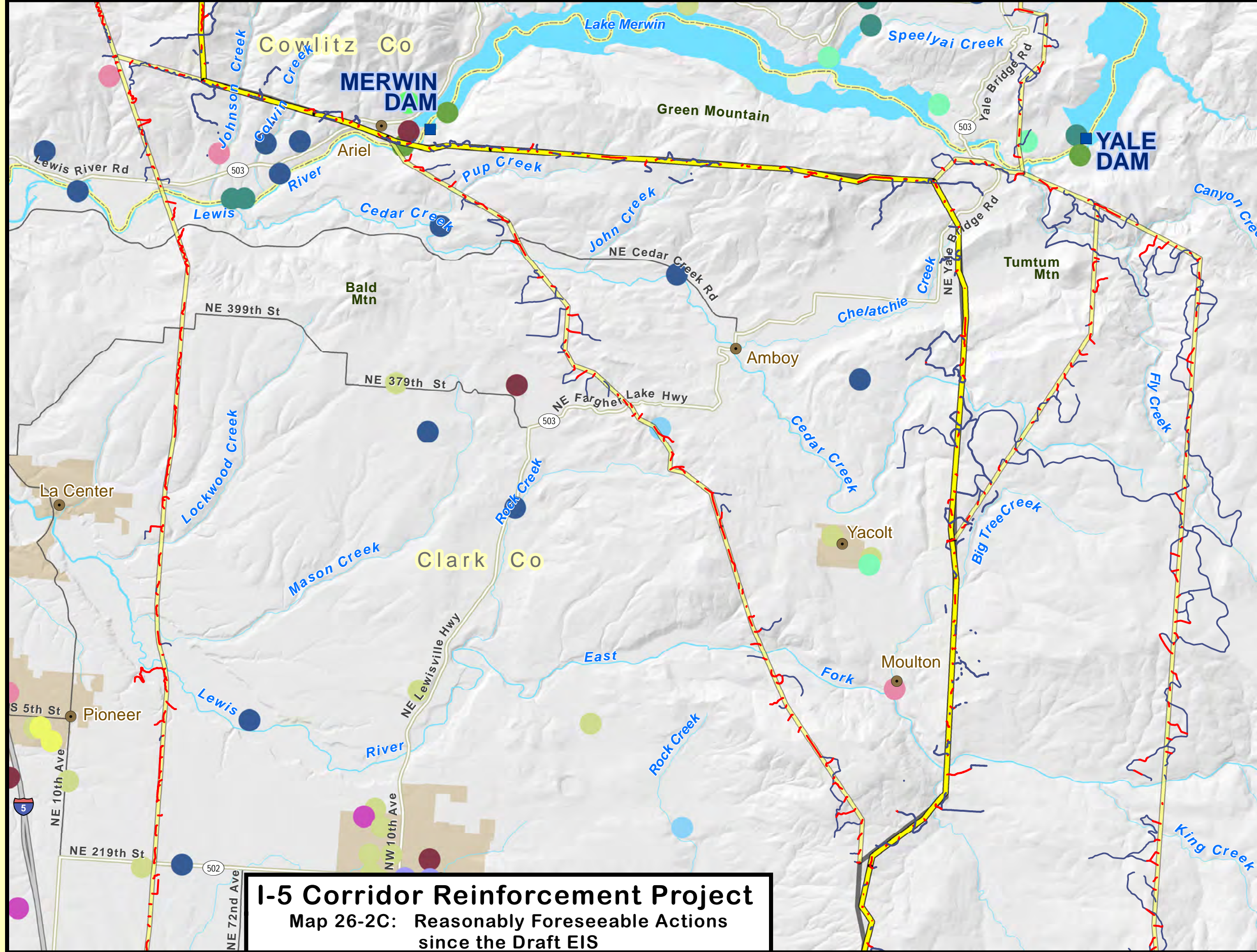
<span style="display: inline-block; width: 15px; height: 15px; background-color: pink; border-radius: 50%; margin-right: 5px;"></span> B	<span style="display: inline-block; width: 15px; height: 15px; background-color: purple; border-radius: 50%; margin-right: 5px;"></span> PS
<span style="display: inline-block; width: 15px; height: 15px; background-color: lightgreen; border-radius: 50%; margin-right: 5px;"></span> C	<span style="display: inline-block; width: 15px; height: 15px; background-color: darkblue; border-radius: 50%; margin-right: 5px;"></span> PT
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Miles

0 0.75 1.5 3

This product was made for informational and display purposes only and was created with best available data at time of production. It does not represent any legal information or boundaries. Sources listed in Table 26-3, BPA 2015.

Map 26-2B: Reasonably Foreseeable Actions since the Draft EIS



### LEGEND

- Preferred Substation Site
- Other Proposed Substation Sites
- Preferred Alternative - Central Alternative using Central Option 1 (not drawn to scale)
- Other Proposed Alternatives and Options (not drawn to scale)
- Original Central Alternative
- New Access Roads
- Existing Public or Private Roads to be Improved
- Temporary Roads
- Airport
- City or Town
- Dam
- Urban Area
- County Boundary
- State Boundary

Note: The Preferred Alternative has been refined to further minimize and avoid impacts to the natural and human environment where possible.

#### Project Type

(See Table 26-3, Notes, for project type definition)

<span style="display: inline-block; width: 15px; height: 15px; background-color: pink; border-radius: 50%; margin-right: 5px;"></span> B	<span style="display: inline-block; width: 15px; height: 15px; background-color: purple; border-radius: 50%; margin-right: 5px;"></span> PS
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<span style="display: inline-block; width: 15px; height: 15px; background-color: lightblue; border-radius: 50%; margin-right: 5px;"></span> D	<span style="display: inline-block; width: 15px; height: 15px; background-color: green; border-radius: 50%; margin-right: 5px;"></span> PW
<span style="display: inline-block; width: 15px; height: 15px; background-color: limegreen; border-radius: 50%; margin-right: 5px;"></span> E	<span style="display: inline-block; width: 15px; height: 15px; background-color: darkblue; border-radius: 50%; margin-right: 5px;"></span> R
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Miles

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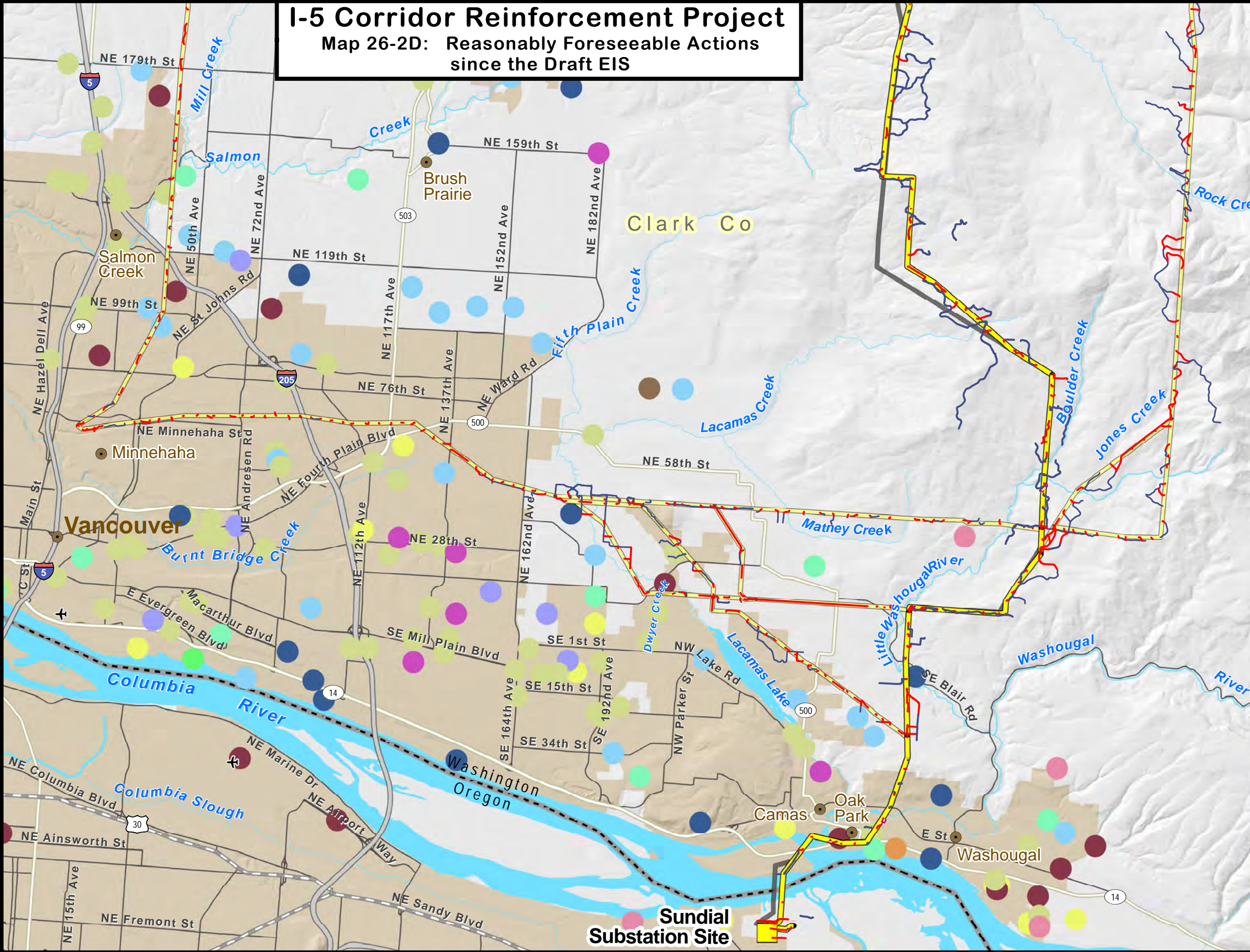
**I-5 Corridor Reinforcement Project**  
**Map 26-2C: Reasonably Foreseeable Actions**  
**since the Draft EIS**

**Map 26-2C: Reasonably Foreseeable Actions since the Draft EIS**

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# I-5 Corridor Reinforcement Project

## Map 26-2D: Reasonably Foreseeable Actions since the Draft EIS



### LEGEND

- Preferred Substation Site
- Other Proposed Substation Sites
- Preferred Alternative - Central Alternative using Central Option 1 (not drawn to scale)
- Other Proposed Alternatives and Options (not drawn to scale)
- Original Central Alternative
- New Access Roads
- Existing Public or Private Roads to be Improved
- Temporary Roads
- + Airport
- City or Town
- Dam
- Urban Area
- County Boundary
- State Boundary

Note: The Preferred Alternative has been refined to further minimize and avoid impacts to the natural and human environment where possible.

### Project Type

(See Table 26-3, Notes, for project type definition)

<span style="display: inline-block; width: 15px; height: 15px; background-color: pink; border-radius: 50%; margin-right: 5px;"></span> B	<span style="display: inline-block; width: 15px; height: 15px; background-color: purple; border-radius: 50%; margin-right: 5px;"></span> PS
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<span style="display: inline-block; width: 15px; height: 15px; background-color: orange; border-radius: 50%; margin-right: 5px;"></span> PA	

Miles

0 0.75 1.5 3

Bonneville  
POWER ADMINISTRATION

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Map 26-2D: Reasonably Foreseeable Actions since the Draft EIS

**Table 26-2 Status of Reasonably Foreseeable Future Actions Identified in the Draft EIS**

<b>Project</b>	<b>Lead Agency/Applicant</b>	<b>Location</b>	<b>Map ID<sup>1</sup></b> (see Map 26-1)	<b>Status as of Draft EIS<sup>2</sup></b>	<b>Status as of Final EIS<sup>2</sup></b>
<b><i>Federal</i></b>					
<b>Columbia River Crossing Project:</b> Bridge, transit and highway improvement	US Federal Highway Administration/Washington State Department of Transportation (WSDOT) and Oregon Department of Transportation (ODOT)	Vancouver, WA and Portland, OR	119	Approved	On Hold
<b>Sandy River Delta Section 536 Ecosystem Restoration Project:</b> Remove a dam and restore fish access to the main channel of the Sandy River	US Army Corps of Engineers, US Forest Service, and Portland Water Bureau	Multnomah County, OR	174	Proposed	Completed
<b><i>Tribal</i></b>					
<b>Cowlitz Casino Resort:</b> Construct casino on 152 acres at La Center's I-5 interchange in Clark County, Washington	Cowlitz Tribe	La Center, WA	91	Proposed	Proposed
<b><i>Washington State</i></b>					
<b>Columbia River Dredging:</b> Dredging of up to 3.1-million cubic yards of material from the Columbia River over a period of 10 years	Washington State Department of Ecology/ Weyerhaeuser NR Company	Near Longview, WA	62	Approved	Ongoing
<b>Soil Remediation:</b> Excavate 3,652 cubic yards of soil contaminated with wood preservative products from 3 locations within Port of Ridgefield property	Washington State Department of Ecology/ Port of Ridgefield	Ridgefield, WA	94	Approved	Ongoing

Project	Lead Agency/Applicant	Location	Map ID <sup>1</sup> (see Map 26-1)	Status as of Draft EIS <sup>2</sup>	Status as of Final EIS <sup>2</sup>
<b>Timber Harvests:</b> Several WDNR and other timber owner harvests throughout eastern Cowlitz County	Washington Department of Natural Resources (WDNR)/Individuals	Various locations throughout Cowlitz County, WA	74	Approved	Ongoing
<b>Timber Harvests:</b> Several WDNR and other timber owner harvests throughout eastern Clark County	WDNR/Individuals	Various locations throughout Clark County, WA	105	Approved	Ongoing
<b>Surface Mining Reclamation:</b> Continued mining of rock from quarry; use will increase from 3.5 acres to 27.5 acres	WDNR	SE of Battle Ground, WA	107	Approved	Ongoing
<b>I-5 - SR 432 Talley Way Interchange:</b> Improve the I-5 interchange at SR 432 and the adjacent SR 432 interchange at Talley Way	WSDOT/Cowlitz-Wahkiakum Council of Governments, cities of Kelso and Longview, Port of Longview, and Cowlitz County	Kelso, WA	17	Under Construction	Completed
<b>I-5/Dike Access Road and Burlington Northern Railroad Bridge:</b> Replace expansion joints at both ends of Burlington Northern Railroad Bridge	WSDOT	Woodland, WA	84	Approved	Completed
<b>I-5/E Fork Lewis River Bridge to Todd Road Vicinity:</b> Paving Improvements to I-5 at the East Fork of the Lewis River Bridge near Todd Road	WSDOT	Woodland, WA	85	Approved	Completed
<b>I-5 - Reconstruct Interchange at NE 134th (Salmon Creek Interchange Project):</b> Construct a new I-5 interchange at NE 139th St, improve the I-205 northbound off-ramp to NE 134th Street, and construct other local road improvements	WSDOT/ Clark County Public Works Department	Salmon Creek area of Vancouver, WA	114	Under Construction	Completed

<b>Project</b>	<b>Lead Agency/Applicant</b>	<b>Location</b>	<b>Map ID<sup>1</sup></b> (see Map 26-1)	<b>Status as of Draft EIS<sup>2</sup></b>	<b>Status as of Final EIS<sup>2</sup></b>
<b>SR 14 - Camas-Washougal Widening and Interchange:</b> Improve State Route 14 between the NW Sixth Ave interchange in Camas, WA and Sixth St in Washougal, WA	WSDOT/Port of Camas-Washougal, the cities of Camas and Washougal, and Clark County Department of Public Works	Camas, WA and Washougal, WA	164	Under Construction	Completed
<b>SR 500 - St. Johns Boulevard Interchange:</b> Construct freeway style interchange at intersection of State Route 500 and St. Johns Blvd	WSDOT	Vancouver, WA	120	Under Construction	Completed
<b>I-5 - SR 501 Ridgefield Interchange:</b> Replace the existing I-5 interchange at SR 501 with new bridge, widen SR 501 and improve SR 501/56th Pl and Pioneer Street/65th Ave intersections	WSDOT/ City of Ridgefield and Port of Ridgefield	Ridgefield, WA	95	Under Construction	Completed
<b>SR 502 - Widening From I-5 to Battle Ground:</b> Widen SR 502 from I-5 east into the City of Battle Ground	WSDOT	Near Battleground, WA	108	Under Construction	Under Construction
<b>SR 503 - 4th Plain/SR 500 Intersection:</b> Improve the SR 503/SR 500 intersection at Fourth Plain Rd	WSDOT	Vancouver, WA	121	Under Construction	Completed
<b>I-205 - Mill Plain Interchange to NE 18th St.:</b> Construct new I-205 northbound off-ramp and southbound on-ramp at NE 18th St	WSDOT/ City of Vancouver	Vancouver, WA	122	Under Construction	Stage 2 Under Construction
<b>Cowlitz County</b>					
<b>Residential Development:</b> Lexington Heights parcel D planned lot development (40 residential lots)	Cowlitz County Planning Division/Private Lenders Group and Individual	Longview, WA	63	Proposed	Proposed

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<b>Residential Development:</b> At Lexington Heights, divide 5 lots on 28 acres into 23 single-family residential lots and 2 lots into 150 multifamily apartments	Cowlitz County Planning Division/ Individual	Longview, WA	64	Approved	Approved
<b>Commercial Development:</b> Construct 100,000-sq-ft mini-storage facility on 5.21 acres; 750 sq-ft of office space; 51 parking spaces, utilities, stormwater facility, signage, lighting, fencing	Cowlitz County Planning Division/ Woodford CRE and Individual	Kelso, WA	18	Approved	Proposed
<b>Subdivision Development:</b> Develop 27 lots on 6.27 acres	Cowlitz County Planning Division/ Crown Royal Subdivision, Olsen Engineering Inc., and Riverview Community Bank	Longview, WA	65	Proposed	Completed
<b>Single Family Home Development:</b> Construct single-family home and outbuildings on 3.16 acres	Cowlitz County Planning Division/ Individual	Longview, WA	66	Approved	Completed
<b>Utility Transmission Construction:</b> Install a 1.178-mile-long, secondary 115 KV power transmission line at the existing Longview Fiber Plant Site; install 15 transmission wooden power poles and replace 14 poles	Cowlitz County Planning Division/ SWP Environmental Services	Longview, WA	67	Approved	Completed
<b>Park Restoration:</b> Harry Gardner Park restoration on 14.9 acres	Cowlitz County Planning Division/ Cowlitz County	Castle Rock, WA	4	Proposed	Completed
<b>Recreational Development:</b> Construct a zip line and trails over 23 acres	Cowlitz County Planning Division/ Kiddigan Investment, LLC	Goat Island (Silver Lake), WA	2	Approved	Approved

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<b>Short Subdivisions, Urban Subdivisions, and Rural Subdivisions:</b> Various applications for subdivisions throughout Cowlitz County, WA	Cowlitz County Planning Division	Cowlitz County, WA	75	Proposed	Ongoing
<b>Private Roads:</b> Various applications for private roads throughout Cowlitz County, WA	Cowlitz County Planning Division	Cowlitz County, WA	76	Proposed	Ongoing
<b>Private Bridge Replacement</b>	Cowlitz County Planning Division/ Longview Timberlands, LLC	Kelso, WA	19	Approved	Approved
<b>Road Improvement:</b> Improve 1 mile of South Silver Lake Rd and remove unoccupied house	Cowlitz County Public Works	Between Silverlake, WA and Castle Rock, W	3	Approved	Unknown
<b>Detention Structure Improvement:</b> Improve Lexington Detention Structure by raising the earthen dam	Cowlitz County Public Works	Near Lexington area of Cowlitz Co, WA	16	Proposed	Proposed
<b>Recreational Development:</b> Expand and renovate existing BMX track on 2 acres	City of Castle Rock Public Works Department	Castle Rock, WA	5	Approved	Completed
<b>Cowlitz Street West Reconstruction Phase I:</b> improve parking and stormwater system; design street and install underground utilities and reconstruct road and construct sidewalks	City of Castle Rock	Castle Rock, WA	6	Proposed	Completed
<b>River Front Trail NE Extension and Improvement:</b> Extend River Front Trail from Shintaffer St to Huntington Railroad Bridge; improve trail near Shintaffer St and provide improved access to the Cowlitz River	City of Castle Rock	Castle Rock, WA	7	Proposed	Completed



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<b>Front St. North Reconstruction:</b> Multi-phase project widening Front St N between Huntington and Shintaffer St NW	City of Castle Rock	Castle Rock, WA	8	Proposed	Completed
<b>Dougherty Dr. Reconstruction:</b> Widen Dougherty Drive to 3 lanes, resurface, and add curb, gutter, sidewalk and street lighting	City of Castle Rock	Castle Rock, WA	9	Proposed	Proposed
<b>Roake Ave. SE Sidewalk Installation:</b> Install new sidewalk along Roake Avenue from Elementary School to "B" Street SE	City of Castle Rock	Castle Rock, WA	10	Proposed	Unknown
<b>"C" St. Sidewalk Installation:</b> Install new sidewalk along "C" Street from Huntington Avenue to Kirby Avenue SE	City of Castle Rock	Castle Rock, WA	11	Proposed	Unknown
<b>Easement Sidewalk Installation:</b> Install new sidewalk along Easement from Roake Ave to Allen Ave SE	City of Castle Rock	Castle Rock, WA	12	Proposed	Unknown
<b>Cowlitz River Pedestrian Bridge at SR 411:</b> Construct new pedestrian bridge over the Cowlitz River at SR 411	City of Castle Rock	Castle Rock, WA	13	Proposed	Unknown
<b>Overlay Huntington Ave. S:</b> Overlay Huntington Ave S from Front Ave S to I-5	City of Castle Rock	Castle Rock, WA	14	Proposed	Approved
<b>Stormwater Treatment Project:</b> Route stormwater to treatment system; install gravity pipe, pump station, pressurized pipe, ditches, and treatment wet pond	City of Kalama/ RSG Forest Products	Kalama, WA	78	Approved	Approved
<b>Subdivision Construction:</b> Subdivide 8.29 acres into 30 residential lots; construct a new road, sewer, water main and storm sewer	City of Kalama/Individuals	Kalama, WA	79	Approved	Unknown

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<b>Commercial Development:</b> Develop 3 commercial buildings on 1.89 acres	City of Kelso Community Development Department/ Kelso Highlander Group, LLC	Kelso, WA	23	Approved	Completed
<b>Reservoir Construction:</b> Construct 2-million-gallon concrete reservoir on 1 acre next to an existing reservoir	City of Kelso Community Development Department	Kelso, WA	24	Approved	Completed
<b>Cowlitz River Bike/Pedestrian Path:</b> Construct Cowlitz River Bike/Pedestrian Path from Yew St to Coweeman River	City of Kelso	Kelso, WA	25	Under Construction	Canceled
<b>Yew Street Reconstruction:</b> Rehabilitate sidewalk, storm system and roadway on Yew St between S Pacific Ave and 7th Ave	City of Kelso	Kelso, WA	26	Under Construction	Proposed
<b>West Main St. Realignment:</b> Realign West Main St from SR 4 to SR 411	City of Kelso	Kelso, WA	27	Under Construction	Under Construction
<b>BNSF Railroad Pedestrian Crossing:</b> Provide grade separated crossing of Burlington Northern Santa Fe Railroad for pedestrians on Allen St	City of Kelso	Kelso, WA	28	Under Construction	Canceled
<b>14th Ave. and Broadway Intersection Improvement:</b> Improve pedestrian facilities, street and signal at 14th Ave and Broadway intersection	City of Kelso	Kelso, WA	29	Under Construction	Under Construction
<b>Sidewalk Installation:</b> Install sidewalks on Redpath St	City of Kelso	Kelso, WA	30	Proposed	Canceled
<b>Bridge Repair:</b> Repair Kelso Dr Bridge	City of Kelso	Kelso, WA	31	Proposed	Proposed

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<b>Riverfront Park Pedestrian Access:</b> Construct pedestrian crossing of railroad tracks from 1st Ave to Cowlitz River Pedestrian Path	City of Kelso	Kelso, WA	32	Proposed	Canceled
<b>Ross Ave. Widening:</b> Widen Ross Ave, construct curb & gutter, sidewalk and drainage from Redpath St to Division St (Phase I) and Division St to Barnes St (Phase 2)	City of Kelso	Kelso, WA	33	Proposed	Canceled
<b>Bridge Replacement or Repair:</b> Repair or replace Talley Way Bridge	City of Kelso	Kelso, WA	34	Proposed	Proposed
<b>Allen St. Sidewalk Installation:</b> Install sidewalks on Allen St from Swanson Rd to Crescent Ave	City of Kelso	Kelso, WA	35	Proposed	Canceled
<b>Harris St. Guardrail Installation:</b> Install guardrail along south side of Harris St	City of Kelso	Kelso, WA	36	Proposed	Complete
<b>Intersection Reconfiguration:</b> Reconfigure intersection of Grade St/5th Ave/ Oak St	City of Kelso	Kelso, WA	37	Proposed	Canceled
<b>Kelso Dr. Resurfacing:</b> Resurface Kelso Dr from "S" Curves to SR 432	City of Kelso	Kelso, WA	38	Under Construction	Complete
<b>N Kelso Ave. Crosswalk Improvement:</b> Install flashing crosswalk N Kelso Ave crosswalk	City of Kelso	Kelso, WA	39	Under Construction	Under Construction
<b>Corduoy Rd. Reconstruction:</b> Reconstruct Corduroy Rd from Allen St to Harris St including new sidewalks, curb and gutter and drainage system	City of Kelso	Kelso, WA	40	Proposed	Canceled

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<b>North Pacific Ave. Reconstruction:</b> Widen N Pacific Ave from Redpath St to Barnes St and construct curb and gutter, sidewalks and storm drainage	City of Kelso	Kelso, WA	41	Proposed	Canceled
<b>Seventh Ave. and Walnut St. Improvements:</b> Widen roads, install curb and gutter, sidewalks and drainage system and overlay existing pavement	City of Kelso	Kelso, WA	42	Proposed	Canceled
<b>Kelso Dr./Carrolls Rd. Intersection Improvements:</b> Realign intersection and install left turn lane	City of Kelso	Kelso, WA	43	Proposed	Canceled
<b>South Pacific Ave. Widening:</b> Widen South Pacific Ave from Yew St to Willow St (Phase 1) and Willow St to Hazel St (Phase 2) and construct curb and gutter, sidewalk and drainage	City of Kelso	Kelso, WA	44	Proposed	Canceled
<b>Coweeman River Bike/Pedestrian Path:</b> Install bike/pedestrian path along top of Coweeman Dike from Allen St to Grade St	City of Kelso	Kelso, WA	45	Proposed	Canceled
<b>Old Highway 99 Resurfacing:</b> Resurface Old Highway 99 from SR 432 to Kelso city limits	City of Kelso	Kelso, WA	46	Proposed	Completed
<b>Long Ave. Improvements:</b> Add second northbound lane to Long Ave	City of Kelso	Kelso, WA	47	Proposed	Canceled
<b>Sunrise St. Resurfacing:</b> Resurface Sunrise St from Jones Rd to Burcham St and construct sidewalks and handicap ramp	City of Kelso	Kelso, WA	48	Proposed	Canceled

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<b>Talley Way Improvements:</b> Widen Talley Way from Coweeman River to Colorado Street and construct curb and gutter, drainage system and sidewalk	City of Kelso	Kelso, WA	49	Proposed	Canceled
<b>Carroll Rd. Improvements:</b> Widen Carroll Rd from Kelso Dr to Kelso city limits and install drainage, replace guardrails and sidewalks, and overlay roadway	City of Kelso	Kelso, WA	50	Proposed	Canceled
<b>Mill St. Widening:</b> Widen Mill St between South Pacific Ave and 13 <sup>th</sup> Ave, replace existing sidewalks as needed and install new handicap ramps	City of Kelso	Kelso, WA	51	Proposed	Proposed
<b>13th Ave. Reconstruction:</b> Reconstruct 13th Ave from Colorado St to Grade St and install curb/gutter, sidewalks, illumination, and 13th/grade traffic signal	City of Kelso	Kelso, WA	52	Proposed	Canceled
<b>Building Replacement:</b> Demolish apartment complex and garages; construct a new building and parking structure	City of Longview Community Development Department/ Lower Columbia College	Longview, WA	53	Approved	On Hold
<b>Groundwater Supply and Treatment Facility:</b> Site improvements for the construction of the new groundwater supply and treatment plant in Mint Farm Industrial Park and associated transmission main	City of Longview Public Works Department	Longview, WA	54	Approved	Completed
<b>Levee Modification:</b> Fill in 2 driveway cuts in the Cowlitz River Levee	City of Longview Community Development Department/ Consolidated Diking District #1	Longview, WA	55	Approved	Completed

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<b>Civic Center Circle:</b> Safety improvements from 16th Ave and Louisiana to 17th Ave and Larch St	City of Longview	Longview, WA	56	Under Construction	Completed
<b>Signal and Pedestrian Facilities Modification in the 15th Ave. Corridor:</b> Modify signal at 15th/Olympia Water/Hudson St and improve pedestrian facilities between Douglas and Hemlock St	City of Longview	Longview, WA	57	Under Construction	Under Construction
<b>Crosswalk Improvements:</b> Improve crosswalks at 28th Ave and Washington Way	City of Longview	Longview, WA	58	Under Construction	Completed
<b>Crosswalk Installation at 30th Ave.:</b> Install crosswalk at 30th Ave from Pine to Pennsylvania Ave	City of Longview	Longview, WA	59	Under Construction	Unknown
<b>Columbia Heights Rd. Improvements:</b> Improve Columbia Heights Rd between Upper Maplewood and Fishers Ln and improve Columbia Heights and Fishers Ln intersection	City of Longview	Longview, WA	60	Under Construction	Unknown
<b>Commercial Development:</b> Construct Les Schwab Tire Center on 1.7 acres	City of Woodland/ Brothers Chumbley LLC	Woodland, WA	86	Approved	Completed
<b>Scott Avenue Crossing Project:</b> Construct an east/west arterial connecting the Port of Woodland and industrial areas to the City of Woodland and I-5 over multiple phases	City of Woodland	Woodland, WA	87	Proposed	Proposed
<b>Clark County</b>					
<b>Recreational Development:</b> Develop 500 acres for bungee jumping from Canopy Creek Bridge and zip line tours	Clark County Department of Community Development/ Bungee.Com	Clark County near Chelatchie, WA	89	Approved	Approved

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<b>Wetland Rehabilitation/Restoration:</b> Establish a wetland mitigation bank on 110 acres	Clark County Department of Community Development/ EFL Mitigation Partners, LLC	La Center, WA	92	Approved	Completed
<b>Subdivision Development: (Sifton Firs)</b> Develop 0.81 acre for 10 single-family lots	Clark County Department of Community Development/ Green Gable Homes	Vancouver, WA	123	Approved	Under Construction
<b>Commercial Development:</b> Construct community health hospice facility	Clark County Department of Community Development/ Sterling Design, Inc.	Vancouver, WA	124	Approved	Under Construction
<b>Recreational Development:</b> Relocate 15-acre golf driving range	Clark County Department of Community Development/ Design Associates	Vancouver, WA	125	Approved	Under Construction
<b>Parking Lot Construction:</b> Construct 155 parking spaces on 13.5 acre parcel that includes a wetland	Clark County Department of Community Development/ Nlight Photonics Corporation	Vancouver, WA	126	Approved	Completed
<b>Utility Construction:</b> Install an in-line inspection launcher facility for an existing 20 inch natural gas transmission pipeline on 2.54 acres	Clark County Department of Community Development/ Northwest Pipeline GP	Washougal, WA	168	Approved	Completed
<b>Radio Antennae Installation:</b> Install radio antennae and base on 0.55 acre	Clark County Department of Community Development/Sprint Spectrum LP, Sprint Nextel, and Stephen B Meadows & Assoc, Inc.	Brush Prairie, WA	111	Approved	Completed
<b>Subdivision Development:</b> Divide 2.44 acres into 12 single-family home sites	Clark County Department of Community Development/ Sterling Design, Inc.	Vancouver, WA	127	Approved	Completed

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<b>Dock Construction and Ramp Replacement:</b> Enlarge dock and replace ramp within 100-year floodplain of Columbia River	Clark County Department of Community Development/Individual	Vancouver, WA	128	Approved	Completed
<b>Building Conversion and Construction:</b> Construct a storage/shop building and convert a single-family dwelling into an office	Clark County Department of Community Development/Individual	Vancouver, WA	129	Approved	Approved
<b>Commercial Development:</b> Divide 1.94 acres into 3 lots for commercial development	Clark County Department of Community Development/Venia Holdings, Inc.	Vancouver, WA	130	Approved	Approved
<b>Cell Tower Construction:</b> Construct 150 foot cell tower and associated ground equipment, within a 30-foot by 45-foot fenced area	Clark County Department of Community Development, Verizon Wireless, LLC	Brush Prairie, WA	112	Approved	Completed
<b>School Construction:</b> Construct and operate an 8,000-sq-ft nursery/preschool on approximately 1 acre	Clark County Department of Community Development/LJS Investors, LLC	Vancouver, WA	131	Approved	Completed
<b>Subdivision Development:</b> Divide 4.86 acres into 32 single-family residential lots	Clark County Department of Community Development/Thousand Hills Holdings, LLC	Vancouver, WA	132	Approved	Unknown
<b>Stormwater Facility Expansion:</b> Expand and reconfigure storm water facility	Clark County Department of Environmental Services	Vancouver, WA	133	Approved	Completed
<b>Wetland Rehabilitation:</b> Rehabilitate existing wetland in the headwaters area of the St. Johns Sub-Basin area of Burnt Bridge Creek	Clark County Department of Environmental Services	Vancouver, WA	134	Approved	Completed
<b>Stormwater Facility Retrofit:</b> Combine 2 stormwater facilities and replace bio-swale/infiltration basins with large rain garden	Clark County Department of Environmental Services	Near Five Corners area of Vancouver, WA	117	Approved	Completed



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<b>Stormwater Facility Expansion:</b> Expand and reconfigure 3 storm water facilities to create 1 facility	Clark County Department of Environmental Services	Salmon Creek area of Vancouver, WA	115	Approved	Completed
<b>Wetland Mitigation Project:</b> Mitigate wetlands on 4.35 acres	Clark County Department of Environmental Services	North of Riveridge area of Vancouver, WA	163	Approved	Completed
<b>Stormwater Facility Expansion:</b> Construct a wetland stormwater treatment facility	Clark County Department of Environmental Services	Vancouver near Sunnyside-Walnut Grove, WA	118	Approved	Completed
<b>Rain Garden Installation:</b> Replace bioswale stormwater facilities with rain gardens	Clark County Department of Environmental Services	Near Brush Prairie, WA	113	Approved	Completed
<b>Waterline Installation:</b> Install 8-inch waterline to subdivision	Clark County Department of Environmental Services/ Individuals	Vancouver, WA	135	Approved	Completed
<b>Park Development: (Chinook Park/North Salmon Creek)</b> Develop 5.4 acres into neighborhood park	Clark County Department Public Works	Vancouver, WA	136	Approved	Completed
<b>Road Construction:</b> Improve roadway, bike lanes, sidewalk, drainage and stormwater facilities	Clark County Department of Public Works	Vancouver, WA	137	Approved	Ongoing
<b>Bridge Repair And Stream Stabilization:</b> Repair Dayton Bridge, install scour protection and bank stabilization	Clark County Department of Public Works	Amboy, WA	90	Approved	Completed
<b>Chelatchie Prairie Rail with Trail Project:</b> Construct initial 1-mile segment starting from Battle Ground Lake State Park	Clark County Department of Public Works	Near Battleground, WA	109	Under Construction	Completed

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<b>Road, Bridge, Bicycle and Pedestrian Improvements:</b> Improve various roads, bridges, and bicycle and pedestrian facilities throughout Clark County	Clark County Department of Public Works	Various locations throughout Clark County, WA	106	Proposed	Ongoing
<b>Fourth Plain Transit Improvement Project:</b> Improve Fourth Plain Blvd's capacity for buses and add bike and pedestrian facilities	C-TRAN	Vancouver, WA	139	Proposed	Approved
<b>Modify School Sporting Facilities:</b> Convert grass field into turf, resurface tennis courts, add soccer field and parking, hardscape pedestrian paths	Battleground School District No. 119	Vancouver, WA	140	Approved	Completed
<b>Road Improvement And Storm Water Facilities:</b> Improve roads and build storm water and sewer facilities	City of Battleground	Battleground, WA	110	Approved	Ongoing
<b>Road and Stormwater Facility Construction:</b> Construct and expand roadways including associated storm water facilities	City of Camas Public Works	Camas, WA	165	Approved	Ongoing
<b>Office Building Construction:</b> Construct 2 office buildings on 11.1 acres	City of Camas Planning Division/Fisher Creek Campus, LLC	Camas, WA	166	Approved	Completed
<b>Park Development:</b> Construct park center, restroom facilities and parking facilities	City of Ridgefield	Ridgefield, WA	96	Approved	Completed
<b>Park Improvements, Acquisitions, And Construction Projects:</b> Improve, acquire land for and construct various park sites throughout the City of Ridgefield	City of Ridgefield	Ridgefield, WA	97	Proposed	Ongoing

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<b>Public Works Operations/Police Facility:</b> Renovate existing building and acquire additional land for construction of a new operations facility that includes space for Police Dept expansion	City of Ridgefield	Ridgefield, WA	98	Proposed	Proposed
<b>New City Hall Planning and Design:</b> Develop space needs analysis for new City Hall building	City of Ridgefield	Ridgefield, WA	99	Proposed	Completed
<b>Portable Buildings Procurement:</b> Purchase stand-alone portable buildings for City staff expansion	City of Ridgefield	Ridgefield, WA	100	Proposed	Proposed
<b>Upgrade or Modify Wastewater Treatment Plant:</b> Determine whether to connect to Salmon Creek Treatment Plant or upgrade existing wastewater treatment plant	City of Ridgefield	Ridgefield, WA	101	Proposed	Completed
<b>Main St. Road Improvements:</b> Construct bridge, grade and pave Main St, and install traffic signals	City of Ridgefield/ Port of Ridgefield	Ridgefield, WA	102	Approved	Approved
<b>Water Source, Storage, Transmission and Distribution Improvements:</b> Improve water source, storage, transmission and distribution systems throughout City of Ridgefield	City of Ridgefield	Ridgefield, WA	103	Proposed	Ongoing
<b>Road Improvements:</b> Complete mobility, safety and general improvements to roads in and around the City of Ridgefield	City of Ridgefield	Ridgefield, WA	104	Proposed	Ongoing
<b>Commercial Development:</b> Construct 6,900-sq-ft building with 42 parking spaces	City of Vancouver/ America Tire's	Vancouver, WA	142	Approved	Completed

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<b>Commercial Development:</b> Construct 51,833-sq-ft office building and add 70 parking stalls	City of Vancouver/ Columbia Tech Center LLC	Vancouver, WA	143	Approved	Completed
<b>Commercial Development:</b> Construct 6 industrial buildings totaling 35,616 sq feet	City of Vancouver/Delta Management	Vancouver, WA	144	Approved	Under Construction
<b>Commercial Development:</b> Construct 18,000-sq-ft office building and 59 parking stalls	City of Vancouver/Individual	Vancouver, WA	145	Approved	Completed
<b>High School Construction:</b> Construct high school and 97 parking spaces	City of Vancouver/LSW Architects for Evergreen Public Schools	Vancouver, WA	146	Approved	Completed
<b>Building Construction:</b> Construct 26,267-sq-ft building for Vancouver School District Maintenance Dept and 180-190 parking spaces	City of Vancouver/LSW Architects for Vancouver Public Schools	Vancouver, WA	147	Approved	Completed
<b>Commercial Development:</b> Construct 3 office buildings totaling 231,400 sq-ft with parking for 575	City of Vancouver/ Prematic Services Corporation	Vancouver, WA	148	Approved	Approved
<b>Building Demolition; Electrical Building and Silo construction:</b> Demolish 343,000-sq-ft storage building, construct a 375-sq-ft electrical building and construct 3 92-ft outside diameter concrete silos	City of Vancouver/ United Grain Corporation	Vancouver, WA	149	Approved	Completed
<b>Sand Removal And Transport:</b> Remove 116,000 cubic yards of sand from 18.7 acres and transport to another site	City of Vancouver/ Farwest Steel	Vancouver, WA	150	Approved	Completed
<b>Sewer Line Installation:</b> Install 1,372 feet of new sewer line	City of Vancouver	Vancouver, WA	151	Approved	Completed

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<b>Water Transmission Main Installation:</b> Install 12,800 feet of potable water transmission main pipe (Eastside Water Line Extension )	City of Vancouver	Vancouver, WA	152	Approved	Completed
<b>Road Improvements:</b> Improve various roads throughout the City of Vancouver	City of Vancouver	Vancouver, WA	153	Proposed	Ongoing
<b>Commercial Development:</b> Proposed Wal-Mart Shopping Center on south side of NE Fourth Plain Blvd, east of 140th Ave in Vancouver	City of Vancouver Community Development	Vancouver, WA	154	Proposed	Under Construction
<b>Chinook Neighborhood Park Development (North Salmon Creek):</b> Develop park to include playground equipment, trails, picnic tables, landscaping, a sports court, and benches	Vancouver-Clark Parks and Recreation	Salmon Creek area of Vancouver, WA	116	Approved	Completed
<b>Burnt Bridge Creek Build Out with Roundabout:</b> Improve roads between NE 137th and NE 162nd Ave and Burnt Bridge Creek and NE Fourth Plain Blvd	City of Vancouver Public Works	Vancouver, WA	155	Proposed	Under Construction
<b>Stormwater Capital Improvement Program (SCIP) Projects:</b> Various SCIP projects throughout the City of Vancouver to install sanitary sewers for residential homes	City of Vancouver Public Works	Vancouver, WA	156	Proposed or Under Construction	Proposed or Under Construction
<b>Sanitary Sewer Projects:</b> Various sanitary sewer projects throughout the City of Vancouver	City of Vancouver Public Works	Vancouver, WA	157	Proposed or Under Construction	Proposed or Under Construction

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<b>Water Projects:</b> Various water facility/transmission line improvements and upgrades throughout the City of Vancouver	City of Vancouver Public Works	Vancouver, WA	158	Proposed or Under Construction	Proposed or Under Construction
<b>Surface Water Projects:</b> Numerous projects to improve surface water quality throughout the City of Vancouver	City of Vancouver Public Works	Vancouver, WA	159	Proposed or Under Construction	Proposed or Under Construction
<b>Install Pedestrian Trail:</b> Install 3,463-ft pedestrian trail with 2 pedestrian bridges – Greenway Loop Trail	City of Washougal	Washougal, WA	169	Approved	Completed
<b>Multnomah County</b>					
<b>USS Ranger, Chinook Landing Marine Park:</b> Develop this retired US aircraft carrier as an aircraft carrier museum, with a conference center, and event venue at Chinook Landing Marine Park.	Metro/City of Fairview	Fairview, OR	172	Proposed	Canceled
<b>40-Mile Loop Trail undeveloped section:</b> Construct a planned segment of the 40-Mile Loop Trail about 6 miles long through the Reynolds Industrial Park that connects the Marine Dr portion of the trail with the Reynolds portion of the trail.	40-Mile Loop Land Trust/Port of Portland/City of Fairview	Fairview and Troutdale, OR	173	Proposed	Approved
<b>Lewis County</b>					
<b>Sewer System Upgrade Project:</b> Complete design of sewer system upgrades	City of Vader	Vader, WA	1	Proposed	Completed

Project	Lead Agency/Applicant	Location	Map ID <sup>1</sup> (see Map 26-1)	Status as of Draft EIS <sup>2</sup>	Status as of Final EIS <sup>2</sup>
<b>Ports</b>					
<b>Dock Improvement And Replacement:</b> Improve one dock and replace another	Port of Camas-Washougal	Washougal, WA	170	Approved	Completed
<b>Kalama Energy Center:</b> Construct a new 346-MW natural gas-fired power plant on a 20-acre site at the Port	Port of Kalama/ Energy Northwest	Kalama, WA	77	Approved	Canceled
<b>Rail Line Development:</b> Develop rail lines within Port of Longview boundaries	Port of Longview	Port of Longview, WA	69	Proposed	On Hold
<b>Waterfront development:</b> Develop waterfront property within Port of Longview boundaries	Port of Longview	Port of Longview, WA	70	Proposed	Proposed
<b>Industrial Facility And Infrastructure Development:</b> Develop industrial facility and infrastructure development on Port of Longview's Barlow Point property	Port of Longview	Barlow Point property owned by Port of Longview, WA	71	Proposed	Proposed
<b>Columbia River Dredging:</b> Request for approval of several dredging events, 10-year authorization to conduct annual maintenance dredging and to deposit dredged sediment at river mile 62 or 56	Port of Longview	Port of Longview, WA and Main stem Columbia River between river miles 66 and 67	72	Approved	Ongoing
<b>Site Preparation And Road Construction:</b> Regrade site for use as a motocross track and sand drag strip; construct a 3,500-ft long, 20-ft wide maintenance access road	Port of Longview	Longview, WA	61	Approved	Completed

<b>Project</b>	<b>Lead Agency/Applicant</b>	<b>Location</b>	<b>Map ID<sup>1</sup></b> (see Map 26-1)	<b>Status as of Draft EIS<sup>2</sup></b>	<b>Status as of Final EIS<sup>2</sup></b>
<b>Planning Phase II Troutdale Industrial Park:</b> Redevelop lands surrounding the Troutdale Airport including road and utility improvements	Port of Portland	Troutdale, Oregon	171	Proposed	Under Construction
<b>West Vancouver Freight Access Rail Project:</b> Expand rail line and access	Port of Vancouver	Vancouver, WA	160	Approved	Under Construction
<b>Warehouse Remodel:</b> Remodel 169,000-sq-ft warehouse and support office	Port of Vancouver	Vancouver, WA	161	Approved	Completed
<b>Terminal 5 Bulk Potash Handling Facility:</b> Construct potash storage and shipping facility at Terminal 5	Port of Vancouver	Vancouver, WA	162	Approved	Canceled
<b>Troutdale Energy Center Project:</b> Construct a 653-MW natural gas-fired power plant	Troutdale Energy Center, LLC.	Port of Portland property in Troutdale, OR	175	Proposed	Proposed
<b>Utilities</b>					
<b>Water Transmission and Service Facilities:</b> Install water transmission and service facilities to connect Meadow Glade Reservoir to Battle Ground intertie water main	Clark Public Utilities	Vancouver, WA	138	Approved	Completed
<b>Substation Construction:</b> Construct Enterprise 115-kV substation	Clark Public Utilities	Near La Center, WA	93	Approved	Approved
<b>Construct New Substation:</b> Along West Side Hwy in Lexington to replace the existing John St substation	Cowlitz Public Utility District	Lexington, WA	15	Proposed	Completed



<b>Project</b>	<b>Lead Agency/Applicant</b>	<b>Location</b>	<b>Map ID<sup>1</sup></b> (see Map 26-1)	<b>Status as of Draft EIS<sup>2</sup></b>	<b>Status as of Final EIS<sup>2</sup></b>
<b>Construct Transmission Line:</b> Construct 0.5-mile transmission line along Ocean Beach Hwy to connect Baker's Corner Substation to BPA's Longview-Lexington 115-kV Line	Cowlitz Public Utility District	Longview, WA	68	Proposed	Completed
<b>Construct Transmission Line:</b> Construct a new transmission line in Kelso in 2013; location is dependent on the route selected for the BPA I-5 Corridor Reinforcement Project	Cowlitz Public Utility District	Kelso, WA	20	Proposed	On Hold
<b>Rebuild and Upgrade Substation:</b> Rebuild and upgrade the East Kelso Substation	Cowlitz Public Utility District	Kelso, WA	21	Proposed	Completed
<b>Rebuild and Upgrade Substation:</b> Rebuild and upgrade the West Kelso Substation	Cowlitz Public Utility District	Kelso, WA	22	Proposed	Proposed
<b>Construct Transmission Line:</b> Construct a new 230-kV transmission line from BPA's Longview Substation to the proposed Natural Gas Generation Facility at the Port of Kalama; project is dependent on Energy Northwest building the Natural Gas Generation Facility	Cowlitz Public Utility District	Longview, WA to Kalama, WA	73	Proposed	On Hold
<b>Speelyai Creek Fish Hatchery Repair and Upgrade:</b> Upgrade and repair Speelyai Creek Fish Hatchery; replace kokanee fish trap with precast concrete trap	PacifiCorp Energy	Ariel, WA	82	Approved	Completed
<b>Recreational Development:</b> Upgrade Cresap Bay campsites and make shoreline universally accessible	PacifiCorp Energy	East end of Lake Merwin near Yale, WA	80	Approved	Completed

<b>Project</b>	<b>Lead Agency/Applicant</b>	<b>Location</b>	<b>Map ID<sup>1</sup></b> (see Map 26-1)	<b>Status as of Draft EIS<sup>2</sup></b>	<b>Status as of Final EIS<sup>2</sup></b>
<b>Construct Fish Release Pond:</b> Construct a fish release pond on the shore of the Lewis River including an intake pipe for water circulation and release pipe to release fish	PacifiCorp Energy	Woodland, WA	88	Approved	Completed
<b>Construct Lewis River Fish Passage Projects:</b> Construct adult fish collection facilities at Merwin Dam and transport them upstream of Swift Dam to spawn; collect smolts at Swift Dam by floating surface collector and transport downstream to release facility	PacifiCorp Energy	Various locations along Lewis River, Cowlitz County, WA	83	Under Construction	Completed at Merwin/Swift Reservoirs; Woodland not yet constructed
<b>Hatchery Maintenance and Improvements:</b> Complete ongoing maintenance and improvements at Lewis River Fish Hatchery	PacifiCorp Energy	Lewis River Fish Hatchery, Cowlitz County, WA	83	Proposed	Pond mods completed; hatchery intake under construction, ongoing O&M
<b>Hatchery Maintenance and Improvements:</b> Complete ongoing maintenance and improvements at Merwin Fish Hatchery	PacifiCorp Energy	Merwin Fish Hatchery, Cowlitz County, WA	81	Proposed	Ongoing
<p>Notes:</p> <p>1. The Map ID for each project reflects the numeric identifiers for projects shown on Map 26-1. Project 141 was discovered to be a duplicate and was deleted from this table.</p> <p>2. Proposed – project has been formally proposed, but has not been approved by appropriate authorizing agency. Approved – project has been approved by appropriate authorizing agency, funding may or may not be secured but construction is not underway. Under Construction – project has been approved and construction is underway. Ongoing – the activity continues to date. Unknown – the lead agency was unable to provide current information on the status of this project. Completed, Canceled, and On Hold are self-explanatory.</p> <p>Sources: City of Vancouver 2011; Clark County Community Development 2011; Clark County Public Works 2011a, 2011b; Clary 2011; Cowlitz Tribe 2011; Cowlitz-Wahkiakum Council of Governments 2011b; C-Tran 2001; Durshpek 2011; Ecology 2011c; Eiken 2011; FHA 2011; Hendriksen 2011; Hermen 2011; Hickerson 2011; Hillger 2011; Jansen 2011; Johnson 2011; Johnston 2011; Malon 2011; Mattiz 2011; Nielsen 2011; Nye 2011; Rogers 2011; Vancouver-Clark Parks and Recreation 2011; WSDOT 2011.</p>					

**Table 26-3 Additional Reasonably Foreseeable Future Actions Identified after the Draft EIS Publication**

<b>Project</b>	<b>Lead Agency</b>	<b>Applicant</b>	<b>Location (see Map 26-2A through 26-2D)</b>	<b>Codes<sup>1</sup></b>	<b>Status<sup>2</sup></b>
<b><i>Federal</i></b>					
<b>Culvert Construction and Road Abandonment:</b> FEMA Region X proposes to partially fund the Midway Creek fish culvert and road abandonment project; DNR proposes alternate project to construct fish passable culvert and remove fish barriers in Midway Creek	US Dept. of Homeland Security	US Department of Homeland Security, FEMA Region X	Cowlitz County	F	Unknown
<b>Tidal Flow &amp; Fisheries Access Restoration:</b> Assessing environmental impacts around the Post Office Lake in the Ridgeport Dairy Unit at Ridgefield National Wildlife Refuge (2013) CENWP-PM-E-13-01	US Army Corps of Engineers	Army Corps of Engineers and US Fish and Wildlife Service	River Mile 94.4 Ridgefield, WA	W	Proposed
<b>Sediment Management:</b> Mt. St. Helens long term sediment management plan: construct a sediment retention structure, levee improvements, and dredging	US Army Corps of Engineers	US Army Corps of Engineers	Cowlitz County	PT	Proposed
<b>Fort Vancouver Barracks Master Plan – 2012</b>	National Park Service	Ft. Vancouver National Historic Site	Fort Vancouver, Vancouver, WA	PK	Proposed
<b><i>Washington State</i></b>					
<b>Vancouver Annex Tank Upgrade - Fruit Valley Road:</b> Replace 4 storage tanks with 2 tanks; convert existing tank to floating roof configuration	Southwest Clean Air Agency	NuStar Terminals Service, Inc.	Vancouver, WA	I	Proposed
<b>Vancouver Transportation Logistic Improvement Project:</b> Convert existing tanks and crude oil storage, connect pipeline to accommodate crude transfer and install emission control equipment	Southwest Clean Air Agency	NuStar Terminals Service, Inc.	Vancouver, WA	I	Proposed
<b>Larch Corrections Center Water Reservoir:</b> Add water storage and transmission capacity to the LCC Water supply system and demolish existing concrete tank	WA Dept. of Corrections	Larch Corrections Center	Yacolt, WA	W	Approved
<b>Savage Vancouver Energy Project:</b> Proposal, under permit review, for crude-by-rail and marine facility uploading to receive crude oil and obtain 10-year land lease from Port of Vancouver	WA Energy Facility Site Evaluation Council	Savage Companies/ Tesoro Refining & Marketing Co.	Port of Vancouver, WA	I	Proposed

<b>Project</b>	<b>Lead Agency</b>	<b>Applicant</b>	<b>Location (see Map 26-2A through 26-2D)</b>	<b>Codes<sup>1</sup></b>	<b>Status<sup>2</sup></b>
<b>Columbia River Dredging:</b> Dredge up to 3.1 million cubic yards of material from Columbia River over 10 years to ensure channel navigability	WA Dept. of Ecology	Weyerhaeuser, Brian Wood 360-636-7080	Longview, WA	I	Ongoing
<b>Industrial Development:</b> BNSF Longview WYE relocation project: total disturbance area 2.8 acres; reconfigure Wye tract, fill wetland, more	WA Dept. of Ecology	Glen Gaz, BNSF Manager Engineering	Kelso, WA	I	Unknown
<b>Anti-Fungal Spray:</b> Increase in application rate of anti-fungal spray and VOC air permit limit at Weyerhaeuser NR Longview lumber manufacturing facility	WA Dept. of Ecology	Weyerhaeuser	Longview, WA	I	Completed
<b>Commercial Development:</b> Improve performance efficiency of 5 paper machines, increasing hourly production rates by 4%	WA Dept. of Ecology	Longview Fibre, Paper, and Packaging, Inc.	Longview, WA	C	Unknown
<b>Remedial Action:</b> Interim remedial action to remove contaminated Columbia River sediments at former Reynolds metal site	WA Dept. of Ecology	Northwest Alloys, Inc. & Millennium Bulk Terminals-Longview, LLC	Longview, WA	PA	Unknown
<b>Remedial Action at Former Hambleton Bros Log Yard:</b> Investigation and removal of materials and contaminated soils and waste from log pond.	WA Dept. of Ecology	Port of Camas	Washougal, WA	PA	Unknown
<b>Lake River Remedial Action:</b> Remediate contaminated soils in Lake River offshore of port's property	WA Dept. of Ecology	Port of Ridgefield	Ridgefield, WA	PA	Unknown
<b>Burlington RR Co, Camas Siding Project:</b> Remove, replace, and extend a siding track adjacent to the existing BNSF mainline track near Camas	WA Dept. of Ecology	Donald Omsber	Near MP 24.75 Camas, WA	PA	Unknown
<b>Soil Vapor Extraction:</b> Bioremediation in saturated aquifer zone to total depth of 50 feet below surface	WA Dept. of Ecology	NuStar Energy PL		PA	Unknown

Project	Lead Agency	Applicant	Location (see Map 26-2A through 26-2D)	Codes <sup>1</sup>	Status <sup>2</sup>
<b>Fallert Creek Hatchery:</b> Replace footbridge at Fallert Creek hatchery that was destroyed by flood waters	WA Dept. of Fish and Wildlife (WDFW)	WDFW, Cindy Knudsen	Kalama, WA	B	Completed
<b>Fallert Creek Hatchery:</b> Remove generator and diesel lines from pump house at Fallert Creek hatchery, install new generator	WDFW	WDFW, Cindy Knudsen	Kalama, WA	F	Completed
<b>Kalama Falls Hatchery Renovation:</b> Renovate Kalama Falls hatchery: install new fish ladder, 12 concrete rearing ponds, new fish sorting facility, 4 fish holding ponds, and concrete retaining wall	WDFW	WDFW, Cindy Knudsen	Kalama, WA	F	Proposed
<b>Lewis River Hatchery Repair:</b> Repair Lewis River hatchery intake structure into compliance with NMFS criteria	WDFW	Pacificorp Hydro Resources, Briana Weatherly	Woodland, WA	F	Completed
<b>Modrow Fish Trap Upgrade:</b> Expand fish trap and fish lift vault, stabilize bank and fish sorting facilities	WDFW	WDFW, Cindy Knudsen	Kalama, WA	F	Completed
<b>Road, Culvert Abandonment:</b> St Helen Wildlife Area RMAP road closure: remove culverts and restore stream channels	WDFW	WDFW, Daren Hauswald	Cowlitz County	F	Completed
<b>Abernathy Creek Restoration Project:</b> Excavate 1 existing and 2 new backwater channels; remove gravel road	WDFW	Donna Bighouse, WDRW Habitat Program	Longview, WA	F	Completed
<b>Modrow Access Boat Launch:</b> Replace Modrow access boat launch with new 72-ft ramp with 18 precast concrete ramp planks	WDFW	WDFW, Cindy Knudsen	Kalama, WA	P	Completed

Project	Lead Agency	Applicant	Location (see Map 26-2A through 26-2D)	Codes <sup>1</sup>	Status <sup>2</sup>
<b>Kress Lake Access Improvements:</b> Repair boat launch on Kress Lake to a WDFW standard ramp; regrade parking area and add ADA accessible parking area; construct 558-ft long asphalt path	WDFW	WDFW	Kalama, WA	P	Completed
<b>Langsdorf Landing on Columbia River:</b> Boat Ramp replacement of 128 feet of concrete with float alongside and parking area	WDFW	WDFW	Clark County	PK	Completed
<b>Thrillium Trailheads within the Yacolt Burn State Forest</b> Construct 2 trailheads to serve the downhill mountain bike only trail and provide long term public access	WDNR	WDNR	Upper trailhead: Sec 28, T3N, R4E; Lower trailhead: Sec 9/16, T3N, R4E		Completed
<b>Road Construction:</b> Construct 805-ft new road; maintenance and brushing on 1010 feet of road on trust lands	WDNR	WDNR	Cowlitz County	B	Unknown
<b>Road Construction:</b> Construct 775 feet of new road on WDNR property; construct 950 feet to access 60-acre harvest unit on private land	WDNR	RHE Emmerson and Sons, LLC, Sierra Pacific Industries	Woodland, WA	B	Unknown
<b>Commercial Development:</b> Sell rock from High Lakes rock pit for maintenance and further development of the 3916 rock pit	WDNR	WDNR, Wayde Schaible	Cowlitz County	C	Unknown
<b>Evergreen Pit Mine Reclamation:</b> Place 636,000 cubic yards of fill into existing mine to restore site east of Vancouver at NE 18th St and NE 155th Ave	WDNR	Tapani, Inc.	East of Vancouver, WA	D	Unknown
<b>Tebo Pit Surface Mining Reclamation</b> Import 350,000 cubic yards of clean soils to reclaim	WDNR	Storedahl and Sons	Near Vail, WA	D	Unknown

<b>Project</b>	<b>Lead Agency</b>	<b>Applicant</b>	<b>Location (see Map 26-2A through 26-2D)</b>	<b>Codes<sup>1</sup></b>	<b>Status<sup>2</sup></b>
<b>Spotted Deer Quarry</b> DNR will continue to use and develop 3.5-acre rock quarry for forest roads and maintenance material and will increase site to 27.5 acres over 50 years	WDNR	WDNR	Clark County, WA	D	Unknown
<b>Mine Permit:</b> Update mine reclamation permit to incorporate natural appearing stable final slopes and native vegetation replacement	WDNR	Lloyd and Netta Groat and Wendy Nelson	Kalama, WA	D	Unknown
<b>Exchange 86:</b> Exchange a portion of abandoned channel in Cowlitz River for the current river bed of Cowlitz	WDNR	WDNR, Aquatic Resources Division, Robin Hammill, 360-902-1091	Castle Rock, WA	I	Unknown
<b>Merrill Lake Interpretive Trail:</b> Construct one mile of trail, a 27-ft bridge to replace a failed bridge, and three new bridges all crossing tributaries to Merrill Lake	WDNR	WDNR, Carlo Abbruzzese	Cougar, WA	P	Unknown
<b>Timber Harvest throughout Eastern Clark County</b>	WDNR	WDNR	Clark County, WA	T	Ongoing
<b>Multiple Forest Practice Act Applications for Timber Harvests</b>	WDNR	Individuals	Throughout Clark County	T	Ongoing
<b>SR 432/I-5 Intersection Improvements:</b> Construct a compact roundabout to improve safety	WA State Department of Transportation	WA State Department of Transportation	Kelso, WA	B	Proposed
<b>Stream Bank Rebuilding:</b> Rebuild stream bank to keep water from pooling and threatening to flood SR 503	WSDOT	WSDOT	Ariel, WA	E	Proposed
<b>Slope Stabilization:</b> Construct a 1.75:1 geotextile material and rock slope to prevent failure of upper bank on North Fork Toutle River	WSDOT	WSDOT	Toutle, WA	E	Under Construction

Project	Lead Agency	Applicant	Location (see Map 26-2A through 26-2D)	Codes <sup>1</sup>	Status <sup>2</sup>
<b>Bybee Creek Culvert Replacement:</b> Replace 2 fish barrier culverts with larger culverts to improve fish passage capability; culverts convey main stem of Bybee Creek and secondary tributary under Dupont Road	WSDOT	WSDOT	Cowlitz County	F	Proposed
<b>Kelso Martin's Bluff Improvement:</b> Tasks 5 and 6: construct a new main line and new track switch to reduce passenger train delay through Kalama and Kelso	WSDOT	WSDOT, Federal Railroad Administration	Kelso, WA	I	Proposed
<b>Kelso Martin's Bluff Improvement:</b> Task 4: extend Martin's Bluff-Toteff siding	WSDOT	WSDOT, Frank Green	Kalama, WA	I	Under Construction
<b>Rock Quarry Conversion:</b> Convert former rock quarry into disposal site; site will be used to permanently dispose up to 60,000 cubic yards of clean earthen material	WSDOT	WSDOT	Longview, WA	I	Completed
<b>Rock Quarry Conversion:</b> Convert former rock quarry into disposal site; site will be used to permanently dispose up to 20,000 cubic yards of clean earthen material	WSDOT	WSDOT	Longview, WA	I	Completed
<b>Sequest State Park Forest Health Project:</b> Silvicultural prescription to improve long-term forest health	WA State Parks and Recreation Commission	WA State Parks and Rec Commission, Robert Fimbel	Castle Rock, WA	P	Approved
<b>Cowlitz County</b>					
<b>Kelsey Court and Niblett Way Pump Station:</b> Abandon a sewer pump station and construct a new one; upgrade 2 other pump stations on Kelsey Court and Niblett Way	Beacon Hill Water and Sewer District	Beacon Hill Water and Sewer District	Longview, WA	W	Completed
<b>Brianna Court Expansion:</b> Expand Brianna Court by approximately 600 feet	Cowlitz County	Robert Droham	Kelso, WA	B	Approved
<b>Private Road Construction:</b> Construct 620-ft private road	Cowlitz County	James Schraeder	Castle Rock, WA	B	Approved



<b>Project</b>	<b>Lead Agency</b>	<b>Applicant</b>	<b>Location (see Map 26-2A through 26-2D)</b>	<b>Codes<sup>1</sup></b>	<b>Status<sup>2</sup></b>
<b>Private Road Extension:</b> Extend private road, Obsidian Drive, to the north for 302 feet and south for 330 feet	Cowlitz County	Steve Stein represented by Kevin Bluhm	Cougar, WA	B	Proposed
<b>Hazel Dell Rd. Intersection:</b> Realign and reconstruct intersection of Hazel Dell Rd and SR 411	Cowlitz County	Cowlitz County Public Works, Chris Andrews	Kelso, WA	B	Proposed
<b>South Silver Lake Rd. Improvement:</b> Improve one mile of S Silver lake Rd. between MP 0.3 and MP 4.0; remove unoccupied house	Cowlitz County	Cowlitz County Public Works, Chris Andrews	Castle Rock, WA	B	Proposed
<b>Bridge Replacement:</b> Remove washed-out bridge over Coweeman River at end of Allen St, replace with 16x140-ft pre-cast concrete bridge	Cowlitz County	Longview Timberlands, LLC William Hoskins	Kelso, WA	B	Proposed
<b>Private Road:</b> Upgrade approximately 6,000 linear feet of private roadway, associated stormwater site plan report	Cowlitz County	Clint Kysar	Kalama, WA	B	Approved
<b>Military Rd. Development:</b> Construct sidewalk on Military Rd	City of Kalama	City of Kalama	Kalama, WA	B	Completed
<b>N. 4th St. Development:</b> Reconstruct 1,000 feet of N 4th St with two travel lanes, curbs and gutter, on-street parking, and more	City of Kalama	City of Kalama	Kalama, WA	B	Completed
<b>Road Extension:</b> Upgrade existing forest road to serve eight residential buildings	Cowlitz County	Hansen Road Extension, Ben Thomas	Woodland, WA	B	Proposed
<b>Road Widening:</b> Widen Hazel Dell Rd from 22-feet wide to 30- and 36-feet wide	Cowlitz County	Cowlitz County Public Works, Chris Andrews	Castle Rock, WA	B	Proposed
<b>Private Road Extension:</b> Witherbee Rd extension: construct a new private road 1,200 feet in length at end of Witherbee Rd	Cowlitz County	Chilton Inc., Stephen Hart	Kelso, WA	B	Proposed

<b>Project</b>	<b>Lead Agency</b>	<b>Applicant</b>	<b>Location (see Map 26-2A through 26-2D)</b>	<b>Codes<sup>1</sup></b>	<b>Status<sup>2</sup></b>
<b>Industrial Wastewater Sludge:</b> Apply 312,000 gal/year of wastewater sludge from food processing facility to ag lands	Cowlitz County	Walt's Wholesale Meats, INC, Edward Wheeler	Woodland, WA	C	Completed
<b>Private Dock:</b> Attach aluminum floating dock and rolling gangway to existing private dock; requires 4 helix anchors in lake	Cowlitz County	Preston Beck	Woodland, WA	C	Proposed
<b>Recycling:</b> Establish a recycling drop-off point for West Longview	Cowlitz County	Cowlitz County Public Works, Amy Ammer	Longview, WA	C	Completed
<b>Office Building Demolition and Backfill:</b> Demolish 2-story, 23,040-sq-ft office building and backfill the area	Cowlitz County	Weyerhaeuser, Brian Wood	Longview, WA	C	Completed
<b>Longview Bible Baptist Church:</b> Obtain special use permit to remodel and construct a 3,250-sq-ft assembly area, covered portico, and 750-sq-ft of classroom space as addition to Longview Bible Baptist Church	Cowlitz County	Newrock Homes, Clinton Scherping	Longview, WA	C	Completed
<b>Commercial Development:</b> Place 38,000 cubic yards of soil on 47-acre parcel to level an existing ridge as part of private golf range development	Cowlitz County	Lex Strom	Castle Rock, WA	C	Proposed
<b>Commercial Development:</b> Create a level construction area and construct a 40-ft x 48-ft shop	Cowlitz County	Curtis Lowden	Ariel, WA	C	Proposed
<b>Commercial Development:</b> Build modular office building, heavy equipment wash rack, drill a private exempt commercial water well, upgrade stormwater/wastewater systems	Cowlitz County	Pacific Lumber and Shipping, LLC, Dan Bowden	Longview, WA	C	Proposed
<b>Commercial Development:</b> Remodel a 120x130-ft metal building at Cowlitz County Landfill to operate as street sweeping processing facility	Cowlitz County	Cowlitz County Public Works, Don Olson	Longview, WA	C	Proposed
<b>Commercial Development:</b> Demolish on-site gym and construct new 11,150-sq-ft gym at Rose Valley Friends Church	Cowlitz County	Brittelle Architecture Inc., Dave Brittelle	Kelso, WA	C	Completed

<b>Project</b>	<b>Lead Agency</b>	<b>Applicant</b>	<b>Location (see Map 26-2A through 26-2D)</b>	<b>Codes<sup>1</sup></b>	<b>Status<sup>2</sup></b>
<b>Commercial Development:</b> Construct 100,000-sq-ft mini-storage facility, including 750-sq-ft office space, parking spaces, etc.	Cowlitz County	Woodford Cre, Todd Wade	Kelso, WA	C	Proposed
<b>Commercial Development:</b> Special use approval for constructing a 160-ft tall freestanding broadband communications tower	Cowlitz County	Cascade Networks Brian Magnuson	Longview, WA	C	Completed
<b>Millenium Bulk Terminals Demolition:</b> Demolish and remove a variety of structures within the areas of South Plant area, Millennium bulk terminals Longview, constructed in the 1940s	Cowlitz County	Millennium Bulk Terminals, Kristin Gaines	Longview, WA	D	Approved
<b>Surface Mine:</b> Vance surface mine: remove 800,000 cubic yards of dredge spoil material for off-site use	Cowlitz County	Estate of Homer Vance, Randal Vance	Kelso, WA	D	Completed
<b>Carrolls Channel Pile Removal:</b> Pull piles out of Carrolls Channel using a choker chain and winch via barge	Cowlitz County	NRCS, INC Brian Perleberg	Kalama, WA	D	Proposed
<b>Levee Repair:</b> Repair and reconstruct Columbia River levee	Cowlitz County	CDID #1 Ken Cachelin, 360.423.2493	Longview, WA	E	Completed
<b>Stream Bank Stabilization:</b> Stabilize an eroding stream bank using stacked and anchored geotextile bags filled with sand	Cowlitz County	Urling Planning Associates, Skip Urling	Longview, WA	E	Approved
<b>Earth Flood Control Berm:</b> Construct earth flood control berm, regrade ditch, and install and modify culverts along Burriss Creek	Cowlitz County	CDID #2 Dale Boon, by Michele McGraw Ecological Land Services INC	Woodland, WA	E	Proposed
<b>Allen St. Culvert Replacement:</b> Replace concrete pipe culvert with corrugated steel pipe culvert	Cowlitz County	Department of Public Works, Roger Maurer	Cowlitz County	F	Completed
<b>Culvert Replacement and Bridge Construction:</b> Remove existing culvert and construct a 36-ft x 16-ft precast concrete bridge over Stewart Creek	Cowlitz County	Lone Oak Rifle and Pistol Club, Mel Nelson	Longview, WA	F	Proposed

<b>Project</b>	<b>Lead Agency</b>	<b>Applicant</b>	<b>Location (see Map 26-2A through 26-2D)</b>	<b>Codes<sup>1</sup></b>	<b>Status<sup>2</sup></b>
<b>Culvert Replacement:</b> Replace 2 28- and 24- inch culverts with a new 70-ft pre-cast concrete box culvert	Cowlitz County	Cowlitz County Public Works	Castle Rock, WA	F	Proposed
<b>Speelyai Creek Fish Hatchery Upgrade:</b> Repair and upgrade Speelyai Creek fish hatchery; replace Kokanee fish trap with precast concrete trap	Cowlitz County	Pacificorp Energy, Briana Weatherly 503-813-7039	Ariel, WA	F	Approved
<b>Speelyai Creek Fish Hatchery:</b> Demolish and replace Speelyai hatchery pond 14	Cowlitz County	Pacificorp Energy, Briana Weatherly	Ariel, WA	F	Approved
<b>Yale Dam:</b> Install a removable fish entrainment reduction net system upstream of Yale Dam spillway; includes 14 permanent rock anchors	Cowlitz County	Pacificorp Energy, Briana Weatherly	Cougar, WA	F	Approved
<b>Lewis River Hatchery Upgrade:</b> Structural upgrades to Lewis River hatchery downstream intake pump	Cowlitz County	Pacificorp Energy Briana Weatherly	Woodland, WA	F	Approved
<b>Spud Barge Mitigation:</b> Major revision to mitigation plan for Tidewater spud barge: install 4 large woody structures to create habitat for juvenile salmonids	Cowlitz County	ELS, Inc., Lynn Simpson	Kalama, WA	F	Proposed
<b>Communications Tower Construction:</b> Construct 145-ft steel lattice communications tower and base station equipment shelter	Cowlitz County	Urban Wireless, for Verizon Wireless, Shanin Prusia	Longview, WA	I	Completed
<b>Industrial Development:</b> Construct a 40-ft communications tower associated with natural gas pipeline within existing take-off station	Cowlitz County	Northwest Pipeline GP, Jean Brady, 360-666-2106	Kalama, WA	I	Completed
<b>Communications Site Development:</b> Construct communications site including 150-ft monopole tower with 9 antennas and chain-link fence enclosure	Cowlitz County	Complete Wireless Services	Toutle, WA	I	Completed
<b>Industrial Development:</b> Construct evaporator equipment and associated steel structure to improve efficiency of pulp processing	Cowlitz County	Weyerhaeuser, Brian Wood	Longview, WA	I	Proposed

Project	Lead Agency	Applicant	Location (see Map 26-2A through 26-2D)	Codes <sup>1</sup>	Status <sup>2</sup>
<b>Dock Demolition and Replacement:</b> Demolish and replace dock and associated structures at Emerald Kalama Chemical Site	Cowlitz County	Northern Resource Consulting Inc., Brian Perleberg	Kalama, WA	I	Proposed
<b>Industrial Development:</b> Construct and obtain critical areas permit to create rail extension lay down area and truck turn-around at Emerald Kalama chemical site	Cowlitz County	ELS, Michele McGraw and Brian Rose	Kalama, WA	I	Completed
<b>Industrial Development:</b> Construct improvements at Grandview Terrace Pump Station Site; demolish existing 60,000-gal reservoir and pump house; construct 310-sq-ft house	Cowlitz County	Beacon Hill Water & Sewer District, Dell Hellger	Longview, WA	I	Proposed
<b>Monopole Installation:</b> Install a self-supporting 160-ft monopole to support communication facilities; expand existing fences	Cowlitz County	Velocitel Inc., Don Forsberg	Castle Rock, WA	I	Under Construction
<b>Industrial Development:</b> Install new HCL synthesis unit to complement existing unit; relocate tanks and pumps onto new reinforced concrete pads, install booster pumps	Cowlitz County	Weyerhaeuser, Paul Seamons	Longview, WA	I	Proposed
<b>Industrial Development:</b> Upgrade part of paper pulp processing infrastructure by replacing peroxide-enhanced extraction stage washer	Cowlitz County	Weyerhaeuser, Brian Wood	Longview, WA	I	Proposed
<b>Longview Fibre Paper and Packing Plant Modernization:</b> Modify and modernize the Longview Fibre Paper and Packing Plant to allow production of additional electricity	Cowlitz County	Longview Fibre P&P, Steven Duvall	Longview, WA	I	Proposed
<b>Carrolls Channel Dolphin Removal:</b> Remove several derelict dolphins and pilings within Carrolls Channel	Cowlitz County	NRCS, Inc Brian Perleberg	Kalama, WA	I	Proposed
<b>Industrial Development:</b> Add a chip pre-treatment system to a portion of fiber processing infrastructure	Cowlitz County	Weyerhaeuser, Brian Wood	Longview, WA	I	Proposed

<b>Project</b>	<b>Lead Agency</b>	<b>Applicant</b>	<b>Location (see Map 26-2A through 26-2D)</b>	<b>Codes<sup>1</sup></b>	<b>Status<sup>2</sup></b>
<b>Cold Storage Facility Expansion:</b> 60,000-sq-ft expansion of cold storage facility, including 40,000-sq-ft cold storage building and 16,000-sq-ft loading dock.	Cowlitz County	Columbia Fruit, Marty Peterson by Shepard Cutler	Woodland, WA	I	Proposed
<b>Commercial Development:</b> Construct 50,000-sq-ft building as part of existing agricultural operation	Cowlitz County	Marty Peterson, Columbia Fruit	Woodland, WA	I	Under Construction
<b>Industrial Development:</b> Construct 91,000-sq-ft addition to steel coil manufacturing facility	Cowlitz County	Schlecht Construct, Larry Schlecht	Longview, WA	I	Proposed
<b>Recreational Trail Development:</b> Construct recreational trail between Beaver Bay and Cougar Camp campgrounds	Cowlitz County	Pacificorp Energy, Briana Weatherly	Cougar, WA	P	Proposed
<b>Campground Development:</b> Develop overnight stay campground at Harry Gardner park	Cowlitz County	Cowlitz County Facilities Services, Ron Junker	Toutle, WA	P	Approved
<b>Harry Gardner Park Restoration:</b> Construct facilities and utilities to restore Harry Gardner Park	Cowlitz County	Cowlitz County	Castle Rock, WA	P	Under Construction
<b>Equestrian Parking Area Improvement:</b> Improve equestrian parking area by constructing new gravel parking lot, toilet, and pavement modifications	Cowlitz County	Pacificorp Energy, Briana Weatherly	Yale, WA	P	Completed
<b>Commercial Development:</b> Construct improvements to commercial moorage and recreational vehicle park facility, including commercial recreation dock attached to existing pilings	Cowlitz County	Jim Stevens	Woodland, WA	P	Proposed
<b>Lake Merwin Shoreline Upgrade:</b> Upgrade Lake Merwin shoreline to make ADA and universal access recreation improvements at Cresap Bay Camp	Cowlitz County	Pacificorp Energy, Briana Weatherly	Yale, WA	P	Proposed

Project	Lead Agency	Applicant	Location (see Map 26-2A through 26-2D)	Codes <sup>1</sup>	Status <sup>2</sup>
<b>Cougar Camp Improvements:</b> Make various improvements at Cougar Camp Recreation Area, including upgrading restrooms to meet ADA standards, replacing play equipment, constructing new ADA asphalt path and picnic tables	Cowlitz County	Pacificorp Energy, Briana Weatherly	Cougar, WA	P	Under Construction
<b>Speelyai Park Improvement:</b> Speelyai Bay Park improvement: upgrade and expand septic system capacity, expand and improve parking lot, construct pedestrian access facilities, add drainage and stormwater facilities	Cowlitz County	Pacificorp Energy, Briana Weatherly	Ariel, WA	P	Approved
<b>Recreation Development:</b> Construct a 7 zip-line recreational course and trail system	Cowlitz County	Kiddigan Investment, LLC, Grady Eilts	Toutle, WA	P	Proposed
<b>Mooring Dolphins Installation:</b> Install 2 additional mooring dolphins near cargo dock	Cowlitz County	Kalama Export Company, Lynn Simpson, 360-578-1371-110	Kalama, WA	PT	Proposed
<b>Industrial Development</b> Port of Kalama rail laydown: construct a 1,491-ft rail spur and laydown yard	Cowlitz County	Port of Kalama, Tabitha Reeder	Kalama, WA	PT	Approved
<b>Millennium Bulk Terminals Development:</b> Repair existing dock, maintenance dredging of ship berth and removal of derelict Derrick crane and creosote wing wall; repair/restore dock facility	Cowlitz County	Millennium Bulk Terminals, Kristin Gaines	Longview, WA	PT	Approved
<b>Construct Spud/Mooring Barge:</b> Construct mooring barge/tidewater spud barge to accommodate 3-barges wide and 2-barges long on each side	Cowlitz County	Northern Resource Consulting, Inc.	Kalama, WA	PT	Approved
<b>Temco Terminal Modernization:</b> Multi-phase modernization project at Temco terminal at Port of Kalama; replace grain loading and unloading features, other conveyor and upland change	Cowlitz County	Berger Abam Bill Allen	Kalama, WA	PT	Approved

Project	Lead Agency	Applicant	Location (see Map 26-2A through 26-2D)	Codes <sup>1</sup>	Status <sup>2</sup>
<b>Industrial Development:</b> Steelscape Paint storage warehouse and steel coil storage warehouse: construct a 17,000-sq-ft warehouse for storage of paint drums; construct a 45,000-sq-ft for storage of steel coil materials	Cowlitz County	Port of Kalama, Tabitha Reeder	Kalama, WA	PT	Proposed
<b>Industrial Development:</b> Construct a 25-acre dry bulk material handling facility near Port of Longview	Cowlitz County	Ferns America LLC, Paul Wong	Longview, WA	PT	Proposed
<b>Marine Terminal Construction:</b> Construct a marine terminal to import calcium carbonate via barge to be stockpiled on upland site	Cowlitz County	Columbia River Carbonates	Woodland, WA	PT	Proposed
<b>Natural Gas Project:</b> Construct and operate a 346-MW natural gas-fired combustion turbine project	Cowlitz County	Energy Northwest, Tom Krueger	Kalama, WA	PT	Canceled
<b>Transmission Line Installation:</b> Install a 1.178 mile long secondary 115kv power transmission line within Columbia River shoreline at existing Longview Fibre Plant site; install 15 transmission wooden power poles and replace 14 poles	Cowlitz County	SWP Environmental Services, Jessi Belston	Longview, WA	PW	Proposed
<b>Fiber Optic Replacement:</b> Replace and reestablish 1,600 linear feet of fiber optic cable on and around Columbia and Cowlitz railway trestle	Cowlitz County	Qwest/Century Link, Lynn Smith	Kelso, WA	PW	Approved
<b>Fiber Optic Installation:</b> Install a 1,950-ft dark fiber optic cable from cell tower to merge with existing lines east of I-5 using a hybrid underground/aerial alignment	Cowlitz County	NRCS, INC, Brian Perleberg	Kalama, WA	PW	Approved
<b>Residential Development:</b> Various applications for residential development throughout Cowlitz County	Cowlitz County	Various	Various	R	Various



Project	Lead Agency	Applicant	Location (see Map 26-2A through 26-2D)	Codes <sup>1</sup>	Status <sup>2</sup>
<b>Stormwater Improvements:</b> Two-phase construction of stormwater improvements at existing lumber yard; phase I excavation of 6-ft ditch of 3,200 linear feet around perimeter, phase II construction of 4-acre sediment infiltration basin. Construction of 2,000-sq-ft pump house and 9,375-sq-ft drying pad	Cowlitz County	Brian Perleberg	Longview, WA	W	Proposed
<b>Merwin Dam Improvements:</b> Improvements at Merwin Dam; install a 2-inch water supply line connecting upstream collection and transport facility to potable water supply at Merwin Village	Cowlitz County	Pacifcorp Energy, Briana Weatherly	Ariel, WA	W	Proposed
<b>Stormwater Improvements:</b> Pacific Lumber and Shipping stormwater improvements	Cowlitz County	Brian Perleberg	Longview, WA	W	Proposed
<b>Stormwater Improvements:</b> Stormwater improvements at Pacific Lumber and Shipping LLC facility	Cowlitz County	Pacific Lumber and Shipping, LLC, Brian Perleberg	Longview, WA	W	Proposed
<b>Waste Disposal:</b> Permit to repurpose existing landfill as municipal solid waste landfill and further develop the headquarters landfill	Cowlitz County	Cowlitz County Public Works	Castle Rock, WA	W	On Hold
<b>Waste Disposal:</b> Application for amendment to solid waste permit to incorporate existing materials recovery facility	Cowlitz County	Waste Control Recycling, Inc. Kevin Willis	Longview, WA	W	Proposed
<b>NW Front Ave. Reconstruction:</b> Front Ave NW from A St to Shintaffer St	City of Castle Rock	City of Castle Rock Public Works	Castle Rock, WA	B	Completed
<b>HVAC Contractor Site Construction:</b> Build 4,600-sq-ft commercial building and parking lot	City of Castle Rock	Troy and Molly Franklin	Castle Rock, WA	C	Approved
<b>World Apartments Demolition and Rebuilding:</b> Permit to demolish and rebuild a fire damaged, 6-unit apartment building	City of Castle Rock	Dana Wynn	Castle Rock, WA	C	Completed
<b>WSDOT Long-Term Clean Disposal Site:</b> Use of pre-existing disposal site as long-term clean disposal site for WSDOT maintenance	City of Castle Rock	WSDOT Maintenance, Barb Aberle	Castle Rock, WA	C	Completed

<b>Project</b>	<b>Lead Agency</b>	<b>Applicant</b>	<b>Location (see Map 26-2A through 26-2D)</b>	<b>Codes<sup>1</sup></b>	<b>Status<sup>2</sup></b>
<b>Rock Groin Construction:</b> Rock groin construction in Cowlitz River upstream of Al Helenberg Memorial Boat Launch to improve boat launch safety	City of Castle Rock	City of Castle Rock Public Works, David Vorse	Castle Rock, WA	P	Proposed
<b>Castle Rock Exit 49 Visitor Center:</b> Construct visitor center at Castle Rock exit 49	City of Castle Rock	City of Castle Rock Public Works, David Vorse	Castle Rock, WA	P	Approved
<b>BMX Track:</b> Enlarge and renovate existing BMX bicycle track	City of Castle Rock	City of Castle Rock Public Works, David Vorse	Castle Rock, WA	P	Completed
<b>Kalama Energy Center:</b> Construct and operate a 346-MW natural gas-fired combustion turbine project	Energy Northwest	Kalama Energy Center	Kalama, WA	PT	Canceled
<b>Haydu Community Park Development:</b> Develop Haydu Community Park; inc. public recreation facilities, riding arena, restrooms, fairgrounds, sewer pump station, and concession stands	City of Kalama	Port of Kalama, Tabitha Reeder	Kalama, WA	P	Under Construction
<b>Port of Kalama Development:</b> Agreement for 40-year phase development between Kalama and Port of Kalama	City of Kalama	Port of Kalama, Tabitha Reeder	Kalama, WA	PT	Completed
<b>Port of Kalama Development:</b> Redevelop Port of Kalama-owned land with 9,000-sq-ft interpretive center and administrative office, hotels, restaurants and associated improvements	City of Kalama	Port of Kalama	Kalama, WA	PT	Proposed
<b>Shoreline Development:</b> Shorelines substantial development permit and critical areas permit: construct a 9,890-ft sanitary sewer forcemain system to provide sanitary services east of I-5	City of Kalama	Port of Kalama, Tabitha Reeder	Kalama, WA	PT	Under Construction
<b>Stormwater Improvements:</b> RSG Forest Products Kalama infiltration project: route stormwater that discharges to Columbia River to a treatment system	City of Kalama	RSG Forest Products, Sam Sanders, 360- 673-2825	Kalama, WA	W	Completed

<b>Project</b>	<b>Lead Agency</b>	<b>Applicant</b>	<b>Location (see Map 26-2A through 26-2D)</b>	<b>Codes<sup>1</sup></b>	<b>Status<sup>2</sup></b>
<b>Culvert Extension:</b> Extend culvert at drinking water treatment plant	City of Kalama	City of Kalama	Kalama, WA	W	Completed
<b>W Main St. and Catlin Way Development:</b> 3-phase reconstruction of W Main St and Catlin Way, including realignment and various improvements	City of Kelso	City of Kelso	Kelso, WA	B	Under Construction
<b>Kelso SW Washington Regional Airport Development:</b> Kelso Southwest Washington Regional Airport west-side hangar development project	City of Kelso	City of Kelso	Kelso, WA	C	Completed
<b>Commercial Development:</b> Construct a 6,400-sq-ft commercial tenant building	City of Kelso	Kelso Highlander Group, LLC by Mark McKechnie of Oregon Architecture	Kelso, WA	C	Completed
<b>Commercial Development:</b> Replace an 88-ft light pole with a 100-ft cell monopole and antennae	City of Kelso	McDaniel Cellular for US Cellular, David Monselle	Kelso, WA	C	Completed
<b>Commercial Development:</b> Develop a 1.89 acre site to include 3 commercial buildings, coffee shop, hamburger shop, and potential motel	City of Kelso	John Duncan, Gibbs and Olson	Kelso, WA	C	Completed
<b>Commercial Development:</b> Demolish existing building, parking lot, and drive-through and redevelop with a new 4,415-sq-ft restaurant and 73-stall parking lot	City of Kelso	McDonald's USA LLC, Clint Cameron	Kelso, WA	C	Completed
<b>Commercial Development:</b> Replace 88-ft light pole with 100-ft cell monopole and antennae	City of Kelso	Complete Cellular, David Monselle	Kelso, WA	C	Completed
<b>Commercial Development:</b> Demolish a 5,000-sq-ft pole building and reconstruct a 8,650-sq-ft pre-engineered metal building attached to existing building	City of Kelso	Five Rivers Construction for Western Fabrication Center Inc.	Kelso, WA	C	Completed

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<b>Three Rivers Regal Cinema:</b> Demolish 52,550-sq-ft Sears building and construct a 51,790-sq-ft cinema with new landscape, sidewalks, parking, storm and sewer lines	City of Kelso	Mark Reuland, KPFF For Three Rivers Mall LLC, Rouse Properties	Kelso, WA	C	Completed
<b>Industrial Development:</b> Place 18,000-30,000 gallon bulk propane storage tank for refilling Bobtail delivery trucks	City of Kelso	Red Anderson, APP Propane Bulk Storage	Kelso, WA	I	Completed
<b>Industrial Development:</b> Construct a new 2-million-gallon concrete water reservoir adjacent to an existing metal reservoir	City of Kelso	City of Kelso	Kelso, WA	I	Completed
<b>Stormwater Improvements:</b> Replace existing underground storm sewer system with a 42-ft diameter pipe	City of Kelso	City of Kelso, Van McKay	Kelso, WA	W	Approved
<b>Sewer Improvements:</b> Construct sewer line replacement: PVC sewer line, associated manholes, and side sewer connection	City of Kelso	City of Kelso	Kelso, WA	W	Completed
<b>Commercial Development:</b> Demolish commercial structure and regrade and fill to resolve draining problem, install manhole and connect existing catch basin	City of Kelso	Sonny Parsons, Kelso Highlander Group, LLC; John Duncan, Gibbs and Olson	Kelso, WA	W	Completed
<b>Retaining Wall Installation:</b> Install approximately 150 linear feet of rock gabion retaining wall	City of Longview	Ken Cachelin	Longview, WA	B	Completed
<b>Shared-Use Path Development:</b> Construct a paved, lighted, and landscaped shared-use path from Oregon Way to Douglas Street	City of Longview	City of Longview, Craig Bozarth	Longview, WA	B	Completed
<b>Bridge Replacement:</b> Replace Washington Way Bridge with wider, precast bridge to meet current design standards	City of Longview	Ecological Lands Services Inc., Lynn Simpson, and City of Longview	Longview, WA	B	Under Construction

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<b>Canterbury Park Retirement Building:</b> Construct a 41,204-sq-ft 3-story addition for 33 new units on Canterbury Park Retirement Building	City of Longview	R J Development, Jeff Yates	Longview, WA	C	Under Construction
<b>Commercial Development:</b> Demolish Red Canoe Credit Union branch and construct a 4,300-sq-ft credit union branch with drive-through banking	City of Longview	Cliff Hasert, EHS Design for Red Canoe Credit Union	Longview, WA	C	Completed
<b>Lower Columbia College Development:</b> Replace Columbia College Health and Science building: rezone 2 acres from R-3 to Civic Center district; demolish apartment complex and garages at 1810 Maple St, construct parking facility and new building	City of Longview	Andy Rovelstad for Lower Columbia College, Richard Hamilton	Longview, WA	C	Completed
<b>Commercial Development:</b> Two-phase commercial development: construct a 11,266-sq-ft commercial/retail building on 1.75 acres with 42,320-sq-ft of concrete for parking and circulation	City of Longview	Precision Land Services, Tim Wines	Longview, WA	C	Completed
<b>Commercial Development:</b> Phased construction of 5 canopy structures for covered parking at self-storage business	City of Longview	Hio Storage, LLC, dba Ocean Beach Self Storage, Butch Henry	Longview, WA	C	Completed
<b>Commercial Development:</b> Relocate 3 metal shipping containers to a new site on campus for storing ladders, tools, school supplies, and other items	City of Longview	Craig Collins for Longview School District	Longview, WA	C	Canceled
<b>Lower Columbia College Gymnasium:</b> Remodel and expand the 24,000-sq-ft Lower Columbia College Myklebust Gymnasium with a 10,836 sq feet addition to the fitness center; remodel locker rooms and classrooms	City of Longview	Andy Rovelstad Lower Columbia College, Richard Hamilton	Longview, WA	C	Completed
<b>Commercial Development:</b> Construct 2 radio towers to serve the city SCADA utility network system	City of Longview	Longview Public Works Dept., Ivona Kininmonth	Longview, WA	C	Completed

Project	Lead Agency	Applicant	Location (see Map 26-2A through 26-2D)	Codes <sup>1</sup>	Status <sup>2</sup>
<b>Commercial Development:</b> Valley Christian Fellowship 2-phased expansion: add 2,444-sq-ft for 2 restrooms and offices; add 8,800-sq-ft sanctuary addition and stormwater improvements; parking spaces	City of Longview	Steve Jabusch PNE Construction, for Valley Christian Fellowship	Longview, WA	C	Approved
<b>Commercial Development:</b> Construct a 874-sq-ft pole building to cover a truck loading bay, install ecology block wall with concrete cap along Cowlitz River dike; extend river front trail	City of Longview	Skip Urling for Waste Control Recycling, Inc.	Longview, WA	C	Completed
<b>Commercial Development:</b> Construct a 9,352-sq-ft Honda auto dealership sales building; resurface 70% of 41,973-sq-ft vehicle sales lot and repair and overlay 35,846-sq-ft sales lot	City of Longview	Hecker Architects, Jeffery Hecker	Longview, WA	C	Approved
<b>Industrial Development:</b> Decommission the West Longview Wastewater Treatment Plant's 4 sewer lagoon	City of Longview	City of Longview, Mike Murray	Longview, WA	I	Completed
<b>Industrial Development:</b> Demolish two industrial buildings and construct a 10,000-sq-ft metal building for truck and equipment maintenance and repair shop; install stormwater collection and treatment system	City of Longview	Skip Urling for Waste Control Recycling, Inc.	Longview, WA	I	Completed
<b>Industrial Development:</b> Expand a bleach solution bottling and distribution facility: add 7,000 sq feet to structure, construct a 22,000-sq-ft warehouse for bottled/containerized bleach products, and construct a 28,000-sq-ft warehouse and office	City of Longview	Blaine Carlton for HASA, INC.	Longview, WA	I	Approved
<b>Industrial Development:</b> Phased construction of industrial park with 5 buildings totaling 133,800 sq feet	City of Longview	Waite Specialty Machines, Steve Waite	Longview, WA	I	Under Construction

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<b>Commercial Development:</b> Construct a 110-ft monopole wireless communications tower and associated equipment compound	City of Longview	Brandon Neilson, Impact 7G, Inc, AT&T Mobility Inc.	Longview, WA	I	Completed
<b>Industrial Development:</b> Develop a 8.93-acre industrial lot to grow and process marijuana	City of Longview	Olson Engineering Inc., Mike Odren & Barr Corp	Longview, WA	I	Approved
<b>Industrial Development:</b> Develop a 19-acre industrial lot to grow and process Marijuana; buildings will consist of both warehousing and manufacturing	City of Longview	Olson Engineering Inc., Mike Odren & Barr Corp, Aaron Barr	Longview, WA	I	Approved
<b>Industrial Development:</b> Phased construction of Waite industrial park, 5 buildings totaling 133,800 sq feet on 10.09 acres with associated site improvements	City of Longview	Waite Specialty Machines, Steve Waite	Longview, WA	I	Under Construction
<b>Industrial Development:</b> Construct site improvements relating to new groundwater supply and water treatment plant	City of Longview	City of Longview	Longview, WA	I	Completed
<b>Longview Water Production/Distribution System:</b> Upgrade to city's water production and distribution system at Mind [sic] Farm Regional Water Treatment Plant	City of Longview	City of Longview, Amy Blain	Longview, WA	I	Completed
<b>Industrial Development:</b> Construct a 10,035-sq-ft industrial building for additional manufacturing	City of Woodland	Jeremy Fick, AIMMCO	Woodland, WA	I	Approved
<b>Cowlitz River Levee:</b> Fill 2 old driveway cuts in Cowlitz River levee to match surrounding levee elevations	City of Longview	Consolidated Diking Improvement District #1	Longview, WA	W	Completed
<b>Sewer Improvements:</b> Longview sewer diversion project, including 8,650 sq feet of sewer main	City of Longview	Richard Grushman, Gibbs and Olson Inc. & Craig Bozarth, City of Longview	Longview, WA	W	Completed

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<b>Cowlitz River Pump Station:</b> Modify existing water-intake structure on Cowlitz River to use as pump station to supply 6,000 gal/minute to Lake Sacajawea; update other facilities	City of Longview	Lynn Simpson for City of Longview Public Works Dept.	Longview, WA	W	Approved
<b>Water Main Relocation:</b> Relocate a water main damaged by slide in 2006; new 10-inch water main section between Clark Creek Ln and Clark Creek Rd	City of Longview	City of Longview	Longview, WA	W	Completed
<b>Safe Routes to School:</b> Construct new sidewalk and install pedestrian signals and solar flashing speed signs	City of Woodland	City of Woodland Public Works, Bart Stepp	Woodland, WA	B	Approved
<b>Guild Rd. Expansion:</b> Expand and improve Guild Rd from its current width of 22 feet to 44 feet and add 0.23 mile; construct stormwater pond	City of Woodland	City of Woodland	Woodland, WA	B	Completed
<b>Scott Ave./SR 503 intersection Improvement:</b> Install a single lane roundabout; relocate SR 503 south of intersection; improve sidewalks, utilities; demolish vacant house owned by city	City of Woodland	City of Woodland, Bart Stepp	Woodland, WA	B	Under Construction
<b>Safe Routes to School:</b> Construct sidewalk improvements and install pedestrian signals	City of Woodland	City of Woodland Public Works, Bart Stepp	Woodland, WA	B	Approved
<b>Commercial Development:</b> Construct a 4,680-sq-ft storage and wash rack building; extend water, sewer, power services, and paved access to new building	City of Woodland	Randy Larson for Chilton Logging	Woodland, WA	C	Proposed
<b>Woodland Police Station:</b> Construct a 8,494-sq-ft police station with 44 parking spaces; possible 2,000-sq-ft future expansion	City of Woodland	City of Woodland, Bart Stepp	Woodland, WA	C	Completed
<b>Taco Bell Construction:</b> Construct a 1,946-sq-ft Taco Bell restaurant with 22 parking spaces and an additional sidewalk	City of Woodland	VMI Architecture, Phillip Moss	Woodland, WA	C	Under Construction



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<b>Les Schwab Tire Center Construction:</b> Construct a 13,620-sq-ft tire center, including 47 stalls, landscaping, and stormwater treatment and detention facilities	City of Woodland	Brothers Chumbly LLC	Woodland, WA	C	Completed
<b>Lilac Place Apartments:</b> Construct 6 multi-family buildings with 38 dwelling units, ranging from 714 sq feet to 1,205 sq feet	City of Woodland	Longview Housing Authority, Dan Freedman	Woodland, WA	C	Completed
<b>Commercial Development:</b> Expand facility on 2.47 acres by 7,500 sq feet	City of Woodland	DK Enterprises Woodland LLC	Woodland, WA	C	Completed
<b>O'Reilly Auto Parts Store:</b> Construct a 7,760-sq-ft auto parts store	City of Woodland	Daniel Herron	Woodland, WA	C	Completed
<b>Commercial Development:</b> Construct a 85,000-sq-ft addition to freezer warehouse facility	City of Woodland	Columbia Colstor, INC., Joel Sandberg	Woodland, WA	C	Completed
<b>Woodport Place Duplexes:</b> Construct 6 new duplex buildings on 1.8 acre parcel, remove 1 existing duplex; within 250-ft riparian habitat buffer from Lewis River	City of Woodland	Ed Greer for Woodport Properties LLC	Woodland, WA	C	Under Construction
<b>Commercial Development:</b> E&I commercial development phase one: construct a 4-island fueling station with overhead canopy, a 4,280-sq-ft convenience store, a drive-through restaurant, along with proposed access drive from Belmont Loop and 33 parking spaces	City of Woodland	Brittelle Architecture Inc., Dave Brittelle	Woodland, WA	C	Proposed
<b>Lewis River Fish Release Pond:</b> Construct fish release pond facility along western shoreline of Lewis River to transport Salmonids	City of Woodland	Pacifcorp Energy Briana Weatherly	Woodland, WA	F	Approved
<b>Industrial Development:</b> Construct a 120,000-sq-ft processing and warehousing facility	City of Woodland	E & B Work, LLC	Woodland, WA	I	Proposed

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<b>Industrial Development:</b> Construct a 12,110-sq-ft industrial building as a pre-fabricated metal building	City of Woodland	HCT Properties LLC by Schlecht Construction	Woodland, WA	I	Proposed
<b>Industrial Development:</b> Construct a 120,000-sq-ft processing and warehousing facility	City of Woodland	Eric Lanciault, Architect for American Paper Converting	Woodland, WA	I	Proposed
<b>Industrial Development:</b> Construct a bulk transportation trail and truck transloading and wash facility on 4.1 acres	City of Woodland	National Transportation Logistic, LLC, Gary Cross	Woodland, WA	I	Canceled
<b>Industrial Development:</b> Expand a steel chain manufacturing facility by 38,40 sq feet for a 2,096-sq-ft office and 36,304-sq-ft warehouse	City of Woodland	Tom Hickey, Mac Chain Company LTD	Woodland, WA	I	Completed
<b>Industrial Development:</b> Construct a rail-to-truck transloading facility on previously developed industrial lot; project allows for transloading of liquid chemicals and food products	City of Woodland	Gary Cross, Nat Trans Logistics, LLC	Woodland, WA	I	Canceled
<b>Woodland Swimming Pool and Recreation Center:</b> Construct 20,800-sq-ft building with 52 parking stalls	City of Woodland	Benno Dobbe, Woodland Swimming Pool Committee	Woodland, WA	P	Proposed
<b>Lakeside Manor Site Improvements:</b> install private streets, stormwater facility, utilities, and expanded parking; remove 1,200 cubic yards of material to create a 3:1 slope	City of Woodland	Ed Greer, Caroline Settlemeir & Saxony Pacific LLC	Woodland, WA	P	Proposed
<b>Woodland High School Construction:</b> Construct new Woodland High School on 40 acres; 149,809 sq feet, and site improvements for 1,200 students	City of Woodland	City of Woodland	Woodland, WA	PS	Under Construction
<b>Residential Development:</b> Application for residential development	City of Woodland	Aaron Christopherson & Raymond Birch	Woodland, WA	R	Approved

Project	Lead Agency	Applicant	Location (see Map 26-2A through 26-2D)	Codes <sup>1</sup>	Status <sup>2</sup>
<b>Ranney Collector Well Improvements:</b> Construct 3 new 12-ft diameter horizontal laterals 150 feet in length	City of Woodland	City of Woodland Public Works, Bart Stepp	Woodland, WA	W	Completed
<b>Clark County</b>					
<b>Van Atta Bridge Project:</b> Seismic retrofit of bridge with other improvements	Clark County	Clark County	Brush Prairie, WA	B	Under Construction
<b>Fifth Plain Creek Bridge:</b> NE 88th St about 0.5 miles east of NE Ward Rd	Clark County	Clark County Public Works		B	Proposed; In Design
<b>Cedar Creek Bridge Replacement:</b> Bridge replacement where NE Etna Rd crosses Cedar Creek, about 800 ft east of NW 49th Ave intersection	Clark County	Clark County	Near Woodland, WA	B	Approved
<b>Big Tree Bridge Seismic Retrofit:</b> Big Tree Creek Bridge, on NE Lucia Falls Rd, 0.2 mile SW of intersection at NE Sunset Falls	Clark County	Clark County		B	Under Construction
<b>Blair-Zeek Bridge Seismic Retrofit:</b> Retrofit of bridge crossing the Little Washougal River (NE Blair Rd just north of NE Zeek Rd).	Clark County	Clark County Public Works		B	Completed
<b>Cougar Creek Bridge Replacement:</b> Install longer single-span structure to reduce constriction of Creek Channel	Clark County	Clark County Public Works	Washougal, WA	B	Completed
<b>NE 119th St. Improvement:</b> Road widening, drainage, and frontage improvements of NE 119th St, from NE 72nd Ave to NE 87th Ave	Clark County	Clark County Public Works	Washougal, WA	B	Proposed; In Design
<b>NE 10th Ave. Street Improvement:</b> Extend, widen, and improve the existing road, along with building a bridge over Whipple Creek, from NE 149th St to NE 164th St	Clark County	Clark County Public Works	Washougal, WA	B	Proposed; In Design
<b>Access Road Grading and Construction</b>	Clark County	Barnett Properties LLC	Washougal, WA	B	Under Constr
<b>General County Road and Sidewalk Improvement Projects</b>	Clark County	Clark County	Countywide	B	Ongoing

<b>Project</b>	<b>Lead Agency</b>	<b>Applicant</b>	<b>Location (see Map 26-2A through 26-2D)</b>	<b>Codes<sup>1</sup></b>	<b>Status<sup>2</sup></b>
<b>NE 10th Ave. Street improvement:</b> From NE 141st St north to NE 149th St	Clark County	Clark County Public Works		B	Completed
<b>NE 88th St. improvement:</b> From NE Highway 99 east to NE St. Johns Rd	Clark County	Clark County Public Works		B	Completed
<b>NE 119th St. and 50th Ave. Intersection upgrade</b>	Clark County	Clark County Public Works		B	Completed
<b>Timmen Rd./10th Ave.:</b> Street reconstruction – NW La Center Rd south to 10th Ave	Clark County	Clark County Public Works	Ridgefield	B	Completed
<b>Salmon Creek Interchange Project:</b> Construct a new I-5 interchange at NE 139th St, improving the I-205 northbound off-ramp to NE 134th St, and constructing other local road improvements.	Clark County, WA State Department of Transportation	Clark County Public Works		B	Completed
<b>Expansion of Senior Housing Facility:</b> Approve 24 unit expansion with expanded kitchen and sky gym to existing 30-unit facility on 7.12 acres	Clark County	Lifestyles Senior Housing	Vancouver, WA	C	Completed
<b>Bonaventure Senior Housing:</b> Construct a 42,000-sq-ft continuing care center/retirement center on 4 acres	Clark County	Bonaventure Senior Housing	Salmon Creek Area, Clark County	C	Completed
<b>Removal of Fuel System:</b> Remove underground fuel tanks and equipment	Clark County	Seven Eleven Inc.	Vancouver, WA	C	Under Construction
<b>Church Expansion:</b> Construct a 5,300-sq-ft addition to an existing 5,000-sq-ft church with 48 new parking spaces	Clark County	Discovery Point Church	Vancouver, WA	C	Approved
<b>Wireless Communication Tower:</b> Construct 100-ft monopole and equipment on 50x50 area	Clark County	New Cingular Wireless	Meadow Glade, WA	C	Proposed
<b>Cell Tower:</b> Replace and add antennas on existing tower	Clark County	Verizon Wireless Inc	Woodland, WA	C	Completed
<b>Cascade Presbyterian Church:</b> Construct 5,700-sq-ft addition to 6,300-sq-ft church.	Clark County	Cascade Presbyterian Church		C	Completed

<b>Project</b>	<b>Lead Agency</b>	<b>Applicant</b>	<b>Location (see Map 26-2A through 26-2D)</b>	<b>Codes<sup>1</sup></b>	<b>Status<sup>2</sup></b>
<b>New Communication Tower:</b> Construct new 165-ft tower on 11-acre parcel – SBA Flyaway Rd	Clark County	Barry Breimon	Clark County	C	Completed
<b>Redevelop commercial Hazel Dell Market Place:</b> Redevelop property to accommodate new tenants and expanded retail space	Clark County	CE John Co. Inc.	Clark County	C	Under Construction
<b>Medical Building:</b> Construct a 2-story 29,000-sq-ft medical building with associated parking on 1.94 acres	Clark County	Kencks	Vancouver, WA	C	Completed
<b>Church Expansion:</b> Proposing to double the size of the 12,000-sq-ft existing church and add a storage building and enlarged parking lot at 12401 NE Salmon Creek Ave	Clark County	Liberty Bible Church of the Nazarene	Salmon Creek, WA	C	Completed
<b>New Car Wash:</b> Construct new automated wash and manual wash bays and parking in 99 Commons area	Clark County	Andy Nuttbrock	Clark County/ Hazel Dell Area	C	Under Construction
<b>Short plat:</b> 6.46 acres to become 2 commercial lots for Robinson Cold Storage	Clark County	Robinson Cold Storage	Clark County	C	Completed
<b>Site plan for Hawken Building:</b> Construct 9,400-sq-ft retail building	Clark County	David Hawken	Vancouver, WA	C	Proposed
<b>Salmon Creek Walgreens:</b> Proposing 14,000-sq-ft retail building and site improvement	Clark County	Visconti Cos.	Salmon Creek, WA	C	Proposed
<b>Multi-purpose Commercial/Retail Development:</b> Build a 1,600-sq-ft office, 2,800-sq-ft shop and covered parking area	Clark County	GEM Properties	Vancouver, WA	C	Under Construction
<b>New 93 unit apartment and 31 unit extended stay hotel:</b> Replace previously approved 46,000-sq-ft 6-story medical building on 3.71 acres	Clark County	Lofts at 134th Street	Vancouver, WA	C	Under Construction
<b>Cell Tower:</b> Replace and add antennas on existing monopole	Clark County	Verizon Wireless Inc.	Ridgefield, WA	C	Completed

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<b>West Side Golf Range Relocation:</b> Relocate range to adjacent parcel totaling 15 acres	Clark County	Daniel Heermann	Vancouver, WA	C	Under Construction
<b>Union Road Apartments:</b> Construct 109-unit apartments on 6.05 acres	Clark County	Gutschmidt	Ridgefield, WA	C	Unknown
<b>Offsite Mitigation for Salmon Creek Senior Housing</b>	Clark County	Bonaventure Senior Housing	Clark County -	C	Completed
<b>New Church Construction:</b> New 33,000-sq-ft Heisson Church and parking	Clark County	HFI Consultants	Clark County	C	Completed
<b>Wireless Communication Tower:</b> Construct Lewisville PD 56 133-ft monopole and equipment on 50x50 area	Clark County	American Tower Corp.	Battle Ground, WA	C	Under Construction
<b>Communication Facilities:</b> New antennas and radio heads located on 0.89 acre lot	Clark County	AT&T	Vancouver, WA	C	Completed
<b>Cell Tower:</b> Adding new antennas to existing tower	Clark County	GoGo LC	Clark County	C	Completed
<b>Wireless Communication Tower:</b> Construct 120 ft monopole and equipment on 50x50 area	Clark County	New Cingular Wireless	Battle Ground, WA	C	Approved
<b>Commercial Brewery and Restaurant:</b> Construct 10,500-sq-ft building to house beer production, restaurant, storage	Clark County	Heathen Brewery	Clark County	C	Approved
<b>Salmon Creek Retail:</b> Reconfigure approved short plat for 4 lots and construct fueling station and 6,000-sq-ft multi-tenant retail building	Clark County	Maj Development Corp.	Salmon Creek, WA	C	Completed
<b>Wireless Communication Tower:</b> Construct Lewisville PD 56 133-ft monopole and equipment on 50x50 area	Clark County	American Tower Corp.	Battle Ground, WA	C	Proposed
<b>Cell Tower:</b> Construct a 150-ft. lattice tower	Clark County	Verizon Wireless Inc.	Amboy, WA	C	Completed
<b>Grading residential lot to level backyard on NE 65th</b>	Clark County	Chau Grading	Clark County	D	Completed

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<b>Dredging Permit renewal:</b> Sand dredging from Columbia River	Clark County	Fazio Bros.	Clark County	D	Completed
<b>Installation of Underground Storage Tanks:</b> Install 2 12,000-gallon tanks on 31.4 acres site at county public works operations center	Clark County	Clark County Public Works	Clark County	I	Completed
<b>Stockpile area for Big Mike's Equipment</b>	Clark County	TYC Inc	Ridgefield, WA	I	Proposed
<b>Camp Bonneville:</b> Contract for munitions clean up at site located east of NE 232nd Ave about 6 miles	Clark County	Clark County Public Works	North of Camas.	P	Completed
<b>Dogwood Neighborhood Park:</b> Develop a 4.9-acre property with paths and playgrounds south of NE 101st St and east of SR 503	Clark County	Clark County Public Works and County Parks		P	Under Construction
<b>Salmon Creek Ave Pathway:</b> Connect to Pleasant Valley Park	Clark County	Clark County Public Works	Pleasant Valley Park, Clark County	PK	Under Construction
<b>Vancouver Lake Loop Trail:</b> Construct a 2.25-mile loop trail near lake using 1.25 miles of existing roads	Clark County	Clark County Public Works	Vancouver Lake, WA	PK	Completed
<b>Brush Prairie Dog Park Improvements:</b> Improve roadway and construct parking area	Clark County	Clark County Parks	Brush Prairie, WA	PK	Completed
<b>Hockinson High School Athletic Fields Expansion:</b> Construct new field and expand current high school building (2012).	Clark County	Hockinson School District	Brush Prairie	PS	Completed
<b>Southridge Elementary School:</b> Construct new 65,000-sq-ft school	Clark County	Ridgefield School District	Ridgefield, WA	PS	Completed
<b>Stabilization on South Side of River Adjacent to Yale Dam</b>	Clark County	PacifiCorp Hydro Resources	Merwin Dam, WA	PW	Completed
<b>Install 2.3 miles of 6-inch pipeline along NE 119th between NE 65th and NE 117th</b>	Clark County	NW Natural	Clark County	PW	Completed

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<b>Yale Dam Improvements and rock shoreline stabilization</b>	Clark County	PacifiCorp Hydro Resources	Yale Dam, WA	PW	Completed
<b>Residential Development:</b> Various applications for residential development throughout Clark County	Clark County	Various	Various	R	Various
<b>Subdivision Development:</b> Various applications for subdivision development throughout Clark County	Clark County	Various	Various	S	Various
<b>Schroll Shoreline exemption:</b> Construction 4,000-sq-ft agricultural building on 6-acre parcel at the NW corner of NE 83rd St and NE 202nd Ave	Clark County	B. Schroll		T	On Hold
<b>General regional wastewater upgrades</b>	Clark County	Clark Regional Wastewater District		W	Ongoing
<b>Wetlands Mitigation Bank – East Fork Lewis River:</b> Establish 1,001-acre wetland bank with grading and enhancement of Lewis River service area in northern county	Clark County	EFL Mitigation Partners/Sego	La Center area, WA	W	Completed
<b>Small Rain Garden or Bio Retention Facility in place of the Bioswale within Stag Leap Canyon</b>	Clark County	Clark County Dept. of Environmental Svcs	Vancouver, WA	W	Completed
<b>Gatch 101st Wetlands Mitigation:</b> Fill a Category 3 wetland on .46 acre and mitigate by creating offsite 1.3-acre wetland on 3 parcels owned by Hunts	Clark County	Gatach Properties LLC	Vancouver, WA	W	Under Construction
<b>Salmon Creek Waste Water Extension to Ridgefield</b>	Clark County	Clark County Public Works	Ridgefield, WA	W	Under Construction
<b>Payne Pump Station:</b> Add a station and remove the Vista Terrace station on 8.3 acres	Clark County	Clark Regional Wastewater District	Ridgefield, WA	W	Under Construction
<b>Lucky Farm Outlet:</b> Create drainage outfall	Clark County	Lucky Farms Inc	Ridgefield, WA	W	Completed
<b>Heritage Meadows:</b> Construct a wetland pond to provide water quality treatment and detention storage	Clark County	Clark County Dept. of Environmental Svcs	Clark County	W	Completed



Project	Lead Agency	Applicant	Location (see Map 26-2A through 26-2D)	Codes <sup>1</sup>	Status <sup>2</sup>
<b>Thomas Wetland East Stormwater Facility:</b> Construct stormwater facility east of Douglas Carter Fisher Neighborhood Park	Clark County	Clark County Public Works		W	Completed
<b>The Discovery Corridor Wastewater Transmission System (DCWTS):</b> A 20-year, multi-phase program to provide for conveyance of wastewater from the Ridgefield Urban Growth Area to the Salmon Creek Wastewater Management System (SCWMS). DCWTS Phase 1 includes construction of a new wastewater conveyance pipeline to connect the City of Ridgefield's I-5 junction area to the Salmon Creek Treatment Plant	Clark County Regional Wastewater District	Clark Regional Wastewater District	Clark County wide	PW	Phase 1 Under Construction
<b>Execution of Comprehensive General Sewer Plan:</b> 2013 and Revised Plan for 2015-2020	Clark County Regional Wastewater District	Clark Regional Wastewater District	Clark County wide	PW	Ongoing
<b>General City Road Improvement Projects</b>	City of Battleground	City of Battleground	Battleground, WA	B	Ongoing
<b>Forest Apartments:</b> Build 48 unit apartment complex on 1.2 acres out of 10-acre parcel	City of Battleground	Parker	Battleground, WA	C	Approved
<b>Retail Building:</b> Build 2 retail buildings of 16,000 sq feet and 4,500 sq feet and drive-through restaurant of 3,200 sq feet	City of Battleground	Greenbridge Properties	Battleground, WA	C	Under Construction
<b>Retail Building:</b> Build 4,000-sq-ft paint store	City of Battleground	McNair	Battleground, WA	C	Completed
<b>Meadowview Subdivision:</b> Proposing to subdivide 5.5 acres into 18 single-family residential lots	City of Battleground	Olson Engineering	Battleground, WA	C	Completed
<b>Meadowview Apartment Complex:</b> Build 56-unit apt complex on 2.25 acres with adjacent parcel for wetlands	City of Battleground	Stirling	Battleground, WA	C	Completed
<b>Mill Creek Town Center:</b> Create 6 lots on 2 parcels with either 3 lots with 4 buildings (23,000 sq feet) or 3 lots with 3 buildings (each 9,000 sq feet) and 191 parking spaces	City of Battleground	Mill Creek	Battleground, WA	C	Under Construction

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<b>Camellia Medical:</b> Site plan for 11,500-sq-ft building with parking	City of Battleground	Deacon Dev. Group	Battleground, WA	C	Completed
<b>New Heights Church:</b> Construct 13,000-sq-ft church with 165 parking spaces and additional 27,000-sq-ft building and parking with seating capacity of 500	City of Battleground	New Heights Church	Battleground, WA	C	Under Construction
<b>New School:</b> Place temporary modular building while constructing 4,800 sq feet with parking	City of Battleground	Firm Foundation Christian School	Battleground, WA	C	Withdrawn
<b>Create Parcels:</b> Create 2 parcels out of 17-acre site – 14 acres, 0.8 acres, and the rest dedicated to right-of-way	City of Battleground	Dickerson	Battleground, WA	D	Cancelled
<b>Battleground Min-Mart:</b> Soil remediation and grading and demolition of 2 commercial structures	City of Battleground	PNG Environment	Battleground, WA	D	Complete
<b>Underground Storage Tank at Jim's BP Union:</b> Decommission 3 tanks, 1 8,000-gal and 2 4,000-gal, and remove canopy structure	City of Battleground	Singh	Battleground, WA	D	Complete
<b>Daybreak School:</b> Install 9,700-sq-ft modular classroom	City of Battleground	Battleground School District	Battleground, WA	PS	Completed
<b>Maple K-8 Parking Lot Upgrade</b>	City of Battleground	Battleground School District	Battleground, WA	PS	Completed
<b>Subdivision Development:</b> Various applications for subdivision development throughout Battleground	City of Battleground	Various	Various	S	Various
<b>Jewell Creek Bypass Draining Improvement:</b> Extend culvert to Jewell Creek to function as bypass	City of Battleground	Uhacz	Battleground, WA	W	Approved
<b>SE Eaton Blvd Stormwater Conveyance:</b> Install pipe in existing ditch and cover 0.2 acres	City of Battleground	City of Battleground	Battleground, WA	W	Approved

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<b>Wetland Mitigation Bank:</b> Set aside 51 acres for developers to apply to use for mitigation purposes	City of Battleground	City of Battleground	Battleground, WA	W	Complete
<b>Road Improvements:</b> Multiple locations including NE Goodwin, NW 38th and SE 20th.	City of Camas	City of Camas	Camas, WA	B	Completed
<b>SEPA analysis on Green Mtn. Mixed Use Development</b>	City of Camas	Green Mountain	Camas, WA	C	Proposed
<b>Moxie Village West:</b> Construct commercial and retail buildings, access road, parking and other improvements	City of Camas	Sunrise Summit LLC	Camas, WA	C	Proposed
<b>Dwyer Creek Business Center:</b> Develop 3 buildings in commercial center development with associated facilities on 10.12 acres	City of Camas	Dwyer Creek Business Center/ County Properties Inc.	Camas, WA	C	Under Construction
<b>Revise Ambiance Master Plan:</b> Construct 42,000-sq-ft commercial building for high tech co.	City of Camas	Pedwar Dev. Corp.	Camas, WA	C	Ongoing
<b>Stoneleaf Dev:</b> Converting condo plan into 54-lot subdivision	City of Camas	Stoneleaf LLC	Camas, WA	C	Completed
<b>Heritage Park Improvements:</b> Renovate LaCamas Lake Lodge structure and expand boat dock and parking area	City of Camas	City of Camas	Camas, WA	C	Under Construction
<b>New Shopping Center and parking lot (Camas Produce)</b>	City of Camas	Camas LakeLand LLC	Camas, WA	C	Under Construction
<b>Boulder Creek and Jones Creek Watershed Forest Management Plan</b>	City of Camas	City of Camas Public Works	10 miles NE of Camas, WA	F	Ongoing
<b>PECO Loading Dock:</b> Maintenance and addition of new steel and concrete deck	City of Camas	Georgia Pacific	Camas, WA	I	Under Construction
<b>Railroad Bridge Replacement:</b> Replace 4-span bridge with longer 5-span bridge over Washougal River, paralleling SE 6th Ave., and relocate Garfield water main	City of Camas	BNSF Railway Co.	Camas, WA	I	Under Construction

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<b>Camas Slough Maintenance Dredging:</b> Remove 20,000 cubic yards of sediment	City of Camas	Georgia Pacific	Camas Slough, Camas, WA	I	Ongoing
<b>Bike and Pedestrian Bridge:</b> NW 18th Ave – construct 10-ft wide trail link from Beech to 201st St	City of Camas	City of Camas	Camas, WA	PK	Completed
<b>Evergreen Tennis Facility:</b> Construct 4 courts within 2 buildings, add parking and renovate home into commercial building.	City of Camas	Vitek	Camas, WA	PK	Building 1 Completed
<b>Washougal River Greenway Trail Overlook:</b> Includes deck and path to river – 950 sq feet	City of Camas	City of Camas	Camas, WA	PK	Approved
<b>Camas Mill Utility Line Relocation:</b> Right-of-way runs over the BNSF Bridge 24.8 and over the Washougal River, along Polk St. to SE 6th	City of Camas	Georgia Pacific	Camas, WA	PW	Under Construction
<b>Subdivision Development:</b> Various applications for subdivision development throughout City of Camas	City of Camas	Various	Camas, WA	S	Various
<b>Vector Control Improvement</b>	City of Camas	City of Camas	Camas, WA	W	Completed
<b>Camas Sewer Transmission Line:</b> Construct a new step sewer to relieve congestion in current conveyance system on 5.22 acres.	City of Camas	City of Camas	Camas, WA	W	Completed
<b>New Water Transmission Pipeline:</b> Construct 20,000 feet of new 12-inch pipeline, add new well, replace well house, and install new service to Camp LaCamas Retreat & Conference Center	City of Camas	City of Camas	Camas, WA	W	Construction Scheduled
<b>Anchor QEA Dredging along Columbia River:</b> From mile 118 to 120.5 in federal channel; material will be deposited in Multnomah County, OR	City of Camas	Landco, LLC	Camas, WA	W	Ongoing

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<b>Surface Water Pressure Zone Project:</b> Construct water filtration plant on 12 acres near NE Lessard Rd and NW Winter Rd to sand filter 2.26 million gallons per day and addition of 20,000 feet of 12-inch water pipe	City of Camas	City of Camas	Camas, WA	W	Ongoing
<b>Transportation Center Renovation:</b> Expand bus storage space by 36,000 sq feet and storm water facility and propane tank to fueling station	Camas School District	Rosenburg	Camas, WA	PS	Completed
<b>Park and Ride:</b> Creating 80-plus spaces on already graveled lot and removing facility	City of Ridgefield	City of Ridgefield	Ridgefield, WA	B	Completed
<b>Improve 2,000 Linear Feet of Frontage Road at Union Ridge by School</b>	City of Ridgefield	Ridgefield School District #122	Ridgefield, WA	B	Completed
<b>Main Ave. Intersection Project:</b> Bridge construction and paving and grading from Main and Pioneer West to Division St	City of Ridgefield	Port of Ridgefield	Ridgefield, WA	B	Under construction and Bridge proposed
<b>Steel Fabrication Facility:</b> Construct 72,000-sq-ft office and fabrication space with offsite mitigation for 4,000 sq feet of wetlands filled	City of Ridgefield	E2 Land Services for AIG	Ridgefield, WA	C	Completed
<b>Cut and Fill of 10,000-15,000 Cubic Yards of Dirt for Ridgefield Commerce Center Lots 10 and 11</b>	City of Ridgefield	Prestige Development	Ridgefield, WA	C	Under Construction
<b>Millers Landing Multi-use Project:</b> Subdivide 44 acres into 7 tracts for multi-use development including parks and open space	City of Ridgefield	Port of Ridgefield	Ridgefield, WA	C	Preliminary Approval
<b>Two Phase Development:</b> Construct 24,000-sq-ft office building in phase I and 17,000 sq feet of manufacturing; phase II – construct 11,700-sq-ft office building	City of Ridgefield	City of Ridgefield	Ridgefield, WA	C	Completed
<b>Grade and Level Properties on Pioneer to Address Landslide Stability Issues</b>	City of Ridgefield		Ridgefield, WA	D	Completed

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<b>AIG Ridgefield Building:</b> Site grading required of 27,900 cubic yards of cut and 7,300 cy of fill	City of Ridgefield	Alliance Industrial Group	Ridgefield, WA	D	Completed
<b>Lapsa Bank Erosion Mitigation Plan:</b> Along eastern bank of Gee Creek, a state shoreline, restore/ protect area.	City of Ridgefield	City of Ridgefield	Ridgefield, WA	E	Completed
<b>Slope Repair and Mitigation:</b> On east side of Titan Dr between 16th Dr and S 22nd Pl	City of Ridgefield	Cassini View Homeowners Assoc.	Ridgefield, WA	E	Completed
<b>Critical Area Emergency Repair:</b> Port of Ridgefield by Mill St	City of Ridgefield	John Barbieri	Ridgefield, WA	E	Completed
<b>Port of Ridgefield Industrial Site plan:</b> 112,569-sq-ft industrial building on 7.3 acres	City of Ridgefield	Port of Ridgefield	City of Ridgefield	I	Preliminary Site Plan Approval
<b>UNFI addition:</b> 533,532-sq-ft addition to industrial building	City of Ridgefield	UNFI	Ridgefield, WA	I	Proposed
<b>BNSF Construction Staging Area for Track Repair</b>	City of Ridgefield	BNSF Railroad	Ridgefield, WA	I	Completed
<b>Allied Fittings:</b> Phase I: 74,640 sq feet plus A348 industrial building on 11.6 acres	City of Ridgefield	Jeff Gordon, IDM, LLC	Ridgefield, WA	I	Completed
<b>Overlook Park Annex:</b> Fill and grade extension of the park with intent of building trails and park amenities	City of Ridgefield	City of Ridgefield	Ridgefield, WA	PK	Under construction
<b>Gee Creek Trail:</b> Construct 1,000 linear feet of trail in Hillhurst Subdivision	City of Ridgefield	NVR	Ridgefield, WA	PK	Completed
<b>Overlook Park Welcome Center and Interpretative Facility</b>	City of Ridgefield	City of Ridgefield	Ridgefield, WA	PK	Completed
<b>Abrams Park Trail Improvements:</b> Extend trail by 250 feet and improve with bark and other enhancements	City of Ridgefield	City of Ridgefield	Ridgefield, WA	PK	Completed
<b>Union Ridge Elementary School:</b> Construct a new elementary school on 18.5 acres with 12 classrooms, gym, office space, and related facilities in a 39,000-sq-ft building	City of Ridgefield	E2 Land Planning Services	Ridgefield, WA	PS	Completed

Project	Lead Agency	Applicant	Location (see Map 26-2A through 26-2D)	Codes <sup>1</sup>	Status <sup>2</sup>
<b>High School Campus Expansion and Stadium Upgrade:</b> Construct additional 59,000-sq-ft building and renovate the stadium and grounds	City of Ridgefield	Ridgefield School District	Ridgefield, WA	PS	Completed
<b>Residential Development:</b> Various applications for residential development throughout City of Ridgefield, WA	City of Ridgefield	Various	Ridgefield, WA	R	Approved
<b>Subdivision Development:</b> Various applications for subdivision development throughout City of Ridgefield, WA	City of Ridgefield	Various	Ridgefield, WA	S	Various
<b>Clark Regional Wastewater Regional Sewer District:</b> Extend 800 feet of sanitary sewer line in Pioneer St right-of-way	City of Ridgefield	CRWWD	City of Ridgefield	W	Completed
<b>Junction Well Improvement Project:</b> At Pioneer St and Lewis River, upgrade well and conduct off-stream mitigations	City of Ridgefield	City of Ridgefield Public Works	Ridgefield, WA	W	Approved
<b>Culvert Installation:</b> Install 60-inch culvert on west side of 45th Ave for 0.25 mile to allow trail crossing and remove failed culverts	City of Ridgefield	Gary Eastman	Ridgefield, WA	W	Completed
<b>Road Improvements:</b> Construct extension of NE 45 St	City of Vancouver	City of Vancouver Public Works	Vancouver, WA	B	Proposed
<b>Road Improvements:</b> Widen NE 82nd Ave to 3 lanes	City of Vancouver	City of Vancouver Public Works	Vancouver, WA	B	Proposed
<b>Fourth Plain Bus Rapid Transit Project:</b> Construct new rapid transit bus line, center and stations between CDB and Westfield Mall and expand existing maintenance facility	City of Vancouver	C-TRAN	Vancouver, WA	B	Preliminary Approval
<b>Steigerwald Commerce Center Development:</b> Construct road, utilities and stormwater for Phase 1 of the development of 19.5 acres	City of Washougal	Port of Camas	Washougal, WA	B	Phase I Completed

<b>Project</b>	<b>Lead Agency</b>	<b>Applicant</b>	<b>Location (see Map 26-2A through 26-2D)</b>	<b>Codes<sup>1</sup></b>	<b>Status<sup>2</sup></b>
<b>Building Removal:</b> Removing 4th Plain Deli and gas tanks and grading	City of Vancouver	Birk Environmental	Vancouver, WA	C	Completed
<b>Villas on 28th St:</b> Demolition approval and site plan approval for 170-unit multifamily development	City of Vancouver	Villas on 28th Street, LLC	Vancouver, WA	C	Approved
<b>Freedom's Path Vancouver:</b> Construct a low-income and homeless veterans apartment building with parking	City of Vancouver	Beneficial Communities	Vancouver, WA	C	Approved
<b>Cooper Lane Apartments:</b> Construct a 216-unit multifamily development	City of Vancouver	Cooper Lane LLC	Vancouver, WA	C	Under Construction
<b>Lincoln Place Apartments:</b> Site Plan approved for construction of 3-story 30-unit apartment building and associated common space and parking	City of Vancouver	Vancouver Affordable Housing	Vancouver, WA	C	Under Construction
<b>Grand Business Park:</b> Construct 4 buildings for light industrial and office use –34,342 sq feet with parking	City of Vancouver	300 Grand LLC	Vancouver, WA	C	Under Construction
<b>Wireless Facility :</b> Site plan for construction of 80-foot monopole for MacArthur & Devine wireless facility	City of Vancouver	American Towers	Vancouver, WA	C	Approved
<b>Willow Crest Apartments:</b> Construct a 21-unit apartment complex with 32 parking spaces	City of Vancouver	Ed Greer for R&E, LLC	Vancouver, WA	C	Completed
<b>Developmentally Disabled Living Facility:</b> Construct a 44,000-sq-ft living facility	City of Vancouver	Stephen's Place LLC	Vancouver, WA	C	Completed
<b>Commercial Center Lot Development:</b> Van Mall development including dividing lot into 2 parcels for convenience store and fuel station	City of Vancouver	Maj Dev. Corp	Vancouver, WA	C	Completed
<b>Driveway and Rain Garden</b>	City of Vancouver	Individual	Vancouver, WA	C	Approved



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<b>YMCA Clark Community Center Additions and Remodel:</b> Construct new vestibule, play area and building addition	City of Vancouver	YMCA Clark Community Center	Vancouver, WA	C	Completed
<b>Affordable Apartment Building:</b> Construct 152-unit multifamily development on SE 1st Ave area	City of Vancouver	Vancouver Housing Authority	Vancouver, WA	C	Under Construction
<b>Storage Facility:</b> Iron Gate Storage expansion of existing facility by 5,300 sq feet.	City of Vancouver	Fourth Plain Partners, Inc	Vancouver, WA	C	Completed
<b>Mixed Development - Sharma building:</b> Site plan to construct 8,400-sq-ft multi-tenant retail/commercial building with parking	City of Vancouver	SK Development	Vancouver, WA	C	Completed
<b>Mobile Home Expansion:</b> Oak Creek Mobile Home expands with 6 new sites	City of Vancouver	Individual	Vancouver, WA	C	Approved
<b>Cell Tower Construction on NE 109th, North of Burton Rd.</b>	City of Vancouver	Verizon	Vancouver, WA	C	Under Construction
<b>Parking Lot Expansion:</b> 24 Fitness adding 70 more parking spaces	City of Vancouver	PacTrust	Vancouver, WA	C	Completed
<b>Commercial Center:</b> Filed building site plan for 5 lots with convenience store, fuel station, retail building and bank	City of Vancouver	Maj Dev. Corp	Vancouver, WA	C	Completed
<b>Burton Park Apartment Complex:</b> Construct new 112-unit apartment and amenities	City of Vancouver	Burton Road Apartments LLC	Vancouver, WA	C	Completed
<b>Columbia Tech Center:</b> Construct 3-story 207,000-sq-ft corporate offices building with parking, truck loading and storage.	City of Vancouver	Columbia Tech Center, LLC	Vancouver, WA	C	Under Construction
<b>Cherry Park Apartments:</b> Short plat and site plan approval to divide site into 2 lots and build a 14-unit apartment complex with parking	City of Vancouver	Columbia Nonprofit Housing	Vancouver, WA	C	Completed
<b>Demolish Underground Fuel Tanks/Pumps</b>	City of Vancouver	Three Kings Environmental	Vancouver, WA	C	Completed

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<b>Expand Storage Tank Facility:</b> Construct 3 above-ground storage tanks with one 1-million-gallon tank and 2 300,000-gallon tanks	City of Vancouver	Albina Fuel	Vancouver, WA	C	Approved
<b>Columbia View Apartment:</b> Construct a new 320-unit apartment complex with amenities	City of Vancouver	Mountain West investment Corp.	Vancouver, WA	C	Approved
<b>Shell Station Demolition/Removal Of Tanks</b>	City of Vancouver	Phoenix Excavating	Vancouver, WA	C	Completed
<b>Light Industrial Development – Firestone Pacific Foods:</b> Construct 226,000-sq-ft cold storage and grading of site for Phase 2 of 36,000-sq-ft building on 11.92 acres	City of Vancouver	Firestone Pacific Foods	Vancouver, WA	C	Approved
<b>Commercial Lot Parcel Division:</b> To accommodate grocery and fast food drive-through – Chick-Fil-A	City of Vancouver	GJD Properties LLC	Vancouver, WA	C	Approved
<b>ESD 112 Office and Warehouse:</b> Proposed 2-story office building and warehouse with associate parking, utilities and infrastructure improvements	City of Vancouver	Educational Service District	Vancouver, WA	C	Approved
<b>Day Care Center:</b> Construct 7,300-sq-ft daycare facility with parking	City of Vancouver	Mike Little	Vancouver, WA	C	Completed
<b>Addition to Office Building:</b> Construct 39,000-sq-ft addition and associated parking and infrastructure	City of Vancouver	KMR Group	Vancouver, WA	C	Approved
<b>Mixed Use Development:</b> Construct 2 commercial buildings (192nd Plaza/Westridge Lofts) with 21,000 sq feet of space with mixed-use building for lodging units and apartments	City of Vancouver	Drew Q Miller	Vancouver, WA	C	Commercial Completed, Ongoing
<b>Expansion of Existing Bank:</b> Construct 20,000-sq-ft addition to credit union	City of Vancouver	Columbia Credit Union	Vancouver, WA	C	Completed
<b>New Bank:</b> Construct a new 3,100-sq-ft drive-through bank with parking	City of Vancouver	Heritage Bank	Vancouver, WA	C	Completed
<b>Office Building at 136th Ave. Place:</b> Construct phased development of 80,000-sq-ft office building with parking	City of Vancouver	Haagen Properties LLC	Vancouver, WA	C	Completed

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<b>Apartment Building:</b> Construct a 4-story 90-unit apartment building and amenities	City of Vancouver	Columbia Tech Center, LLC	Vancouver, WA	C	Under Construction
<b>Hotel/Commercial Building-Candlewood Suites:</b> 192nd Plaza West – construct a 4-story 46,000-sq-ft unit hotel and commercial building	City of Vancouver	Drew Miller	Vancouver, WA	C	Under Construction
<b>Warehouse:</b> Two-phase development of 10,000-sq-ft warehouse addition to existing building	City of Vancouver	George Fassils	Vancouver, WA	C	Under Construction
<b>Day Care Center - Devine Wee Daycare:</b> Construct 10,600-sq-ft daycare facility with parking	City of Vancouver	Mike Little	Vancouver, WA	C	Completed
<b>Marriot Towne Place Suites:</b> Phase II development of 115-unit extended-stay hotel	City of Vancouver	Columbia Tech Center, LLC	Vancouver, WA	C	Under Construction
<b>Bank - WA Federal:</b> Construct a 1-story 2,600-sq-ft bank building with 2 drive-up windows	City of Vancouver	Washington Federal Bank	Vancouver, WA	C	Proposed
<b>Tree Removal and Move Earth:</b> Move 4 trees and 3,000 cubic yards of earth onto site and move 1,200 cy of earth onsite	City of Vancouver	Individuals	Vancouver, WA	D	Completed
<b>Grading:</b> Prepare lot with 192,000 cubic yards of cut and 305,000 cy of fill for future development	City of Vancouver	Judy Teitzel	Vancouver, WA	D	Completed
<b>Grading Permit:</b> Stockpile 21,000 cubic yards from other sites in center	City of Vancouver	Columbia Tech Center	Vancouver, WA	D	Completed
<b>Tank Removal – Harry's Shell Tank Removal:</b> Remove 3 tanks of 10,000 gallons each and grade lot	City of Vancouver	Charles Kaady	Vancouver, WA	D	Completed
<b>Barge Line Shoreline Stabilization</b>	City of Vancouver		Vancouver, WA	E	Completed
<b>Repair Shoreline Failure on NW Old Lower River Rd.</b>	City of Vancouver		Vancouver, WA	E	Completed
<b>Stabilization of Bank of Columbia River:</b> Between river miles 109 -110	City of Vancouver		Vancouver, WA	E	Completed

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<b>Warehouse Construction:</b> Construct 98,000-sq-ft warehouse on NE 60th with parking	City of Vancouver	Dermody Properties	Vancouver, WA	I	Under Construction
<b>Manufacturing Facility Infiltration Ponds:</b> Create 2 ponds for cooling water	City of Vancouver	SHE America, Inc	Vancouver, WA	I	Completed
<b>Warehouse/Office Building Construction:</b> Construct an 18,000-sq-ft building with outdoor storage	City of Vancouver	Iso-Quip	Vancouver, WA	I	Approved
<b>Create Gravel Landdown Yard:</b> Grade lot and create 2.2-acre gravel yard for steel products	City of Vancouver	Russell Construction/ Scott Cage	Vancouver, WA	I	Approved
<b>Expansion of Fruit Processing Facility:</b> Construct a 20,000-sq-ft addition to existing processing facility	City of Vancouver	Firestone Pacific Foods	Vancouver, WA	I	Under Construction
<b>Port of Vancouver Terminal Project:</b> Demolish existing storage tanks and install new 45-million gallon barrel tank and containment system	City of Vancouver	NuStar Terminal Services	Vancouver, WA	I	Proposed
<b>Site Preparation in Employment Center Mixed Use Zone:</b> Fill with 444,000 cubic yards of material to reclaim site in prep for center	City of Vancouver	Rotschy, Inc.	Vancouver, WA	I	Under Construction
<b>Remodel Warehouse and Office:</b> Remodel 169,000-sq-ft building for light industrial manufacturing	City of Vancouver	Port of Vancouver	Vancouver, WA	I	Completed
<b>Industrial Building:</b> Add a new 17,000-sq-ft warehouse and office building to existing location	City of Vancouver	Davis Industrial Park, LLC	Vancouver, WA	I	Completed
<b>Maintenance Building for Shredding Enterprise:</b> Remove existing admin building and construct 1-story 4,300-sq-ft maintenance building and reconfigure shredder	City of Vancouver	Pacific Coast Shredding	Vancouver, WA	I	Completed
<b>Tank Removal:</b> Remove 1.3-million gallons liquid asphalt storage tank and replace with similar size and type	City of Vancouver	Albina Fuel	Vancouver, WA	I	Approved

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<b>Facility Expansion:</b> 15,500-sq-ft expansion of existing shipping and processing building for automobiles	City of Vancouver	Subaru of America	Vancouver, WA	I	Completed
<b>Soccer Field Improvements:</b> Improve Harmony Sport complex with new turf, drainage in the Employment Center Mixed Use Zone	City of Vancouver	United Soccer Alliance	Vancouver, WA	P	Approved
<b>Japanese Garden:</b> Construct a Japanese Garden on 0.62 acres with sculptures, water features, walkways and seating	City of Vancouver	Clark College	Vancouver, WA	P	Completed
<b>Develop Vancouver Waterfront Park:</b> Develop park and open space opportunities to connect River and Downtown Vancouver and extend waterfront	City of Vancouver	Clark Parks and Recreation Department	Vancouver, WA	P	Approved
<b>Sports Track:</b> Construct a paved sports track and improve existing sports field	City of Vancouver	Catholic Archbishop by MGH Associates	Vancouver, WA	P	Completed
<b>Expansion of Bus Parking and Storage:</b> Add 40 spaces and storage area for buses and modular building for drivers	City of Vancouver	Evergreen Public Schools	Vancouver, WA	PS	Completed
<b>Health and Bio-Science High School:</b> Construct a 3-story 600-student high school with parking	City of Vancouver	Evergreen Public Schools	Vancouver, WA	PS	Completed
<b>Rebuild Elementary School:</b> Rebuild to 60,600 sq feet in 2 stories	City of Vancouver	Evergreen Public Schools	Vancouver, WA	PS	Completed
<b>Early Learning Center:</b> Place 4,900-sq-ft modular classroom building with future addition space room and play area with shelter, parking	City of Vancouver	Evergreen Public Schools	Vancouver, WA	PS	Completed
<b>Skills Center Expansion:</b> Construct 8,100-sq-ft aviation school building and 15,700-sq-ft cosmetology building with parking	City of Vancouver	Evergreen Public Schools	Vancouver, WA	PS	Completed
<b>Residential Development:</b> Various applications for residential development throughout city	City of Vancouver	Various	Vancouver, WA	R	Approved

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<b>Subdivision Development:</b> Various applications for subdivision development throughout city	City of Vancouver	Various	Vancouver, WA	S	Various
<b>Addition to Lumber Mill Building – Columbia Vista Bin Sorter:</b> Construct 8,000-sq-ft addition to house sorter and stacker for lumber manufacturing and new transformer	City of Vancouver	Columbia Vista Corp.	Vancouver, WA	T	Approved
<b>Capital Sewer Project:</b> Re-route major sewer line from east side of BNSF right-of-way to west side	City of Vancouver	City of Vancouver	Vancouver, WA	W	Completed
<b>Infiltration Retrofit and Rain Gardens:</b> Install gardens along NE 98th Ave to capture runoff and filter out pollutants	City of Vancouver	City of Vancouver	Vancouver, WA	W	Completed
<b>Extension of Water Transmission Main and Sanitary Sewer:</b> Install 3,200 feet of iron water and plastic sewer main within Clark County right-of-way	City of Vancouver	City of Vancouver	Vancouver, WA	W	Unknown
<b>Children's Center:</b> Construct 15,500-sq-ft single-story building and parking for nonprofit	City of Vancouver	For Clark County Children, Youth & Families	Vancouver, WA	C	Approved
<b>Norway Planned Development Phse II:</b> Relocation of a stub street on 6.73 acres on N 45th St	City of Washougal	Larry LLU	Washougal, WA	B	Preliminary Plat Approval Only
<b>Cell Tower Site Plan Approval Request:</b> construct a 105-foot wireless telecommunications monopole at the Orchard Hills Golf and Country Club	City of Washougal	New Cingular Wireless (AT&T)	Washougal, WA	C	Preliminary Site Plan Approval Only
<b>AutoZone Store:</b> Construct a 7,375-sq-ft store on 1.08-acre site with site improvements	City of Washougal	Autozone	Washougal, WA	C	Completed
<b>Cell Tower:</b> Construct a 100-ft telecommunications monopole on existing commercial property	City of Washougal	Verizon Wireless	Washougal, WA	C	Completed

Project	Lead Agency	Applicant	Location (see Map 26-2A through 26-2D)	Codes <sup>1</sup>	Status <sup>2</sup>
<b>Modular Building Installation:</b> Place a 400-sq-ft office building on existing use	City of Washougal	National Pipe and Piling Inc.	Washougal, WA	C	Preliminary Site Plan Approval Only
<b>Stockpile of Construction Fill Material:</b> Allow stockpile and storage of 60,000 CT of fill material for future development	City of Washougal	Port of Camas	Washougal, WA	C	Completed
<b>Batch Plant Addition:</b> Install batch plant equipment, bins and storage silos	City of Washougal	Columbia PreCase Products	Washougal, WA	I	Approved for Construction
<b>Steigerwald Commerce Center Onsite Wetland:</b> Mitigation and buffer reduction; fill and buffer 0.34 acre	City of Washougal	Port of Camas	Washougal, WA	I	Phase I Completed
<b>Industrial Building:</b> Construct a 4,000-sq-ft pole building for storage of dry goods	City of Washougal	PSC LLC	Washougal, WA	I	Completed
<b>Pillar Plastics Addition:</b> Grade and construct 20,000-sq-ft addition to Industrial Building at the Port of Camas	City of Washougal	Don Jackson	Washougal, WA	I	Completed
<b>Port Waterfront Park and Trail:</b> Site plan approval for construction of a 5.73-acre waterfront park along the Columbia River with amenities including picnic shelters, restrooms, event plaza, fishing pier and water access with 12-ft wide paved trails along the waterfront for 0.7 acre with associated parking and utility improvements	City of Washougal	Port of Camas	Washougal, WA	PK	Under Construction
<b>Cedar View Pedestrian Trail:</b> Install a 3,400-ft long pedestrian trail with 2 bridges over Campen Creek with elevated grated boardwalk over seasonal springs	City of Washougal	City of Washougal	Washougal, WA	PK	Completed
<b>Lower Hathaway Parking Lot Renovation</b>	City of Washougal	City of Washougal Parks	Washougal, WA	PK	Preliminary Approval
<b>Residential Development</b>	City of Washougal	Ken Andrews	Washougal, WA	R	Completed

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<b>Subdivision Development</b>	City of Washougal	TimCo Development	Washougal, WA	S	Under Construction
<b>W Street Stormwater System Improvements:</b> Upgrade of existing, undersized culverts within existing fish and wildlife habitat conversation area	City of Washougal	City of Washougal Public Works Dept.	Washougal, WA	W	Preliminary Approval
<b>SE Sunset View Rd. Stormwater System Improvements:</b> Upgrade existing, undersized culverts within critical area near Campen Creek to meet fish passage requirements; north culvert flows into Gibbons Creek	City of Washougal	City of Washougal Public Works Dept.	Washougal, WA	W	Preliminary Approval
<b>WWTP Phase II Improvements for facility grades</b>	City of Washougal	City of Washougal	Washougal, WA	W	Under Constr
<b>Citywide Water System Improvements</b>	City of Washougal	City of Washougal Public Works Dept.	Washougal, WA	W	Completed
<b>Wastewater Treatment Plan Facility Capacity Expansion</b>	City of Washougal	City of Washougal Public Works Dept.t	Washougal, WA	W	Plan Adopted
<b>Campen Creek Culvert Replacement Project:</b> Replace current culverts with concrete block culverts near M St to allow fish passage	City of Washougal	City of Washougal	Washougal, WA	W	Completed
<b>Trueguard Stormwater System Improvement:</b> Move discharge of treated water from storm sewer to new outfall on main stem of Columbia River	City of Washougal	City of Washougal	Washougal, WA	W	Completed
<b>Install Satellite Dish:</b> Install 9-meter diameter Verizon Wireless Satellite dish on Hoag Street	City of Yacolt	City of Yacolt	Yacolt, WA	C	Completed
<b>Cell Tower:</b> Construct 150-ft monopole cellular tower with related equipment on 50x50 compound at Yacolt Rd and Amboy	City of Yacolt	City of Yacolt	Yacolt, WA	C	Completed
<b>Cell Tower:</b> Construct 175-ft monopole cellular tower with related equipment on 50x50 compound at Hoag and S. Spruce	City of Yacolt	City of Yacolt	Yacolt, WA	C	Cancelled



Project	Lead Agency	Applicant	Location (see Map 26-2A through 26-2D)	Codes <sup>1</sup>	Status <sup>2</sup>
<b>Annex 8. 5 Acres Of Park Land</b>	City of Yacolt	City of Yacolt	Yacolt, WA	P	Completed
<b>Oregon</b>					
<b>I-84 Troutdale Interchange:</b> Widen Marine Dr to allow for 2-way traffic. Work includes lengthening and raising I-84 structures, constructing a new bridge, and adding bike lanes.	OR Department of Transportation (ODOT)		Near Troutdale, OR	B	Completed
<b>I-84 Bridge Repair and Replacement:</b> Replace bridges 06875, 06875A, and repair bridge 0694	ODOT			B	Completed
<b>"Connect Oregon II" 188th St. Light Rail Station Reconstruction:</b> Current shelters will be replaced by 2 new platforms and 2 transparent shelters, with increased lighting.	ODOT		Portland, OR	B	Completed
<b>US26 SE 122nd Ave/168th Ave UIC Replacement:</b> Replace underground injection control installation	ODOT		Portland, OR	B	Under Construction
<b>"Connect Oregon IV":</b> Construct a Resource and Operations Center as part of Glisan Commons, a mixed-use development located near the Gateway Regional Transit Center	ODOT		Portland, OR	B	Completed
<b>Multnomah County</b>					
<b>Fairview / NE Halsey St. Sidewalk Improvements:</b> Sidewalk constructed along NE Halsey St, west and east of NE 205th Ave, across from Reynolds Middle School; includes solar-powered pedestrian signals and a rain garden to detain and treat stormwater	Multnomah County Department of Community Services			B	Completed
<b>Wood Village NE Halsey Street Project:</b> Between NE Birch Ave. and NE 244th Ave., construction includes sidewalks and curbs, 3 traffic lanes plus parking, bike lanes, and retaining walls	Multnomah County Department of Community Services		Wood Village, OR	B	Completed
<b>NE 223rd Ave. Widening:</b> Replace Union Pacific railroad bridge over NE 223rd Ave and widen NE 223 <sup>rd</sup> between NE Sandy Blvd and Bridge St	Multnomah County Department of Community Services		Portland, OR	B	Completed

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<b>NE 223rd Ave. and Sandy Blvd. Intersection Improvement:</b> Replace a 4-way flashing red signal with full 4-way traffic signal; widen approaches and add left-turn lanes from all directions; install curbs, sidewalks, pedestrian signals, bike lanes; build retaining walls, catch basins	Multnomah County Department of Community Services		Portland, OR	B	Completed
<b>SE Stark St. Sidewalk Improvements:</b> Construct sidewalks and curbs on SE Stark St between SW 257 Ave and Troutdale Rd	Multnomah County Department of Community Services			B	Completed
<b>Arata Rd. Active Transportation Project:</b> Improve Arata Rd from NE 223rd Ave to NE 238 Ave	Multnomah County Department of Community Services			B	Proposed
<b>Halsey St. Pedestrian Crossing in Fairview:</b> Install 2 crosswalks with flashing beacons, ADA sidewalk ramps	Multnomah County Department of Community Services		Fairview, OR	B	Proposed
<b>Sandy Blvd. Sidewalk Infills:</b> Complete sidewalk construction on Sandy Blvd between 201st and 207th	Multnomah County Department of Community Services			B	Proposed
<b>Oxbow Parkway Stabilization:</b> Stabilize and resurface Oxbow Parkway between Hosner Rd and the YMCA	Multnomah County Department of Community Services			B	Proposed
<b>Marine Drive Overlays:</b> Grind out the top 2 inches of road surface and replace with fresh asphalt on Marine Dr between Interlachen Ln and Frontage Rd	Multnomah County Department of Community Services			B	Proposed
<b>SW Hensley and 21st St. Pedestrian Connectivity Project:</b> Improve pedestrian connectivity from Reynolds High School to neighborhoods east of Troutdale Rd; improve pedestrian access to/from Sunrise Park	City of Troutdale	City of Troutdale	Troutdale, OR	B	Under Construction
<b>SE Sandy Boulevard Green Street:</b> Construct 3 rain gardens, increase parking spaces, and add a cyclist/pedestrian refuge	Portland Bureau of Environmental Services			B	Approved

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<b>Levee Ready Columbia; Oregon Solutions:</b> Evaluate, repair, and upgrade 26 miles of the Columbia River Levee to meet FEMA and Corps of Engineers levee accreditation standards	Multnomah County Drainage District			W	Proposed
<b>Sanitary Sewer Pump Station No. 5 Upgrade Project:</b> Upgrade the existing 1,900-gallon-per-minute duplex pump station and convert it to a 2,500-gallon-per-minute submersible style sewer pump station	City of Troutdale	City of Troutdale	Troutdale, OR	W	Approved
<b>2014 Cured-in-Place Sewer Repair Project:</b> Repair 20,000 feet of deteriorating sewer pipes throughout the Portland area; repair or replace manholes, storm drains, sewer service laterals	Portland Bureau of Environmental Services		Throughout Portland, OR	W	Under Construction
<b>Triangle Lake Lagoon Reconstruction:</b> Dewater the treatment plant lagoon, remove solids, reconstruct the lagoon system and its lining	Portland Bureau of Environmental Services			W	Under Construction
<b>Rose City Park Sewer Repair:</b> Repair approximately 40,000 feet of public sewer lines	Portland Bureau of Environmental Services			W	Under Construction
<b>Kelly Butte Reservoir Construction:</b> Construct a 25-million gallon underground reinforced concrete reservoir on top of Kelly Butte	Portland Water Bureau	Portland Water Bureau		W	Completed
<b>Ports</b>					
<b>Construction of Building 17:</b> A 25,000-sq-ft addition to the port's Steigerwald Commerce Center; and the \$1.1-million replacement of C-Row, the 10-bay building at Grove Field Airport	Port of Camas	Port of Camas	Washougal, WA	I	Under Construction
<b>Recreational Boat Marina Improvements:</b> Reconstruct 810-ft headwalk, anchor docks to new steel piles and add new 2,335-sq-ft Dock H with covered area	Port of Camas	Port of Camas	Washougal, WA	PK	Completed

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<b>2014 Waterfront Revitalization Project:</b> Seek construction stormwater permit for 13.2-acre cleanup site and removal of log pond liquid and disposal	Port of Camas	Port of Camas	Washougal, WA	PK	Approved
<b>Columbia River Maintenance Dredging:</b> Increase authorized dredge volume as part of Port of Kalama maintenance dredging plan	Port of Kalama	Mark Wilson	Kalama, WA	PT	Approved
<b>Natural Gas-to-Methane Plant:</b> Develop and operate a natural gas-to-methanol production plant and storage facilities on 90 acres; natural gas to be delivered via proposed new transmission pipeline	Port of Kalama/ Cowlitz County	Northwest Innovations Works LLC and the Port of Kalama	Kalama, WA	PT	Proposed
<b>Road Development:</b> Construct a 3,500-ft long, 20-ft wide maintenance access road	Port of Longview	Port of Longview	Longview, WA	B	Completed
<b>Industrial Development:</b> Construct a lined wastewater storage pond and associated sludge drying beds to capture wastewater generated during cargo handling	Port of Longview	Port of Longview Toll WA LP, agent: Mike Smith	Longview, WA	PT	Under Construction
<b>Industrial Development:</b> Extend current laydown area 10 feet to the north to accommodate a 20- ft wide emergency vehicle access	Port of Longview	Port of Longview	Longview, WA	PT	Completed
<b>Annual Maintenance Dredging:</b> Series of dredging events and 10-year authorization for annual maintenance dredging	Port of Longview	Port of Longview, Derek Koellmann	Longview, WA	PT	Proposed
<b>Berth Dredging Project (2013):</b> Modify depth of births 1, 5, 10, 13 and 14 and adjust birth 10 boundary	Port of Vancouver	Port of Vancouver	Vancouver, WA	I	Ongoing
<b>Parcel 1A NE Laydown:</b> Upgrade 6 acres of 22-acre parcel to allow for receiving cargo or other industrial uses	Port of Vancouver	Port of Vancouver	Vancouver, WA	I	Completed

Project	Lead Agency	Applicant	Location (see Map 26-2A through 26-2D)	Codes <sup>1</sup>	Status <sup>2</sup>
<b>Port of Vancouver Trail Project:</b> Extend and connect 2 segments of a multiuse trail to set back from roadway	Port of Vancouver	Port of Vancouver	Vancouver, WA	PK	Under Construction
<b>Clark County PUD Substation (2012):</b> Construct a power transformation substation to connect adjacent power facilities to service PUD and port customers	Port of Vancouver	Port of Vancouver	Vancouver, WA	PW	Approved
<b>Air Cargo Rd. Rehabilitation:</b> Rehabilitate the pavement along Air Cargo Rd	Port of Portland	Port of Portland	Portland, OR	B	Approved
<b>Portland International Airport Economy Lot Plaza:</b> Replace existing toll exit plaza with a new structure and 4 exit lanes	Port of Portland	Port of Portland	Portland, OR	B	Approved
<b>Portland International Airport Rental Car Quick Turnaround Facility:</b> Construction, refurbishment, and reconfiguration of parking lot areas in vicinity of the terminal	Port of Portland	Port of Portland	Portland, OR	C	Approved
<b>Portland International Airport Employee and Taxi Parking Facilities:</b> Construct a new parking area for Port of Portland employees and taxi operations	Port of Portland	Port of Portland	Portland, OR	C	Approved
<b>Port of Portland Maintenance Dredging:</b> Maintenance dredging of Terminals 2 and 4 with in-water placement of dredged materials	Port of Portland	Port of Portland	Portland, OR	I	Approved
<b>Portland International Airport General Aviation West Redevelopment:</b> Demolish hangars F, G, 8025, and 8019 and infill the ramp between GA ramp and NE ramp	Port of Portland	Port of Portland	Portland, OR	I	Approved
<b>Portland International Airport Central Utility Plant:</b> Install new 2000-ton chiller and associated cooling towers, pumps, piping controls, and electrical power	Port of Portland	Port of Portland	Portland, OR	I	Approved
<b>Pembina Propane Export Facility:</b> Construct a \$500 million propane export facility at Port of Portland's Terminal 6 Complex	Port of Portland	Port of Portland	Portland, OR	I	Approved

<b>Project</b>	<b>Lead Agency</b>	<b>Applicant</b>	<b>Location (see Map 26-2A through 26-2D)</b>	<b>Codes<sup>1</sup></b>	<b>Status<sup>2</sup></b>
<b>Troutdale Reynolds Industrial Park (TRIP) Phases II and III:</b> Redevelop former Reynolds Metals brownfield as a commercial / industrial subdivision. Work includes utilities construction and installation, completion of Swigert Way, improvements to Sundial Rd, and preparing a 34.5-acre lot for future development	Port of Portland	Port of Portland	Portland, OR	I	Under Construction
<b>East Landslide Stormwater Enhancement:</b> Place a stormwater treatment facility near NE Airport Way and NE Mt Hood Ave	Port of Portland	Port of Portland	Portland, OR	W	Approved
<b>Colwood Pipe:</b> Install a new 72-inch stormwater pipe from McBride Slough to Columbia Slough	Port of Portland	Port of Portland	Portland, OR	W	Approved
<b>Utilities</b>					
<b>John St. Substation Upgrade:</b> Upgrade and rebuild John St substation	Cowlitz County PUD No 1	PUD No 1, Tim Johnston	Kelso, WA	I	Completed
<b>East Kelso Substation Upgrade:</b> Rebuild East Kelso substation	Cowlitz County PUD No 1	Cowlitz County PUD No 1	Kelso, WA	I	Completed
<b>Cable Installation:</b> Install submerged electrical cable from Silver Lake to Walden Island to replace aged electrical cable	Cowlitz County PUD No 1	Cowlitz County PUD No 1	Castle Rock, WA	PW	Completed
<b>Pacificorp 115-kV Wood Pole Line:</b> In conjunction with Cowlitz PUD, replace Pacificorp's 115-kV wood pole line out of the Merwin substation to Highway 503 with a double-circuit steel line and continue along Highway 503 with a 115-kV single circuit wood pole	Pacificorp	Pacificorp	Ariel, WA	PW	Approved

## 26.3 Cumulative Impacts Analysis

This section provides the analysis, by resource, of the cumulative impacts of past, present, and reasonably foreseeable future actions described in Section 26.2, Cumulative Actions, in combination with the potential impacts of the I-5 project (Step 4). The following analysis describes these potential cumulative impacts in the order that the affected resources are presented in Chapters 5 through 22 of this EIS. For some resources, cumulative impacts would be approximately the same across all action alternatives. For other resources, cumulative impacts would vary by alternative. For these resources, general cumulative impacts are discussed, along with potential cumulative impacts specific to one or more alternatives.

### 26.3.1 Land

The spatial boundary for the following analysis consists of the general vicinity of the proposed project, and more broadly the three counties that would be crossed by the project (Cowlitz, Clark, and Multnomah counties).

Land use has incrementally changed due to cumulative past and present development, and this trend would be expected to continue with the cumulative future development identified in Section 26.2.2, Reasonably Foreseeable Future Actions. Past and present actions have cumulatively established the current land use patterns in Cowlitz, Clark, and Multnomah counties. These actions have created many land uses (see Section 26.2.1, Past and Present Actions). Urbanized use is expanding with population and economic growth, generally on the periphery of already established developed areas, and there is no evidence of any shift in trends. In addition, many of the reasonably foreseeable commercial uses identified in Table 26-2 and 26-3, such as office buildings, retail locations, and associated parking lots, are proposed as “infill” development on currently vacant land designated for commercial use by local land use planning documents. Assuming these trends continue, land would continue to be converted from rural to developed uses, and urban uses would continue to be intensified within already developed areas.

Land use also has been cumulatively affected by development of transportation and utility infrastructure. WDNR, in particular, has expressed concern over the cumulative impact of past, present, and reasonably foreseeable future infrastructure development on state trust lands that it manages or owns (see Appendix A for more information on WDNR lands in the project area). WDNR has developed management plans for its trust lands as they need to generate sustained income for various state programs including schools. The plans include timber harvests (multiple types including variable retention harvests) and also include additions to and abandonment of rights-of-way and roads. In addition to numerous roads, railroads, pipelines, and transmission lines, development of energy projects and port development has occurred and is expected to continue, such as the activities proposed for Ports of Portland, Vancouver, Longview and Kalama.

Because transmission lines typically have relatively small footprints and, other than the transmission structures, span other land uses, the proposed project would not be expected to cumulatively contribute to any changes in existing land use in areas outside of the transmission line right-of-way. For instance, adjacent agricultural areas would still be used for agriculture, timber areas would remain as timber areas, and residential areas would continue to be residential. The proposed project would, however, cumulatively add to the presence of

developed uses and the on-going development of utility-related land uses. From a strictly land use perspective, the overall contribution of the West Alternative to this cumulative impact could be considered less than the other three alternatives since the West Alternative would largely follow existing transmission lines within an existing right-of-way, while the Crossover Alternative would require entirely new transmission right-of-way for over half its length, and the East and Central alternatives would require entirely new transmission right-of-way for almost their full length. The West Alternative thus could be considered less of a contrast with established adjoining uses as compared to the other three alternatives.

Since all action alternatives pass through currently forested areas, the project also would contribute to the cumulative reduction of undeveloped forested uses by removing trees from the transmission line right-of-way and access roads. The East Alternative would have the greatest contribution to this cumulative impact, followed closely by the Central Alternative, then the Crossover Alternative, and finally the West Alternative. Furthermore, areas occupied by the proposed transmission towers, access roads, and other facilities would not be available for timber harvest, agricultural, or other uses during the life of the line, and the presence of these facilities could affect the ability of landowners to further develop these portions of their properties for other uses in the future. Regardless of the action alternative selected, BPA would obtain transmission easements for operation of the proposed project on private lands, and would obtain right-of-way grants to cross state lands.

Overall, because the proposed project would introduce a new utility facility and would remove the sites of proposed towers, access roads, and substations from other uses, the proposed project would contribute incrementally, though in a relatively minor way, to potential cumulative land use impacts. The proposed project's incremental contribution to potential cumulative impacts to land ownership would also be minor given the relatively small amount of land BPA would purchase.

### **26.3.2 Recreation**

The spatial boundary for the following analysis consists of the general vicinity of the proposed transmission line routes and substations, and more broadly the three counties that would be crossed by these routes (Cowlitz, Clark, and Multnomah counties).

There are many recreational areas—mainly parks, trails, and golf courses—in the project area (see Chapter 6, Recreation). There are also dispersed authorized and non-authorized recreational uses, such as hunting, target practice, hiking, biking and ATV use, occurring predominately in the eastern and northern portions of the project area. While some past and present actions have increased recreational access and opportunities, some recreational-related actions have introduced human uses and development in otherwise natural areas and viewsheds, which can be viewed as having diminished the recreational experience for some recreational users.

Similarly, some of the reasonably foreseeable actions in Tables 26-2 and 26-3, such as park acquisitions and improvements in Cowlitz and Clark counties; cities of Ridgefield and Camas; and Ports of Vancouver, Washougal and Kalama; and development of bicycle and hiking trails throughout Clark County, would cumulatively increase opportunities for recreation in the general vicinity. However, other reasonably foreseeable actions, such as timber harvests on WDNR and private lands, could cumulatively reduce opportunities for recreation or interfere with recreational experiences, particularly for dispersed recreation.



In general, the project would not contribute to cumulative impacts to recreational use in the vicinity because the transmission line would have a relatively small footprint and, other than the transmission towers, would span other land uses such as recreation. The action alternatives also generally avoid established recreational sites, but depending on the alternative, cross a mix of parks, trails, and golf courses. In addition, in some urban and suburban settings, transmission line rights-of-way provide recreational opportunities in the form of informal linear “park” for walking, hiking, and jogging.

However, the project could contribute to cumulative impacts on the recreational experience in areas where it would introduce a developed utility feature to a more natural landscape, where people seeking a more natural experience could be pursuing recreational pursuits such as hiking, hunting, or camping. Development of new access roads and improvements to existing access roads also may increase access by motorized users to some areas difficult to access or inaccessible to these users, which could also contribute to cumulative impacts on the recreational experience of non-motorized users in these areas. Because the West Alternative would be developed generally along an existing transmission corridor and through several already developed areas, it would contribute the least from among the action alternatives to this potential cumulative impact. The Central and East alternatives, with their similar lengths of required new right-of-way and amounts of forested and other undeveloped lands that would be affected, would have the greatest contribution to this cumulative impact. Because the Crossover Alternative uses existing right-of-way for its northern portion and new right-of-way for most of its southern portion, its contribution to this cumulative impact would fall between the contributions of the other action alternatives. The actual extent of the project’s contribution to cumulative impacts on the recreational experience would depend on the proximity of recreational users to the new line and their sensitivity to its presence in the landscape, among other factors.

For these reasons, the project would contribute incrementally, though in a relatively minor way, to potential cumulative impacts on recreational uses, generally through potential contributions to cumulative impacts on dispersed recreational experiences in the area.

### **26.3.3 Visual Resources**

The spatial boundary for the following analysis consists of the viewsheds in the general vicinity of the proposed transmission line routes and substations from which the cumulative actions identified in Section 26.2, Cumulative Actions, could be seen in combination with the proposed project.

Past and present development and land management activities have cumulatively changed the visual landscape and visual features by introducing man-made elements and altering natural forms. These changes include urbanization along the Columbia River; rural residential development, agriculture, timber clearing and harvest, development of hydroelectric facilities along the Lewis River; and the development of area roads and utility infrastructure. Reasonably foreseeable future actions involving development and resource use would continue this trend. Reasonably foreseeable residential development likely would further encroach into open spaces that are currently considered to have intrinsic scenic value. As new residents move into the area and greater numbers of sensitive viewers perceive cumulative changes in the landscape, existing and new developments may be received more negatively.

The cumulative visual effect of the proposed project in combination with other past, present, and reasonably foreseeable actions would be highly dependent on viewpoint locations, the extent of existing visual modification that is already visible from a particular location, and the sensitivities of viewers. The area near the West Alternative, with its existing transmission lines and greater urban and suburban development, has already had more cumulative visual modifications than areas near the other action alternatives. Thus the incremental cumulative visual modifications of adding the West Alternative in or adjacent to existing transmission corridors would be less than adding it to areas with no existing lines. However, the West Alternative also has the greatest number of viewers who would see the new line. The cumulative impact of the views of the additional right-of-way on the greater number of viewers is tempered somewhat by the existing developed landscape, where residents in the urban and suburban areas of the alternative are more accustomed to seeing a transmission line than the rural residents near the East, Central, and Crossover alternatives, although there are far fewer residents near those alternatives (see Table 5-1).

Overall, due to its location generally along an existing transmission corridor and through several already developed areas, the West Alternative would contribute incrementally, though in a relatively minor way, to potential cumulative visual impacts in the area. Similarly, the Crossover Alternative, in the portion that uses existing right-of-way, would also contribute incrementally to cumulative impacts. Because the East and Central alternatives and portions of the Crossover Alternative would pass through previously undeveloped areas and require new cleared rights-of-way, these alternatives would have the potential to have a relatively high level of contribution to cumulative visual impacts from vantage points along these routes.

### **26.3.4 Electric and Magnetic Fields**

The spatial boundary for the consideration of cumulative electric and magnetic field (EMF) levels is fairly narrowly defined due to the rapid drop-off in EMF levels over distance that would occur from the proposed transmissions line. In general, EMF levels from a 500-kV transmission line drop off to barely detectable levels at a distance of approximately 300 feet from the centerline of the transmission line (see Chapter 8, Electric and Magnetic Fields). Therefore, only cumulative actions within this distance with the potential to result in combined EMF levels are considered to be within the spatial boundary for the cumulative EMF analysis.

EMF levels in the vicinity have cumulatively increased over time as a normal part of urbanization and electrical use. Cumulative EMF levels vary greatly throughout the area, depending on proximity to existing EMF-generating sources. In general, existing cumulative EMF levels are expected to be higher along the West Alternative than along other alternatives since the West Alternative would generally follow already existing high-voltage transmission lines that currently generate EMF. This would also be true of the portion of the Crossover Alternative that would use existing right-of-way.

The proposed new line and substations would introduce new or additional sources of EMF along new or existing right-of-way, which could incrementally increase cumulative EMF levels in these areas, depending on the location and line configurations. In areas where no transmission lines currently exist and new right-of-way would be established, cumulative EMF levels would be expected to increase. Where the proposed line would be built along existing right-of-way any change in EMF levels would depend on the configuration of the new line in relation to any existing lines. Overall in these situations, however, only slight increases, or possibly even decreases, in cumulative levels would be expected. Relative increases in exposure would

depend on the amount of existing EMF, the amount of EMF increase due to the project, and the number of persons accessing the immediate project area.

### **26.3.5 Noise**

The spatial boundary for the cumulative noise analysis consists of the immediate area of the proposed transmission line routes and substations where noise from the proposed project could be heard in combination with noise from the cumulative actions identified in Section 26.2, Cumulative Actions.

Cumulative noise impacts occur when actions are undertaken simultaneously and relatively close to each other. Past and present actions in the immediate project area only have the potential to have a combined cumulative noise effect with the proposed project to the extent that they are continuing to generate or result in noise today. Typical examples of such past and present actions are existing area highways and major thoroughfares (with their traffic-generated noise), existing railroads (with noise from trains and road crossing equipment), existing industrial or commercial facilities (with noise from ongoing operations), and existing power generation plants (also with noise from ongoing operations). In addition, other present actions that could combine with the proposed project to cause cumulative noise impacts generally include any long-term highway construction or improvement projects, on-going commercial or residential building construction projects, and on-going timber harvest activities in the immediate project area.

These past and present actions have cumulatively created increased ambient noise levels, although these cumulative increases are location dependent. In urban areas and near freeways, ambient noise levels from cumulative actions are typically higher, while in forested and rural areas, they are typically lower. However, even within each of these different areas, there can be significant differences in noise levels, depending on how many actual noise generation resources are present.

Reasonably foreseeable future actions that could contribute to cumulatively-increased noise levels include new commercial, industrial, and residential development, on-going road maintenance activities, and construction and installation of utilities and other similar infrastructure.

The proposed project's contribution to cumulative noise levels in the immediate project area would primarily occur during construction. When construction is occurring at a particular location, noise from construction activities would temporarily add to noise from other activities in the immediate area, such as from traffic on area roads, commercial/industrial activities, and railroad operations. The project thus could contribute incremental, short-term adverse cumulative noise impacts at any given location along the transmission line route. Once the line is built, corona-generated noise from the transmission line also could contribute incrementally, though in a relatively minor way, to cumulative noise impacts in areas near the line and substations.

### **26.3.6 Public Health and Safety**

The spatial boundary for the following analysis consists of the general vicinity of the proposed transmission line routes and substations, and more broadly the three counties that would be crossed by these routes (Cowlitz, Clark, and Multnomah counties).

A number of past, present, and reasonably foreseeable actions in Cowlitz, Clark, and Multnomah counties have and could cumulatively contribute to public health and safety impacts, such as increased risk of traffic accidents, fire risk, immediate risks from accidental releases of hazardous or toxic materials, longer-term risks from such materials in the environment from past activities and disposal, and worker safety risks. In addition, there is an increased risk of many types of extremely rare yet potentially catastrophic events, such as pipeline explosions, bridge collapse, downed power lines, and train derailments that could occur at some point. These cumulative impacts reflect that development, urbanization, and modern society inherently bring increased levels of potential risk to human health and safety.

Given the many safety precautions that would be taken during construction, the proposed project would not significantly contribute to cumulative public health and safety risks or impacts. As discussed in Chapter 10, Public Health and Safety, workers constructing the project would be highly trained in working with and around high-voltage transmission lines, and would work to ensure that all safety protocols are followed. Workers also would follow current hazardous and toxic materials handling, transport, use, and storage regulations and would not contribute to cumulative soils or groundwater contamination issues at previously contaminated sites. In the event of a spill, all materials and exposed soils would be removed and restored. In addition, the line would be designed to minimize the potential for safety issues during its lifespan.

Even with safety measures in place for the project, there is the potential for unintended or accidental risks to public health and safety to arise. The proposed project could slightly increase the overall cumulative risk of injury to the public that could occur during construction vehicle traffic and congestion and also increase the risk of fire in construction areas. In addition, for action alternatives that would be partially located in areas with ongoing timber harvest practices (mainly the East and Central alternatives and part of the Crossover Alternative), construction would contribute to health and safety risks from tree felling and use of roads through the area from these practices. Overall, because of this increased potential for accidents, the proposed project would contribute incrementally, though in a relatively minor way, to potential cumulative public health and safety impacts.

### **26.3.7 Socioeconomics**

The spatial boundary for the consideration of cumulative socioeconomic impacts consists of the three counties that would be crossed by these routes (Cowlitz, Clark, and Multnomah counties), although it is possible that the proposed project also could contribute to cumulative effects on employment and income in surrounding counties within the same regional labor market, such as the Seattle-Tacoma-Olympia metropolitan area and the Portland-Vancouver-Beaverton metropolitan area.

The analysis of socioeconomic effects contained in Chapter 11 of this EIS largely takes into account past and present actions in the region that have had a cumulative effect on socioeconomic considerations such as population, employment, income, housing, property values, and public services. Accordingly, the cumulative past and present actions have set the baseline for socioeconomic conditions within the counties where the proposed project would be located. Reasonably foreseeable future actions are identified in Tables 26-2 and 26-3. Future actions that could contribute to cumulative socioeconomic impacts include those that would generate employment or income, increase demand for housing and public services, result in population changes, or impact property values. Typical examples include residential construction,

commercial and industrial/utility construction, port improvements, major road projects, and increased timber harvest activities.

The action alternatives would not change population or the need for permanent housing, and thus would not contribute to cumulative impacts related to these socioeconomic considerations (see Chapter 11, Socioeconomics). However, there likely would be a need for temporary lodging for construction workers during construction for any workers not hired from the local area. Several of the reasonably foreseeable future actions in Tables 26-2 and 26-3, such as the proposed NW Innovations methanol manufacturing facility at the Port of Kalama, the proposed Pembina Terminal 6 Propane Export Facility at the Port of Portland, the proposed Savage Vancouver Energy Project for crude oil exports at the Port of Vancouver as well as the increased commercial project activity and industrial development in the City of Vancouver, involve significant construction activities that could also involve construction workers from outside the local area. These reasonably foreseeable construction activities could cumulatively increase the demand for temporary housing and occupancy rate in the area. These impacts would be cumulatively beneficial as they would increase lodging-related revenue and other ancillary businesses such as restaurants, grocery stores, laundromats, gas stations, and other businesses necessary to support temporary construction workers.

The employment created would be temporary jobs that would last only through project construction (see Chapter 11). The project could also result in some minor indirect and incidental employment creation, primarily in the service industry. If construction coincides with construction-related activities from other reasonably foreseeable future actions, such as those described above, this would increase the number and/or duration of temporary construction jobs, which would increase the cumulative need for temporary construction workers in the area. If the pool of available construction workers is limited locally, it will result in construction workers traveling from other areas to work sites. The impact of hiring local workers, though preferable for many reasons, would reduce the benefits described above for temporary lodging needs. Nonetheless, the proposed project, along with the reasonably foreseeable future actions, would have beneficial impact on employment in the area. When combined with indirect spending from increased employment, construction jobs could also assist in lowering the overall unemployment rates, at least temporarily, for the three counties.

While beneficial, local project-related expenditures, employment, and construction-related earnings would be relatively small relative to the total amount of economic activity in the affected counties, and would, as a result, make a small positive contribution to cumulative impacts on the local economy for the duration of construction. Other reasonably foreseeable projects would make similar positive, yet relatively small contributions to the local economy, although some local communities and immediate areas where construction of these projects is taking place may see a more significant beneficial impact on the local economy. The proposed project would also generate sales tax in the affected counties as workers purchase goods and services, and this would likely be the case with other construction projects in the affected counties. Overall, the cumulative actions combined with the proposed project would have a beneficial cumulative effect on the local economy.

Cumulative effects on property values are difficult to estimate and location specific. Some cumulative projects could have a detrimental effect on property values, while others could serve to increase such values. In addition, it is difficult to distinguish and isolate the effect on property values from a particular project from the myriad of other factors that can affect property values, such as overall market conditions, potential buyer preferences, and local

economic conditions. Nonetheless, as discussed in Chapter 11, the proposed project would not have a statistically significant effect on property values, and thus would make only minor contributions to any cumulative effect on property values with the other cumulative actions identified in Section 26.2, Cumulative Actions.

The proposed project would not cause significant demands on public services or facilities. During construction, public services such as police, fire, and medical facilities, would be needed only in cases of emergency, which would likely be the case with other construction projects that could potentially coincide with the proposed project. In addition, the proposed project would not have a noticeable adverse impact on local landfill resources or their ability to handle other current or future waste streams. Therefore, the proposed project would not contribute to cumulative impacts to public services or facilities.

### **26.3.8 Transportation**

The spatial boundary for the following analysis consists of the general vicinity of the proposed transmission line routes and substations, and more broadly the three counties that would be crossed by these routes (Cowlitz, Clark, and Multnomah counties).

Past actions that have cumulatively affected transportation include the development of highways, local roads and railroads; construction and operation of Columbia River dams and locks; construction and operation of various airstrips; and traffic from residential and commercial development. Present transportation-related actions in the vicinity include ongoing road maintenance projects, and transportation of freight by railroad, barge, and aircraft. Reasonably foreseeable future actions that could affect transportation include ongoing road maintenance activities, continuing residential development (particularly in more rural areas), commercial development and ongoing logging activities that would generate increased traffic volumes on local roads.

Reasonably foreseeable future actions with cumulative impacts to transportation would include new construction projects identified in Tables 26-2 and 26-3 that would increase traffic on the same roads used in connection with the proposed project and that are not already accounted for in existing traffic and road infrastructure (e.g., Port of Portland's Troutdale Reynolds Industrial Park Phases II and III development, PacifiCorp's 115-kV wood pole transmission line replacement project), and residential, commercial, and industrial development that would increase the number of originating trips using area roads. Furthermore, while ongoing and reasonably foreseeable road improvement projects ultimately would have an overall beneficial cumulative effect by accommodating greater traffic volume and providing additional options for travel routes, these projects would contribute to adverse cumulative traffic effects during their construction phases due to road and lane closures, detours, and speed limitations. Since most road construction projects usually occur in the spring through fall months due to weather, it is likely that road construction projects, along with construction-related traffic from the proposed project, would have a cumulative effect on roadways. Although this cumulative effect would be temporary, it could be viewed as significant to local motorists.

In general, traffic associated with operation and maintenance of the proposed transmission line and substations would not cumulatively affect transportation along any of the action alternatives over the life of the project because this traffic would normally require a few maintenance and inspection vehicles a few times a year and helicopters twice a year. If infrequent line repair is needed, larger vehicles such as flatbed trucks or a crane could be

required to bring in equipment and repair or replacement parts. Larger vehicles may also be used infrequently to transport equipment to a substation. Using these larger vehicles potentially could cause minor disruptions to local traffic for brief periods, which could contribute to temporary and minor cumulative impacts for all action alternatives.

Reasonably foreseeable future actions in the vicinity of the project that involve road improvements, along with the proposed project, also would cumulatively increase the number of improved access roads in the regional landscape. This project's contribution to this cumulative impact would be greatest for the East and Central alternatives, where there are currently relatively fewer improved roads. This increase would likely provide for greater ease of access to portions of the project area, which may prove beneficial to the owners of land where the new access roads would be located. However, it is likely that more road maintenance activities would be required, as well as greater efforts to control noxious weeds. Because BPA would work with landowners and others to ensure that safe vehicle and equipment access across BPA's easements is provided, the proposed project would not contribute to any cumulative property access impacts. Overall, however, the proposed project would contribute incrementally, though in a relatively minor way, to potential cumulative transportation-related impacts.

### **26.3.9 Cultural Resources**

The spatial boundary for the following analysis consists of the general vicinity of the proposed transmission line routes and substations, and more broadly the three counties that would be crossed by these routes (Cowlitz, Clark, and Multnomah counties).

Cultural resources have been and are being cumulatively affected because of past and present development and activities. These cumulative impacts include disturbance of cultural sites, reduction of the cultural integrity of certain sites, and removal of cultural artifacts. Past actions that have affected cultural resources include construction and operation of hydroelectric facilities, agricultural activities, timber harvest activities, highway and railroad construction, construction and operation of existing transmission lines, and commercial, industrial, and residential development. Present and ongoing activities add to these impacts. These continued forms of development, including construction of this project within the viewshed of ethnographic resources, may negatively affect the use of these areas by local area Tribes. Continued conversion of native vegetation to agricultural land, timber harvest land, or development decreases the amount of land Tribes can use for native plant gathering.

During construction of the proposed project, there is also the potential to affect undiscovered archaeological resources. Mitigation measures would lessen or avoid the potential for impacts on archaeological resources (see Section 13.2.10, Recommended Mitigation Measures and Table 3-2). However, the project may still contribute incrementally to the adverse cumulative impact on cultural resources in the area.

### **26.3.10 Geology and Soils**

The spatial boundary for the following analysis consists of the general vicinity of the proposed transmission line routes and substations, and more broadly the three counties that would be crossed by these routes (Cowlitz, Clark, and Multnomah counties).

Past and present actions have cumulatively affected soil resources, caused soil erosion and compaction, and in some cases altered topography. These activities include logging, agriculture, urbanization, and recreational use (e.g., off-road vehicle use). These activities are likely to continue to occur in the future. Reasonably foreseeable logging, agriculture, and residential and other development would contribute to cumulative soil erosion and compaction in the area, and development projects in particular may alter the topography. However, increased regulation and the use of BMPs have reduced the severity of erosion from these activities such that erosion volumes and rates would be lower than what occurred from similar types of activities in the past. While the construction of these reasonably foreseeable actions would cause cumulative near-term increases in erosion, as disturbed areas stabilize, there is likely to be only a minor long-term cumulative contribution to erosion. In addition, there are several proposed actions to stabilize, repair or mitigate impacts of development which previously caused erosion or destabilization (see Table 26-3, projects with Code E). Development of urbanized uses may also incidentally reduce long-term cumulative soil erosion potential by covering the soil with impervious surfaces, such as roads, houses, and buildings.

The project's contribution to cumulative soil erosion impacts would be the greatest during construction from construction-related soil disturbance and grading, but would diminish over time as vegetation becomes reestablished and disturbed areas stabilize. Nonetheless, continuing long-term authorized and unauthorized use of transmission line rights-of-way or access roads during the life of the project would result in incremental contributions to cumulative soil erosion near project facilities. The project also would temporarily contribute to soil compaction in areas where temporary construction work would occur, such as within rights-of-way and staging areas, and would permanently (i.e., for the life of the project) contribute to cumulative soil compaction due to permanently compacted soil under tower footings, substation foundations, and access roads. In some areas, temporary compaction would be remedied by BPA after construction is complete, and in other areas, it would diminish over time as plants, animals, and weather reworked the soil. Overall, however, the project and other ongoing and reasonably foreseeable activities would cause a cumulative increase in permanent soil compaction.

Past, present, and future actions can also contribute to cumulative landslide risk by placing development on unstable slopes without taking adequate slope stabilization measures, and by increasing downslope risks from landslides. BPA is coordinating with state geologists to identify known and potential landslide risks in the project area. BPA would work to site its proposed facilities away from known landslide areas where possible, and to design any facilities in landslide areas that cannot be avoided to minimize the potential for exposing these facilities to landslides or increasing landslide risk. Thus, the proposed project would not contribute to any cumulative increases in landslide risk from ongoing and reasonably foreseeable cumulative actions.

The project would result in minor alterations to topography within the right-of-way from grading and construction of towers and roads. These effects would be localized and limited to the construction footprint of the transmission line. Soil erosion would largely be mitigated by implementation of BMPs during and following construction. Most soil compaction would be temporary; permanent soil compaction would be limited to areas under tower footings, substation foundations, and access roads. The project thus would contribute incrementally, though in a relatively minor way, to cumulative impacts related to geology and soils.



### **26.3.11 Water**

The spatial boundary for the following analysis consists of the general vicinity of the proposed transmission line routes and substations, and more broadly the three counties that would be crossed by these routes (Cowlitz, Clark, and Multnomah counties).

The three major watersheds crossed by the project (Cowlitz, Lewis, and Salmon/Washougal) and their waters have been cumulatively affected by agriculture, urbanization, timber harvest, and many other activities over the past 150 years. These uses are likely to continue in these watersheds into the foreseeable future. Timber harvest has been a dominant activity that has cumulatively affected water resources in the watersheds crossed by the project, and dam installation on the bigger rivers, agricultural uses, and urbanization have contributed as well. Historic timber harvest practices have cumulatively affected water quality from tree removal and clearing activities that disturb soils, and from ongoing use of unpaved access roads that crisscross lands primarily in the northern and eastern portions of the project area. These activities increase sediment delivery to streams, thereby cumulatively affecting their water quality. In addition, agricultural uses and urbanization have cumulatively affected water quality by increasing sediment delivery to streams through soil disturbance and contributing contaminants from ongoing activities and accidental releases.

Historic timber harvest practices, agricultural uses, and urbanization also have cumulatively removed thousands of acres of riparian vegetation important for the long-term health of water resources in the Lower Columbia River region. In urban and agricultural areas, riparian vegetation is now thin or nonexistent (NMFS and USFWS 2006), and the state of riparian vegetation in these areas is not expected to improve in the foreseeable future.

A variety of causes have also led to cumulative water quality impairment of river and stream segments in the lowlands near the Columbia River. Many of these river and stream segments are on the Washington State 303(d) list for water temperature (see Chapter 15, Water). Debris torrent damage, recent harvest, naturally wide channels, and lack of conifer regeneration are possible explanations for these temperature exceedances (NMFS and USFWS 2006).

Reasonably foreseeable future projects involving construction in and near project area waters would contribute to the cumulative impact on these waters. However, BMPs and other mitigation measures also would be put in place to minimize the impacts of these projects, which would create less comparative contribution to cumulative impacts on project area waters than historically occurred from similar actions. In addition, reasonably foreseeable future actions aimed at improving water quality, such as the stormwater and wastewater facility development and improvement projects identified for many cities and towns throughout the area, would incrementally reduce overall cumulative impacts on water resources (see Tables 26-2 and 26-3).

The proposed project would contribute to cumulative water resource impacts by increasing sediment delivery to streams from construction activities and ongoing use of unpaved roads. The proposed project also could lead to cumulatively increased water temperature along some streams crossed by the transmission line from decreased riparian shade where trees would need to be cleared for the new line. In terms of the number of new river and stream crossings by the proposed transmission line right-of-way and by proposed new access roads outside of this right-of-way, the contribution to these cumulative impacts would be greatest from the East (about 277) and Crossover alternatives (about 297), since these alternatives would require the most new stream crossings from among the action alternatives. The West Alternative would

contribute the least to this cumulative impact since it would have the fewest new stream crossings (about 219). The Central Alternative (about 266) would have similar but fewer new stream crossings than the East and Crossover alternatives. Field work continues to verify actual number and locations of stream crossings for the Preferred Alternative.

While these contributions would be small in comparison to other historic, on-going, and future activities affecting water resources such as timber harvests and agricultural uses, the proposed project would nonetheless contribute incrementally, though in a relatively minor way, to cumulative impacts to water resources.

### **26.3.12 Wetlands**

The spatial boundary for the following analysis consists of the general vicinity of the proposed transmission line routes and substations, and more broadly the three counties that would be crossed by these routes (Cowlitz, Clark, and Multnomah counties).

Cumulative impacts on wetlands have primarily resulted from past and present land development and land management practices including agricultural and timber harvest, urbanization, road construction and maintenance, and utility transmission. These impacts have been occurring since the area was settled and have increased over time in area and rate of development as populations increased and demand for resources such as crops and timber increased. It is likely that hundreds, if not thousands, of acres of wetlands have been cumulatively affected, through a combination of direct fill of these areas to make them more suitable for developed uses, activities within these areas that have reduced their functions and values, and unintentional and intentional releases of contaminants and pollutants to and through these areas. These impacts have also cumulatively affected the ability of regional wetlands to provide habitat, water retention and discharge, stream baseflow, flood and erosion control, and water quality improvement.

Wetlands continue to be impacted by development and land management practices (e.g., residential, commercial, and road development, timber harvest) that affect wetland loss or degrade functions and values, including filling wetland areas. Future projects, such as land development, agriculture, timber harvest, and additional transmission, pipeline, or other linear development, also could affect wetlands, depending on the presence or absence of wetlands in the areas in which these projects would take place. However, these impacts would be less than from similar actions that have historically occurred because of current wetland-related laws and regulations that require avoidance, minimization, and compensation (in that order of preference) for impacts to wetland resources. This “no net loss” approach serves to greatly reduce the overall cumulative impact on wetlands from any proposed development.

The proposed project would contribute to cumulative wetland impacts both by filling wetland areas for transmission line towers and access roads, and by construction activities and vegetation clearing of these areas for the transmission line right-of-way. The contribution to these cumulative impacts may be greatest from the West Alternative, since this alternative would potentially impact the greatest acreage of wetlands (about 160 acres, which includes clearing and fill) from among the action alternatives (see Chapter 16, Wetlands), but potentially could impact the lowest quality wetlands in terms of functions and values. This acreage includes about 44 acres of direct wetland fill, which would be the greatest amount of such fill from among the action alternatives. The Central Alternative would have the least contribution to this cumulative impact since it would potentially impact the fewest acreage of wetlands (about

37 acres), and also would have the least amount of direct wetland fill (about 3 acres). At the same time, some of the wetlands along this alternative are considered to be higher in quality with higher functions and values (see Chapter 16, Wetlands for more information on wetland surveys done for the Preferred Alternative). The Crossover Alternative would have about 114 acres of potential impacts to wetlands (of that, 26 acres of direct wetland fill). The East Alternative would have about 106 acres of potential impacts to wetlands (of that, 22 acres of direct wetland fill).

Although a mitigation plan would be developed to compensate for project impacts to wetlands and efforts would be made to ensure the success of this mitigation, the long-term full effectiveness of this mitigation is uncertain, and all action alternatives thus would contribute to the cumulative reduction in the amount of wetlands in the project area. Overall, due to its general avoidance and minimization of impacts on wetlands, the Central alternative would contribute incrementally, though in a relatively minor way, to potential cumulative wetland impacts in the project area. Because of the greater acreage of wetlands potentially affected by the West, Crossover, and East alternatives, these alternatives would have a relatively high level of contribution to cumulative wetland impacts in the project area. At the same time, wetlands along the East and Central alternatives generally provide higher function and values than wetlands along the West and Crossover alternatives.

### **26.3.13 Vegetation**

The spatial boundary for the following analysis consists of the general vicinity of the proposed transmission line routes and substations, and more broadly the three counties that would be crossed by these routes (Cowlitz, Clark, and Multnomah counties).

Past and present actions have caused extensive cumulative changes to native plant communities. From the mid 1800s to the present, timber harvests and population growth have converted large tracts of native plant communities, such as mature forests, prairies, and wetlands (see Section 26.3.12, Wetlands), to managed forests, agriculture, and/or urban/suburban areas. The ongoing loss of forests (particularly mature forest, forested riparian areas, and forested wetlands), herbaceous wetlands, prairies, and a number of specific special-status plant habitats are of significant concern in western Washington. Ongoing development and timber production activities are expected to continue and could cause continuing cumulative loss and degradation of forest and other native plant habitats.

The proposed project would also affect native plant habitats, particularly the Central, East, and Crossover alternatives, where new rights-of-way for the transmission line and access roads would be established and cleared. Specific to forest habitat—including forest, mature forest, and production forest, the East Alternative, followed closely by the Central Alternative, would have the greatest contribution to the cumulative loss of forest habitat because of vegetation clearing (see Chapter 17, Vegetation). Because it largely follows existing transmission corridors and would be located generally in more urbanized areas, the West Alternative would contribute the least to this cumulative impact. The contribution of the Crossover Alternative to this cumulative impact would be in between. Although the East and Central alternatives would have the greatest contribution to the cumulative loss of forest habitat, the loss is more production forest, which is of lower quality than forest and mature forest. The proposed project would contribute incrementally to potential cumulative impacts on forests and other native plant habitats.

Ongoing and future development and timber production activities also likely could create continuing cumulative impacts on special-status plants and their habitats. Tower and access road construction for the West Alternative and Options would permanently affect the Lacamas Prairie NAP/NRCA—including a portion of the last documented wet prairie in Washington and WNHP Oregon white oak woodland priority ecosystem (see Chapter 17). The West and Crossover alternatives could also affect the WDNR Forest Riparian Easement. The East and Crossover alternatives could affect a small portion of the southern edge of herbaceous bald habitat along an existing access road if that road would need to be expanded. This habitat may qualify as a WNHP North Pacific herbaceous bald and bluff priority ecosystem or as a high-quality plant community.

Only the West Alternative would potentially affect a federally listed species—Bradshaw’s lomatium—by removing from 0.08–4 acres of a documented occurrence and buffer area (depending on whether one of the alternatives’ options is chosen). All action alternatives could potentially affect one or more other sensitive species (state listed) including small-flowered trillium, hairy-stemmed checker-mallow, tall bugbane, western wahoo, Torrey’s peavine, dense sedge, Hall’s aster, Oregon coyote-thistle, and Nuttall’s quillwort.

To the extent that the project would potentially affect federally listed plant species, and impacts to them are determined to be unavoidable, BPA would take measures to ensure compliance with ESA requirements (see Chapter 17, Vegetation and Section 27.2, Endangered Species Act of 1973). Other special-status plant species would be avoided to the extent possible, but unavoidable impacts may occur. As a result, the proposed project may add cumulatively to adverse impacts on special-status plant species resulting from other past, present, or reasonably foreseeable actions.

Past and present activities, such as development, agriculture, and road construction have introduced and spread noxious weeds into native plant habitats. These weeds would continue to spread as a result of ongoing and reasonably foreseeable future actions, and construction of the project would contribute to this cumulative impact, particularly in the Central, East, and Crossover alternatives where new right-of-way for the transmission line and access roads would create fresh avenues for weed dispersal into native habitats. Operation and maintenance activities would also contribute to this cumulative impact (see Chapter 17). The potential contribution to the spread of weeds on the state noxious weed list would be minimized by project-related mitigation measures such as spraying, reseeding, and revegetation. These measures would not address weeds not included on the state noxious lists unless they happen to be within listed weed populations being treated. With mitigation measures, the project would only contribute minor cumulative impacts from the spread of non-native weeds.

### **26.3.14 Wildlife**

The spatial boundary for the following analysis consists of the general vicinity of the proposed transmission line routes and substations, and more broadly the three counties that would be crossed by these routes (Cowlitz, Clark, and Multnomah counties).

Past and present actions have caused the cumulative loss and degradation of wildlife habitat, including special-status habitats—primarily WDFW priority habitats—that support a wide diversity of species. Clearing and converting land for agricultural use, urban development, utility infrastructure, roads, and other uses by past and present actions have caused the cumulative loss of wildlife habitat. These uses have also led to cumulatively increased wildlife disturbance

from human activity, increased habitat fragmentation, increased wildlife mortality from roads, and the spread of non-native weeds, such as reed canarygrass, that reduce habitat diversity. In addition, timber harvest activities have converted large tracts of old-growth/mature forest habitat to managed forests, which has also led to increased disturbance from human activity, habitat fragmentation, and reduced habitat diversity. This habitat loss and degradation have caused the cumulative displacement of wildlife species, including special-status wildlife species such as northern spotted owl and western pond turtle. Wildlife species also have been cumulatively affected by hunting and trapping activities, and by incidental harm and killing from other human activities in the area.

Reasonably foreseeable future actions involving development in previously undeveloped areas would incrementally add to cumulative wildlife impacts, both through reduction of potential habitat, and disturbance and mortality of wildlife species in and around the sites of these actions. Timber production areas would continue to be managed under a cyclical harvest schedule, with similar impacts to wildlife habitat and species as described above.

The proposed project would contribute to cumulative wildlife impacts through the permanent loss of wildlife habitat where project facilities such as transmission towers, access roads, and substations would be located; loss, alteration, or degradation of wildlife habitat from vegetation clearing within the transmission line right-of-way; disturbance and mortality of wildlife species during project construction; and bird mortality due to collisions with the proposed transmission line (see Chapter 18, Wildlife). All action alternatives would contribute incrementally to the impacts that past, present, and reasonably foreseeable future timber production, urbanization, utility infrastructure, roads, and agricultural and other uses have had on wildlife species and habitat. The Central and East alternatives would contribute more to cumulative impacts on wildlife habitat in general since they would affect a greater total amount of habitat. However, most of this habitat is production forest, the loss of which is considered a lower impact since the habitat is common in the area. It also holds less value for wildlife than native forest or old-growth/mature forest since it already has or will be disturbed and degraded by logging.

The West Alternative, followed by the Crossover Alternative, would contribute more to cumulative impacts on bird species and WDFW priority habitats. Along the West Alternative, the combination of parallel transmission lines set at different heights and the occurrence along or close to the right-of-way of three WDFW waterfowl concentration priority areas, two WDFW wood duck priority areas, two WDFW Woodland Cavity Nesting Duck Priority Area, and significantly more wetland habitat than the other action alternatives, would increase the risk of bird mortality through collisions with transmission lines. It would also contribute more to cumulative impacts on WDFW priority habitats, including riparian areas, wetlands, old-growth/mature forest, westside prairie, and Oregon white oak woodlands, since it would remove substantially more combined acres of these important wildlife habitats than the other action alternatives, followed closely by the Crossover Alternative (see Section 26.3.12, Wetlands). However, the East Alternative would remove substantially more documented WDFW snag and log priority habitat (i.e., WDFW snag-rich areas) than the other action alternatives, and the Crossover Alternative would remove almost twice as much old-growth/mature forest.

Only four federally listed species—northern spotted owl, marbled murrelet, streaked horned lark, and Columbian white-tailed deer—are documented in Multnomah, Clark, or Cowlitz counties (see Chapter 18, Wildlife), and of these, only the northern spotted owl is documented within 1 mile of any of the action alternatives. No known active northern spotted owl nests would be

affected by the action alternatives, so the proposed project would not contribute to cumulative reductions of any such nests. The new transmission line right-of-way and proposed new access roads outside of this right-of-way under all action alternatives would, however, pass through potentially suitable northern spotted owl habitat, and the Central, East, and Crossover alternatives would pass through documented northern spotted owl circles. Construction activities could disturb any spotted owls present in these areas during construction, and tree clearing and the presence of the proposed project would add to the cumulative removal of potential spotted owl habitat in the area.

The contribution to these cumulative impacts would be greatest from the East Alternative, which would remove about 234 acres of forest and production forest from within four documented northern spotted owl circles, of which 1.24 acres are old-growth/mature forest habitat. This would be followed by the Crossover Alternative (about 61 acres of forest and production forest from one circle, of which 1.24 acres are old-growth/mature forest). About 30 acres of production forest will be removed from one owl circle in the Central Alternative, none of which was delineated as spotted owl suitable or dispersal habitat during detailed GIS and field assessments. The West Alternative comes within about 0.4 mile of one circle, but no habitat will be removed from the owl circle.

Similar to the northern spotted owl, no known marbled murrelet nests would be affected by any of the action alternatives for the proposed project, so the proposed project would not contribute to cumulative reductions of any such nests. The new transmission line right-of-way and access roads outside this right-of-way under all action alternatives would pass through the eastern extent of the Western Washington Coast Range Conservation Zone, or Conservation Zone 2, for marbled murrelet (marbled murrelet conservation zone). However, the proposed project is east of the typical range of the marbled murrelet, and only small pockets of old-growth/mature forest occur in this portion of the project area. Therefore, the proposed project would contribute in a relatively minor way to the cumulative reduction of habitat within a marbled murrelet conservation zone, with the West and Crossover alternatives having the greatest reductions in suitable old-growth/mature forest habitat within the conservation zone. As with vegetation, to the extent that the project would potentially affect federally listed wildlife species and impacts to them are determined to be unavoidable, BPA would take measures to ensure compliance with ESA requirements (see Chapter 18, Wildlife and Section 27.2, Endangered Species Action of 1973).

Other special-status species or species groups, including federal species of concern, state-listed species, WDFW priority species, and WDFW priority areas, would be avoided to the extent possible, but unavoidable impacts may occur. As a result, the proposed project may add cumulatively to adverse impacts caused by other past, present, or reasonably foreseeable actions on special-status species or species groups.

### **26.3.15 Fish**

The spatial boundary for the following analysis consists of the general vicinity of the proposed transmission line routes and substations, and more broadly the three counties that would be crossed by these routes (Cowlitz, Clark, and Multnomah counties).

Past and present actions that have cumulatively affected fish include agricultural and timber harvest practices and other human development, especially in floodplains. These actions have caused the loss of streamside riparian cover and function, the loss of large woody debris

sources, and the addition of sediment into streams. In addition, development of the hydroelectric system on the Lewis and Columbia rivers has cumulatively affected both downstream and upstream fish survival, as has industrial and other development along these rivers that have adversely affect fish habitat. Fish harvest in the Columbia River, its tributaries and the ocean, has further reduced overall populations of fish species. In recent years, however, the cumulative adverse effect on fish from these factors has appeared to lessen with better passage conditions, directed harvest management, and fish habitat restoration and improvements.

Reasonably foreseeable future actions that could cumulative impact fish include actions that would remove shade vegetation in riparian areas along rivers or streams and actions that degrade water quality in project area rivers or streams from soil erosion or other discharges. These future actions include forest harvests, residential and commercial development (especially in floodplains, conversion of forest land to open space or agriculture, and increasing widths of existing or creation of new rights-of way for roads and transmission lines). Construction by PacifiCorp of fish passage facilities and other improvements on the Lewis River, on the other hand, would serve to cumulatively improve conditions for fish in project area waterways (see Tables 26-2 and 26-3 (code F)). In addition, regulations and management practices are being implemented to mitigate or restore natural stream functions. In particular, riparian conservation regulations and guidelines maintained in habitat conservation planning and in shoreline and forest harvest planning would likely result in a greater degree of riparian function. These regulations and guidelines are intended to protect forested riparian areas, and actively manage them to restore their functions.

The project, regardless of the action alternative, would remove forested vegetation in riparian areas along the transmission line right-of-way and access roads, and these areas would be managed by restricting the height of future vegetation growth. Forested riparian areas along streams provide both shade for cooling and the potential for large woody debris recruitment, which are needed for high quality fish habitat which benefit fish.

The project would contribute to a cumulative reduction in riparian area function and add to the cumulative amount of riparian forest removed in the project area, to an extent largely dependent on the number of forested fishbearing rivers and streams crossed by a particular alternative (see Chapter 19, Fish). Accordingly, the Central Alternative would have the greatest contribution to this cumulative impact since it would cross 69 forested fishbearing rivers and streams and would permanently remove more highly functioning shade vegetation and large wood debris potential at these locations. The Crossover and East alternatives would follow with similar, but slightly less, levels of contribution (55 and 52, respectively) to this cumulative impact since it would cross fewer fishbearing rivers and streams. The West Alternative would have the least contribution to cumulative impacts (47) on fish.

Construction activities would also place towers and roads in floodplains and expose soil that could cause erosion and sediment delivery into rivers and streams. These effects are minor, causing a small estimated average percent reduction in the production of affected fish populations (less than 0.2 percent) (see Chapter 19, Fish). The project would have negligible incremental contributions to cumulative impacts on fish, including listed species.

### **26.3.16 Air Quality**

The spatial boundary for the following analysis consists of the general vicinity of the proposed transmission line routes and substations, and more broadly the three counties that would be crossed by these routes (Cowlitz, Clark, and Multnomah counties).

Many past actions have contributed to cumulative air quality impacts through emissions of air pollutants as part of ongoing operations and/or through fugitive emissions (e.g., vehicular-related emissions and construction-related dust generation). However, only those actions still occurring are contributors to current cumulative air quality impacts in the area; those past actions that have ceased do not currently contribute to these impacts. On-going actions include agricultural uses, timber harvests, the burning of wood and fossil fuels in residential and commercial/industrial uses, road construction and maintenance, other transportation infrastructure improvements, and vehicle use.

Many of the reasonably foreseeable future actions would be expected to contribute to these cumulative air quality impacts (see Tables 26-2 and 26-3). Future projects involving construction activities on vacant land likely would generate PM10 emissions in the form of windblown dust. Proposed power generation and industrial facilities would be new sources of air pollutants, both from facility operations and from ancillary activities such as vehicle use and materials storage. The actual contribution from these future actions would depend on the level and amount of emission control methods and technologies employed.

The action alternatives would contribute to cumulative air quality in generally the same manner and amounts, so cumulative impacts on air quality would be similar among all action alternatives. Air emissions from the action alternatives would occur primarily during construction, from airborne dust generated by construction activities and from emissions from construction vehicles and heavy equipment. These emissions would temporarily and locally contribute to cumulative impacts on air quality in the immediate vicinity of construction activities, but would not be expected to have a noticeable effect on overall regional cumulative air quality. In addition, after construction, ongoing operation of the proposed project would not result in a measurable contribution to cumulative air quality impacts in the region. Ongoing emissions from corona discharge from the proposed transmission line may generate small quantities of ozone and nitrogen oxide emissions near the line, and periodic vehicle trips for inspection and repair would emit small amounts of carbon monoxide, sulfur oxides, and other pollutants, but these emission levels would be indistinguishable from background concentrations and would not contribute to cumulative impacts.

### **26.3.17 Greenhouse Gases**

Greenhouse gas (GHG) concentrations in the atmosphere and corresponding climate change occurring over the past 50 years have been significantly affected by anthropogenic contributions. GHG emissions have largely originated from the burning of fossil fuels, volcanic eruptions and other natural activity, and the clearing of forests around the world from many and varied sources during this time, and for a significant period before that (Karl et al. 2009). Therefore, unlike the cumulative impacts analyses for other resources, the global nature of GHG concentrations makes it impossible to define a spatial boundary short of global or to catalogue past, present, and reasonably foreseeable future actions for this resource.



Any action where fossil fuels have been, or are being burned contributes to GHG concentrations. Examples of such actions include home heating, automobile and other vehicle use, electricity generation, and processing and manufacturing of goods, among others. In the project vicinity, past development and land management activities have affected air quality and contributed to greenhouse gases. Population growth, increases in commercial/industrial development, energy facilities, and expanded transportation infrastructure have all increased emissions.

Actions that cause soil disturbance, vegetation loss or burn biomass can also increase concentrations. Vegetation can affect concentrations in two ways. First, if vegetation is removed prior to maturation, the carbon storing potential is lost and CO<sub>2</sub> can no longer be sequestered in that vegetation. Second, if that biomass is burned, it will release all the carbon it has sequestered back into the atmosphere as CO<sub>2</sub>. These actions have occurred in the past, are likely still occurring, and will continue to occur in the future.

In analyzing the project's cumulative impact, global, national, and regional GHG emissions were considered. In 2012, the EPA estimated global GHG emissions at 32,310,000,000 metric tons of CO<sub>2</sub> equivalent (EPA 2013). In 2013, total U.S. GHG emissions were estimated at 6,673,000,000 metric tons of CO<sub>2</sub> equivalent. Overall, total U.S. emissions have risen by about 14 percent from 1990 to 2008, and about 5.5 percent from 1990 to 2013. In 2012, the four states within BPA's service territory emitted an estimated 154,570,000 metric tons of CO<sub>2</sub> (see Table 26-4). Oregon and Washington, combined, emitted an estimated 108,080,000 metric tons of CO<sub>2</sub> (see Table 26-4).

**Table 26-3 Estimated Annual CO<sub>2</sub> Emissions for Each State in BPA's Service Territory**

State	CO <sub>2</sub> Emissions (metric tons)
Idaho	15,890,000
Montana	30,600,000
Oregon	37,030,000
Washington	71,050,000
<b>Total</b>	<b>154,570,000</b>
Source: EPA 2014b	

One evaluation has concluded that, as a result of increased GHG concentrations, the earth's temperature has increased by about 1.5 degrees F over the last century (Karl et al. 2009). Models predict that the warming of the planet will continue and the planet could be as much as 11.5 degrees F warmer by 2100 with the current level of GHG emissions. The effects of increased temperatures include sea level rise due to shrinking ice caps and glaciers, changes in biodiversity as species try to move into more optimal temperature ranges, lengthening of growing seasons, and thawing of permafrost (Karl et al. 2009).

In the Northwest, statistical data indicates that the annual average temperature also has risen about 1.5 degrees F over the past century, with some areas experiencing increases up to 4 degrees F. Many experts believe that this temperature rise is a major contributing factor to the 25 percent reduction in average snowpack in the Northwest over the past 40 to 70 years. A continued decline in snowpack in the mountains will decrease the amount of water available during the warm season. A 25- to 30-day shift in the timing of runoff has been observed in some

places, and the trend is expected to continue as the region's average temperature is projected to rise another 3 to 10 degrees F in the 21st century (Karl et al. 2009).

Any addition to GHG emissions could contribute to long-term effects on climate change. However, when compared to the regional, national, and global rates, the GHG emissions estimated for the proposed project are negligible (see Chapter 22, Greenhouse Gases).

### **26.3.18 Climate**

No impacts on climate from the transmission line have been identified. As a result, there are no cumulative impacts on climate from the project. Climate would have low impacts on the transmission line project. Impacts are dependent on terrain and the varying climate at different elevations. These impacts are temporary and not cumulative in nature, and there would be no cumulative impacts from climate for the project.

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# Chapter 27 Consultation, Review, and Permit Requirements

This chapter addresses federal statutes, implementing regulations, and Executive Orders (EOs) and other consultation, review, and permit requirements that are potentially applicable to the project. This EIS is being sent to tribes; federal agencies; and regional, state, and local governments as part of the consultation process for this project.

Words in **bold** and acronyms are defined in Chapter 32, Glossary and Acronyms.

## 27.1 National Environmental Policy Act

This EIS has been prepared by BPA pursuant to regulations implementing the NEPA (42 USC 4321 et seq.), which requires federal agencies to assess, consider, and disclose the impacts that their actions may have on the environment. BPA has assessed the potential environmental impacts of the project in this EIS, has made this EIS available for public comment, and will consider the potential impacts and public comments when making decisions regarding the project.

## 27.2 Endangered Species Act of 1973

The ESA of 1973 (16 USC 1536) as amended in 1988, establishes a national program for the conservation of threatened and endangered species of fish, wildlife and plants, and the preservation of the ecosystems on which they depend. The ESA is administered by the USFWS for wildlife, plants, and freshwater and some marine species and by NOAA Fisheries for marine and anadromous species. The ESA defines procedures for listing species, designating critical habitat for listed species, and preparing recovery plans. It also specifies prohibited actions and exceptions. Section 7 of the ESA requires federal agencies to ensure that the actions they authorize, fund, and carry out do not jeopardize endangered or threatened species or their critical habitats. A federal agency also is required to consult with the USFWS and/or NOAA Fisheries if it is proposing an action that may affect listed species or their designated critical habitat. If listed species or designated critical habitat are present and could be affected by the Proposed Action, Section 7 requires that the federal agency prepare a biological assessment (BA) to analyze the potential effects of the action on listed species and critical habitat and make an effect determination for each species. USFWS or NOAA Fisheries review the BA and, if they conclude that the action may adversely affect a listed species or their habitat, issue a biological opinion, which includes a take statement and a list of reasonable and prudent alternatives to follow during construction. If USFWS or NOAA Fisheries find that the project may affect, but is not likely to adversely affect a listed species or their habitat, they will issue a letter of concurrence.

BPA reviewed the federal lists of the threatened and endangered plant, wildlife, and fish species that may occur in Cowlitz and Clark counties, Washington and Multnomah County, Oregon. From these lists and other database information provided by WDFW and WDNR, BPA determined that six federally protected threatened or endangered plant species could occur in the project area: golden paintbrush, Pacific fleabane, Willamette Valley daisy, water howellia, Bradshaw's lomatium, Nelson's checker-mallow, and Kincaid's lupine. BPA determined that seven federally protected threatened or endangered wildlife species could occur in the project area: marbled

murrelet, northern spotted owl, western yellow-billed cuckoo, streaked horned lark, Oregon spotted frog, gray wolf, and Columbian white-tailed deer. BPA also determined that seven federally protected fish species—bull trout, coho salmon, Chinook salmon, chum salmon, steelhead, eulachon, and sockeye salmon – could occur in the project area. Many evolutionary significant units of these species occur solely along their migration route in the Columbia River; others include spawning and rearing use in Columbia River tributaries.

The assessment of potential occurrences of threatened and endangered plant, animal, and fish species and their habitats, and potential impacts to these species from the project, are discussed in Chapter 17, Vegetation; Chapter 18, Wildlife; and Chapter 19, Fish. As discussed in these chapters, the proposed project could cause impacts to protected plant, wildlife, and fish species and their critical habitat.

Bradshaw's lomatium is the only plant species that currently has been documented to occur within a 2-mile-wide corridor of the West Alternative and Options and Crossover Option 1. If avoidance is not possible, impacts could occur to this species from project activities. No critical habitat for federally listed plant species is currently designated in the study area. Surveys for all federally listed plants were conducted in 2014 and 2015.

While suitable habitat may occur along all the action alternatives, the Columbian white-tailed deer, gray wolf, Oregon spotted frog, streaked horned lark, and yellow-billed cuckoo are not known to occur nor are they likely to occur in the study area. The northern spotted owl is the only wildlife species that currently has been documented to occur within a 2-mile-wide corridor of the West, Central, East, and Crossover alternatives. Impacts created by all action alternatives would be moderate since suitable habitat would be removed and noise disturbance impacts could occur. In addition, habitat would be removed from within documented northern spotted owl circles for the Central, East, and Crossover alternatives. While there is one documented occurrence of the marbled murrelet about 3 miles northeast of the Casey Road Substation site, and the northern portions of all four action alternatives cross through the Western Washington Coast Range Conservation Zone for marbled murrelet, the western-most portions of the action alternatives are at the furthest eastern edge of the species' range, where nesting is less likely to occur. In addition, only a small amount of the habitat that would be removed within the conservation zone is suitable old-growth/mature forest habitat. Impacts from loss of potential habitat within the conservation zone would be low. Surveys for marbled murrelets are in progress and will be completed in 2016. Similar to plants, no critical habitat for federally listed wildlife species is currently designated in the study area.

Project impacts to hydrology, sediment delivery, riparian areas, and floodplains in watersheds, including alteration of riparian habitat through loss of streambank stability, large woody debris recruitment, and stream shade affect the productivity of fish habitat. The project would clear forested vegetation along about 2 to 3 miles of fish-bearing streams, including critical habitat for fish. Loss of riparian function would be greatest along the Central Alternative and options and least along the West Alternative and options. The West Alternative and options also would have the lowest impact on fish compared to other alternatives. This alternative includes a high number of stream crossings, although impacts to fish habitat at many of these crossings would be low because riparian vegetation has already been removed. The Crossover Alternative and options would have the highest impact on fish. Many of the streams crossed would require clearing of highly - functional riparian zones and many of the streams crossed have high fish production potential. The net effect of any project route on anadromous fish populations would be on the order of 1 percent. None of the action alternatives would cause a substantial risk

to listed species. However, any additional impact would further degrade the status of ESA-listed species from current levels.

BPA is consulting with USFWS and NOAA Fisheries under Section 7 of the ESA regarding these species. Field surveys were conducted in 2014 and 2015 to confirm the presence and/or absence of listed species in the project area and to aid in Section 7 consultation.

## **27.3 Fish and Wildlife Conservation Act of 1980**

This federal act (16 USC §§ 2901 et seq.) encourages federal agencies to conserve and promote the conservation of nongame fish and wildlife species and their habitats. A separate act, the Fish and Wildlife Coordination Act (16 USC 661 et seq.) requires federal agencies undertaking projects on water resources to consult with the USFWS and the state agency responsible for fish and wildlife resources.

The proposed project could cause impacts on nongame species (see Section 27.2, Endangered Species Act of 1973). BPA is consulting and coordinating with federal and state agencies responsible for the management of these species. Mitigation designed to avoid and minimize impacts to fish and wildlife and their habitats is identified in Chapter 18, Wildlife and Chapter 19, Fish.

## **27.4 Magnuson-Stevens Fishery Conservation and Management Act**

Under Section 305(b)(4) of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), the fisheries division of NOAA Fisheries is required to provide essential fish habitat (EFH) conservation and enhancement recommendations to federal and state agencies for actions that adversely affect EFH. EFH includes all streams, lakes, ponds, wetlands, and other currently viable water bodies and most of the habitat historically accessible to salmon that has been designated EFH.

Wherever possible, NOAA Fisheries uses existing interagency coordination processes to fulfill EFH consultations with federal agencies. EFH occurs in the Columbia River and its tributaries throughout the project area. As discussed in Chapter 19, Fish, the proposed project could cause impacts on waters and substrate necessary to fish species covered under EFH—salmon stocks—for spawning, breeding, feeding, and growth to maturity. Mitigation designed to avoid and minimize impacts to fish and their habitats is identified in Chapter 19, Fish. BPA will continue to coordinate and consult with NOAA Fisheries to ensure appropriate mitigation measures would be used to minimize impacts to EFH.

## **27.5 Migratory Bird Treaty Act of 1918**

This act implements various treaties and conventions between the United States and other countries, including Canada, Japan, Mexico, and the former Soviet Union, for the protection of migratory birds (16 USC 703-712, July 3, 1918, as amended through 1989). Under the act, taking, killing, or possessing migratory birds, their eggs, or nests is unlawful. Most species of birds are classified as migratory under the act, except for upland and non-native birds such as pheasant, chukar, gray partridge, house sparrow, and European starling.

The project may impact migratory birds through increased potential for power line collisions, loss of habitat, potential disruption of navigational mechanisms by EMF, and potential disruption of breeding if temporary construction activities occur during the breeding season. Potential impacts on migratory birds and mitigation measures are discussed in Chapter 18, Wildlife. In accordance with the Memorandum of Understanding signed in 2006 between the USFWS and the USDOE, BPA has consulted with the USFWS and worked with WDFW to ensure appropriate mitigation measures would be implemented to minimize the risk of bird mortality and help promote the conservation of migratory bird populations.

## **27.6 Bald and Golden Eagle Protection Act of 1940**

The Bald and Golden Eagle Protection Act of 1940 prohibits the taking or possessing of and commerce in bald and golden eagles, with limited exceptions (16 USC 668-668d, June 8, 1940, as amended 1959, 1962, 1972, and 1978). The Act only covers intentional acts or acts in "wanton disregard" of the safety of bald or golden eagles. Because eagles use portions of the project area for foraging, perching, roosting, and nesting, there is a possibility some eagles could be killed. However, because the Bald Eagle and Golden Eagle Protection Act only covers intentional acts, or acts in "wanton disregard" of the safety of bald or golden eagles, this project is not subject to this act.

## **27.7 Federal Noxious Weed Act**

This federal act, as amended in 2009, directs federal agencies to manage undesirable plant species on federal lands when management programs for those species are in place on state or private land in the same area (7 USC § 2814) (1990). Undesirable plant species are defined as those that are classified as undesirable, noxious, harmful, exotic, injurious, or poisonous, pursuant to state or federal law. A noxious weed list (7 CFR 360.200) is developed by the Secretary of Agriculture, which lists noxious weeds (as defined by the Plant Protection Act) that are subject to restrictions on interstate movement (7 USC § 7712).

Construction and maintenance activities would create some risk of spreading undesirable plant species in the project area in Cowlitz and Clark counties, Washington, and Multnomah County, Oregon. If privately or state-managed undesirable plant species are found or spread during project construction or maintenance, BPA would coordinate with the state, county, and landowners regarding their control or eradication (BPA 2000a). Pre- and post-construction surveys would also be conducted for undesirable plant species included on the federal noxious weed lists and included on Oregon and Washington state and county lists. See Chapter 17, Vegetation, for a discussion of species, impacts, and mitigation measures.

## **27.8 Clean Air Act**

The Clean Air Act as revised in 1990 (PL 101-542, 42 USC §7401) requires EPA and the states to carry out programs intended to ensure attainment of National Ambient Air Quality Standards. The EPA is authorized to establish air quality standards for six "criteria" air pollutants: carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter (PM<sub>2.5</sub>, PM<sub>10</sub>), and sulfur dioxide. The EPA uses these six criteria pollutants as indicators of air quality. The EPA has established NAAQS for each criteria pollutant, which defines the maximum legally allowable concentration. If the standard for a pollutant is exceeded, adverse effects on human health may occur. When

an area exceeds these standards, it is designated as a nonattainment area. Pollution control measures are mandated for federal actions in nonattainment areas.

A nonattainment area can be listed for any one, or more, of the criteria pollutants. An area that was once a nonattainment area, but has since improved its air quality enough so that it now meets the EPA established air quality standards, is upgraded to a maintenance area designation. Maintenance areas also have pollution controls imposed on them, but because the air quality is not as poor as in nonattainment areas, the control standards are not as strict. All other areas not listed by the EPA for air quality degradation are considered attainment areas. The General Conformity Requirements of the Code of Federal Regulations require that federal actions do not interfere with state programs to improve air quality in nonattainment areas. There are no nonattainment areas in the project area.

Of the six criteria air pollutants, particulate matter (PM) is the main concern for transmission line, substation, and access road construction activities. PM<sub>10</sub> are particles with an aerodynamic diameter smaller than 10 micrometers (µm) and include: "dust, dirt, soot, smoke, and liquid droplets directly emitted into the air by sources such as factories, power plants, cars, construction activity, fires, and natural windblown dust" (EPA 2003). PM<sub>2.5</sub> are "fine particles" with an aerodynamic diameter smaller than 2.5 µm. PM<sub>2.5</sub> particles can be "directly emitted from sources such as forest fires or they can form when gases emitted from power plants, industry and automobiles react in the air" (EPA 2006).

In the project area, authority for ensuring compliance with the Clean Air Act is delegated to the Washington Department of Ecology, Southwest Region and the Oregon DEQ. Each agency has regulations requiring all industrial activities (including construction projects) to minimize windblown fugitive dust. RCW Chapter 70.94 (Washington Clean Air Act) and WAC Chapter 173 400 (general regulations for air pollution sources); and ORS Chapter 468a (Oregon air quality statutes) and OAR Divisions 200-268 (Oregon air quality rules) require owners and operators of fugitive dust sources to prevent fugitive dust from becoming airborne and to maintain and operate sources to minimize emissions. Air quality impacts from fugitive dust and emissions of the project are discussed in Chapter 21, Air Quality.

## **27.9 Greenhouse Gases**

Various federal and state mandates address the need to reduce GHG emissions. The Clean Air Act (CAA) is a federal law that established regulations to control emissions from large generation sources such as power plants; limited regulations of GHG emissions occur through the New Source Review permitting program. In 2009, the EPA issued a rule on the Mandatory Reporting of Greenhouse Gases that requires reporting of GHG emissions from large sources. The rule requires suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of CO<sub>2</sub>e to submit annual emissions reports to the EPA. Likewise, Executive Orders 13423 and 13514 require federal agencies to estimate, manage, and reduce GHG emissions by agency-defined target amounts and dates.

BPA is currently developing a Sustainability Action Plan, which addresses managing and reducing greenhouse gas emissions by the agency. The project would remove carbon sequesters (trees and other vegetation) and generate emissions of gases (such as carbon dioxide) that contribute to global warming. Construction of the project would produce an estimated 39,600 metric tons in greenhouse gas emissions over the course of 60 months, and operation and maintenance of the line would produce an estimated 18,586 metric tons per year. The project is estimated to



produce an annualized average of 7,831 metric tons of greenhouse gas over the life of the project. See Chapter 22, Greenhouse Gases, for the complete analysis and discussion.

In the state of Washington, Executive Orders 07-02 and 09-05 issued by the governor direct state agencies to work with western states and Canadian provinces to develop a regional emissions reduction program designed to reduce GHG emissions to 1990 levels by 2020 (Ecology 2010b). Similarly, in Oregon, House Bill 3543 (codified at Oregon Revised Statutes [ORS] 468A.205), directs state and local governments, businesses, nonprofit organizations, and individual residents to reduce GHG emissions in Oregon; by 2010, arrest growth of GHG emissions; by 2020 begin to reduce GHG levels to 10 percent below 1990 levels; and by 2050 achieve GHG levels at least 75 percent below 1990 levels (Oregon Global Warming Commission 2010).

## **27.10 Clean Water Act**

### **27.10.1 Section 404**

Section 404 of the Federal Clean Water Act (CWA) (33 USC §§ 1251 et seq.) is administered by the U.S. Army Corps of Engineers (Corps), and regulates the discharge of dredged or fill material into waters of the United States, including wetlands and streams. Because BPA would be placing fill into wetlands and streams to construct the project, a Section 404 permit would be required.

As part of the project coordination, BPA is working with the Corps to comply with the CWA Section 404(b)(1) guidelines established by the EPA (40 CFR Part 230, Section 40(b)(1)). The purpose of the guidelines is to restore and maintain the chemical, physical and biological integrity of waters of the U.S. through the control of discharges of dredged or fill material. These guidelines prohibit discharges of dredged or fill material into waters of the U.S. if there is a practicable alternative to the proposed project that would have less adverse impact on the aquatic ecosystem, including wetlands, and that does not have other significant environmental consequences (40 CFR 230.10(a)). An alternative is considered “practicable” if it is “available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes” (40 CFR 230.10(a)(2)).

When an activity is proposed to occur in a special aquatic site (i.e., wetland fill) and it is not water dependent, the CWA regulations also presume that practicable alternatives that do not involve special aquatic sites are available, and that these alternatives would have less adverse impact on the aquatic ecosystem. Both of these presumptions must be clearly analyzed as a prerequisite to complying with the guidelines, and thus to potential permit issuance. BPA is preparing a Section 404(b)(1) alternatives analysis evaluation to provide the Corps with the necessary information regarding the availability of practicable alternatives to the proposed project and to identify the least environmentally damaging practicable alternative.

The CWA also requires that applicants take all appropriate and practicable steps to avoid and minimize adverse impacts to waters of the U.S. To offset impacts that are unavoidable, the Corps requires applicants to provide compensatory mitigation to ensure that an activity complies with Section 404(b)(1) guidelines. The process of incorporating all appropriate and practicable measures to avoid, minimize and, finally, compensate for impacts to aquatic resources caused by permit actions, is referred to as mitigation sequencing. Constructing towers, roads, and substations for the project would require the filling of wetlands (see Chapter 16, Wetlands). The amount of wetland fill would vary by alternative, ranging from approximately 3 acres for the Central Alternative to about 44 acres for the West Alternative. BPA is therefore coordinating

with the Corp to prepare a mitigation plan in accordance with the Federal Compensatory Mitigation for Losses of Aquatic Resources Final Rule (33 CFR Parts 332, April 10, 2008). In both Washington and Oregon, compensatory mitigation options, in order priority, include mitigation banks, in-lieu fee programs, and permittee-responsible compensatory mitigation. The Corps describes mitigation banking as “the restoration, creation, enhancement, or preservation of wetlands to compensate for unavoidable wetland losses in advance of development actions. Banking typically involves the consolidation of small, fragmented wetland mitigation projects into one large contiguous site. Units of restored, created, enhanced or preserved wetlands are expressed as ‘credits,’ which may subsequently be withdrawn to offset ‘debits’ incurred at a project development site.”

The mitigation plan is intended to address requirements of both Section 401 and Section 404 of the CWA, and would be prepared in accordance with the EPA, Corps, and Ecology interagency guidance on wetland mitigation in Washington State, *Wetland Mitigation in Washington State: Part 1—Agency Policies and Guidance* (March 2006) and *Wetland Mitigation in Washington State: Part 2—Developing Mitigation Plans* (March 2006). Part 1 provides information on the agencies’ permitting requirements and policies on wetland mitigation. Part 2 provides technical information for preparing appropriate mitigation plans. The interagency document provides guidance on determining appropriate and adequate compensatory mitigation through various considerations. These are summarized below.

**Compensating for Wetland Losses:** Wetland function loss should be taken into account in addition to wetland acreage lost. A minimum of a one-to-one functional replacement should be the goal of all compensatory mitigation in order to achieve a “no net loss” of function. Functions should be analyzed at the impact site and the mitigation site, both before and after impact, to show that mitigation has provided the “functional lift” required. The “lift” at the wetland mitigation site should at least be equal to the loss at the wetland impact site to be considered efficient.

**Determining when Mitigation Should Occur:** Though the agencies prefer mitigation to occur before wetland impacts occur, this is not always possible. Necessary hydroperiods or planting schemes may delay compensatory mitigation activities. If it is possible for successful mitigation to occur before wetland impacts do, mitigation ratios will be lower, since the temporal loss and risk of failure will be lower.

**Choosing the Location and Type of Compensatory Mitigation:** Mitigation sites should be selected using a “watershed approach” meaning the best areas for mitigation may not always be at the site of impact but within the same watershed. The “watershed approach” is based on understanding how ecological processes determine the characteristics and ecological functions in the watershed, and identifying areas where altered processes can be restored to improve the function of the watershed as a whole. Agencies may require on- or off-site mitigation based on the location of the impacted wetland in the landscape and the level of functions it provides to the watershed.

In-kind mitigation is compensatory mitigation that replaces the same wetland type and functions as the impacted wetland. Out-of-kind mitigation is when wetland type or functions replaced differ from type and functions lost. As with site location discussed above, agencies consider, and will prefer, what will provide for the larger ecological benefit for the landscape when comparing in- and out-of-kind compensatory mitigation.

**Using Preservation:** Preservation of wetlands with a high level of function may be considered if the wetland to be preserved is determined to be threatened by development; and if preservation

is considered to be the ecologically preferable option after restoration, creation, and enhancement options have been reviewed. Preservation as a sole means of compensatory mitigation is rare, and most often is in combination with other forms of mitigation.

**Identifying the Amount of Compensation:** In order to help ensure that “no net loss” of wetland function and area is achieved when performing compensatory mitigation. The agencies have developed wetland mitigation ratios that are adequate to offset unavoidable wetland impacts. Based on best available science, mitigation ratios must be greater than 1:1 (1 acre of mitigation for 1 acre of impact) due to the high risk of failure and temporal loss of wetland function.

**Determining Adequate Buffers:** Based on best available science, the agencies require that compensatory wetlands have a buffer, not included in the total compensation, which will protect the functions being performed. The agencies have developed buffer width standards for mitigation wetlands.

For the Preferred Alternative (Central Alternative using Central Option 1), wetland, stream, and buffer impacts would occur in both Cowlitz and Clark counties (see Table 27-1). The table summarizes potential project impacts to aquatic resources and riparian buffers by watershed and provides these data as relative percentages of the total estimated impacts for the Preferred Alternative. The intent of the table is to demonstrate which watersheds (defined at the HUC 10 level) would likely see the greatest effect from this project and therefore where mitigation for aquatic resources would likely occur. The impact percentages are based upon areas for clearing of forested/scrub shrub wetlands, stream buffers and wetland buffers within the proposed right-of-way, as well as fill/dredge in waters of the US, including wetlands. This table includes field survey information from properties where permission to access has been granted by the property owner.

**Table 27-1 Relative Percentages of Wetland, Stream, and Buffer Impact by Watershed for the Preferred Alternative**

<b>Watershed (HUC 10)</b>	<b>Wetland/ Stream Fill Area</b>	<b>Wetland Clearing Area (forested &amp; shrub)</b>	<b>Wetland/Stream Buffer Clearing Area<sup>1,2</sup></b>
Ostrander Creek-Cowlitz River	30%	32%	33%
Coweeman River	21%	15%	19%
Kalama River-Frontal Columbia River	11%	8%	15%
Lower Lewis River	4%	20%	14%
East Fork Lewis River	5%	5%	4%
Salmon Creek-Frontal Columbia River	1%	4%	6%
Washougal River	18%	10%	8%
City of Washougal- Columbia River	0%	0%	0%
Hayden Island-Columbia River	1%	6%	0%
Willamette River-Frontal Columbia River	10%	0%	0%
Lower Sandy River	0%	0%	0%
<b>Totals</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
Notes:			
1. Wetland buffers were assumed to be: Category I and II wetlands – 225 feet; Category III – 110 feet; and Category IV – 40 feet.			
2. Stream buffers were assumed to be: perennial streams – 200 feet and seasonal streams – 75 feet.			

## **27.10.2 Section 401**

CWA provisions relating to water quality are also implemented by state water quality agencies. Section 401 of the CWA requires applicants for Section 404 permits to obtain a Water Quality Certification from the certifying State agency, which is the Washington Department of Ecology in Washington, and the Oregon Department of Environmental Quality (ODEQ) in Oregon. Ecology reviews applications under the requirements of RCW 90.48, and ODEQ reviews applications under Oregon Administrative Rules (OAR) 340 Divisions 41, 42, and 45. Application for and granting of a construction stormwater permit fulfills many of the application requirements for a Section 401 certification. For Sections 404 and 401 verification and approval in Washington, project information would be submitted jointly to the Corps and Ecology using the Joint Aquatic Resources Permit Application. In Oregon, applications are submitted jointly to the Corps and ODEQ using the Joint Permit Application. The Corps Section 404 permit is issued only after the affected state certifies that existing water quality standards would not be violated.

## **27.10.3 Section 402**

Section 402 of the CWA addresses requirements for National Pollutant Discharge Elimination System (NPDES) permits. Section 402 requires an entity to obtain a permit in advance of ground disturbing activities of 1 acre or more, where discharges of pollutants into waters of the state may occur. In Washington, the EPA has retained NPDES permitting and enforcement authority for federal facilities. For federal facilities in Oregon, the EPA has delegated NPDES enforcement and permitting authority to the state. BPA obtained and maintains an agency NPDES General Storm Water 1200-CA Permit (File No.: 111769; EPA No.: ORR10-4145) from Oregon Department of Environmental Quality (ODEQ).

The General NPDES permit requires Permittees to prepare and implement Stormwater Pollution Prevention Plans (SWPPP) to control stormwater pollution associated with construction activities. Stormwater controls must be developed to address during and post-construction erosion control, treatment and discharge of stormwater, and other construction-related activities that could affect receiving water quality.

The SWPPP using erosion and sediment control Best Management Practices (BMPs) is developed during final project design, adapted by the contractor before construction, and revised on site for the duration of the project as necessary. A copy of the SWPPP is maintained on-site during construction and is a basis for environmental compliance inspection during construction. The BMPs specified in the SWPPP must be inspected periodically by a qualified person and maintained to assure their effectiveness. Sampling and analysis of concentrated stormwater runoff points is required to demonstrate compliance with discharge limits.

As part of the SWPPP, spill prevention and response procedures are developed to address petroleum and hazardous materials handling and management. Where sufficient quantities of petroleum or other regulated liquids are maintained on site, a Spill Prevention Control and Countermeasures (SPCC) plan may also be required.

## **27.10.4 Section 303d**

Section 303(d) of the CWA requires states, territories, and authorized Tribes to develop lists of impaired waters. These are waters where technology-based regulations and other required

controls are not stringent enough to meet the water quality standards set by states. Thirteen streams located in the Cowlitz, Lewis, and Salmon-Washougal Water Resource Inventory Areas (WRIAs) that would be crossed by or potentially impacted by the project are on the 303(d) list including Ostrander Creek, South Fork of Ostrander Creek, Riley Creek, Lockwood, East Fork Lewis River, Salmon Creek, Mason Creek, Dwyer Creek, Arkansas Creek, Monahan Creek, Delameter Creek, Lacamas Creek, and Coweeman River. Most of these streams are listed for elevated water temperature. Riley Creek and Lacamas Creek are listed for elevated levels of fecal coliform, and Dwyer Creek and Lacamas Creek are listed for low levels of dissolved oxygen. No streams listed as impaired on Oregon's 303(d) list are crossed by the project.

Section 303d requires that states establish priority rankings for waters on the lists and the development of Total Maximum Daily Loads (TMDLs) for streams. A TMDL is a calculation of the maximum amount of a pollutant that a water body can receive and still safely meet water quality standards. The TMDL implementation plans for three of these creeks are under development and one has EPA approval on the TMDL and implementation plan, as described below. There are no TMDLs currently under development for Ostrander Creek, South Fork of Ostrander Creek, Arkansas Creek, Delameter Creek, Monahan Creek, Riley Creek, Mason Creek, and Coweeman River (EPA 2011b).

The TMDL for the East Fork Lewis River is currently being developed by Ecology. Ecology is currently analyzing and modeling temperature data, developing fecal coliform and temperature load allocations, and drafting a study report to support development of the water cleanup plan (Ecology 2011b).

Dwyer Creek is within the study area of the Lacamas Creek TMDL, which is currently being developed by Ecology. The Lacamas Creek Quality Assurance Project Plan was prepared in February 2011 (Ecology 2011c). This technical study is part of the four- to five-year process of monitoring, determining required pollution reductions, and developing a detailed clean-up plan.

The TMDL and implementation plan for Salmon Creek have been approved by the EPA (Ecology 2011d).

If sufficient quantities of hydrocarbons or other regulated liquids are maintained on site, an SPCC plan could also be required according to state regulations (40 CFR 112). The plan must be adhered to during construction.

See Chapter 15, Water, and Chapter 16, Wetlands, for analysis and discussion of impacts and mitigation measures.

## **27.11 Floodplains and Wetlands (Executive Orders 11988 and 11990)**

The U.S. Department of Energy mandates that impacts to floodplains and wetlands be assessed and alternatives for protection of these resources be evaluated in accordance with Executive Orders 11988 and 11990, along with the Compliance with Floodplain/Wetlands Environmental Review Requirements (10 CFR 1022.12).

There are 17 FEMA-designated 100-year flood inundation zones (or floodplains) crossed by the project, including Leckler Creek, Cowlitz River, Coweeman River, Kalama River, Little Kalama River, Lewis River, Tributary to Chelatchie Creek, East Fork of Lewis River, Salmon Creek, Burnt

Bridge Creek, Little Washougal River, Washougal River, Lacamas Creek, Ostrander Creek, Speelyai Creek, Canyon Creek, and Columbia River. Up to 10 towers and about a mile of new and improved access roads for the East Alternative to 32 towers and 6 miles of roads for the West Alternative would be constructed in these floodplains.

The action alternatives cross wetlands that could be permanently filled by the construction of substations, towers, and roads. Acres estimated to be filled would be 44 acres, West Alternative; 3 acres, Central Alternative; 22 acres, East Alternative; and 26 acres, Crossover Alternative. Additional clearing of scrub-shrub wetlands (but no fill) within the 150-foot right-of-way is estimated to be 62 acres for the West Alternative; 17 acres, Central Alternative; 23 acres, East Alternative; and 35 acres, Crossover Alternative. Clearing of forested wetlands is estimated to be about 54 acres for the West Alternative; 17 acres, Central Alternative; 61 acres, East Alternative; and 53 acres, Crossover Alternative. Clearing in scrub-shrub and forested wetlands would convert these wetlands to emergent wetlands.

As described above, BPA is working with the Corps in the Seattle and Portland Districts to develop appropriate compensatory mitigation. Ecology, DSL, and potentially affected counties and cities may also be involved to identify appropriate mitigation for impacted wetlands.

Impacts on and mitigation for streams, floodplains, and wetlands are discussed in Chapter 15, Water and Chapter 16, Wetlands. Mitigation included in the project design for these resources is also presented in Table 3-2.

## **27.12 Rivers and Harbors Act of 1899**

Section 10 of the Rivers and Harbors Act of 1899 (33 USC § 403) regulates all work in or affecting navigable waters of the United States. This regulation is administered by the Corps, and addressed structures or work that affect the course, location, condition or capacity of navigable waterways. Several navigable waters are located within the project area, including the Cowlitz River, Columbia River, and select reaches of other rivers.

In-water work could be required for the construction of one tower to support the transmission line crossing at the Columbia River although construction during low flow periods would avoid in-water construction. The project also would require conductors that would span the navigable waters of the Columbia River, a "water of the United States" as defined in the Rivers and Harbors Act and a navigable water as described by the Corps. Pursuant to the implementing regulations for Section 10, Section 10 permits are required for power transmission lines crossing navigable waters of the United States unless those lines are part of a water power project subject to the regulatory authorities of the U.S. Department of Energy under the Federal Power Act of 1920 (33 CFR §322). Therefore, a Section 10 permit would be required for this project.

## **27.13 Coastal Zone Management Act**

The Coastal Zone Management Act was passed in 1972 to encourage the appropriate development and protection of the nation's coastal and shoreline resources. The Washington Coastal Zone Management Program defines the state's coastal zone to include 15 counties with marine shorelines. Clark and Cowlitz counties are not considered part of the coastal zone. Oregon's program generally defines the coastal zone to include those counties west of the

coastal mountain range, between the Washington and California borders. Multnomah County is not considered part of the coastal zone.

## **27.14 Hazardous Materials**

### **27.14.1 Resource Conservation and Recovery Act**

The Resource Conservation and Recovery Act (RCRA) (42 USC §6901 et seq. [1976], regulations under 40 CFR 240-271), as amended, provides a program for managing and controlling hazardous waste by regulating generators and transporters of hazardous waste, and owners and operators of hazardous waste treatment, storage, and disposal (TSD) facilities. Under RCRA regulations, hazardous waste is tracked by manifest from its point of generation until it reaches a TSD facility (“cradle to grave”). Generators, transporters, and operators of TSD facilities are required to notify the EPA or authorized state agency of hazardous waste activities and are each issued an EPA identification number. Each TSD facility owner or operator is required to have a permit issued by the EPA or the state. Both Washington and Oregon are authorized by the EPA to regulate hazardous waste activities in their respective states.

Paint from surfaces coated before 1978, such as on existing river crossing towers, would be assumed to contain lead or other heavy metals unless laboratory analysis proves otherwise. A lead abatement plan would be implemented that would cover removal and disposal of any paint chips in accordance with all federal, state and local environmental and safety standards.

Small amounts of hazardous wastes may be generated by the project (such as paint products, motor and lubricating oils, herbicides, or solvents) during construction or operation and maintenance. These materials would be transported and disposed according to RCRA and state regulations.

### **27.14.2 Toxic Substances Control Act**

The Toxic Substances Control Act (TSCA) (15 USC §2601 et seq. [1976], regulations under 40 CFR 700-799) is intended to protect human health and the environment from toxic chemicals. Section 6 of the Act regulates the use, storage, and disposal of PCBs. BPA adopted guidelines to ensure that PCBs are not introduced into the environment. Equipment used for this project will not contain PCBs. Any equipment removed that may have PCBs will be handled according to the disposal provisions of the TSCA regulation.

### **27.14.3 Federal Insecticide, Fungicide and Rodenticide Act**

The Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) (77 USC §136 et seq. [1996], and regulations under 40 CFR 162-180) registers and regulates pesticides. BPA limits its use of herbicides (a kind of pesticide) and uses herbicides only under controlled circumstances. Herbicides are used on transmission line rights-of-way and in substation yards to control vegetation, including noxious weeds. When BPA uses herbicides, the date, dose, and chemical used are recorded and reported to state regulatory agencies. Herbicide containers are disposed of according to RCRA and state regulations.

## 27.15 Cultural Resources

Preserving cultural resources allows Americans to have an understanding and appreciation of their origins and history. A cultural resource is an object, structure, building, site or district that provides irreplaceable evidence of natural or human history of national, state or local significance. Cultural resources include National Landmarks, archeological sites, properties of traditional religious and cultural importance to a Native American Tribe (also known as Traditional Cultural Properties), and other properties listed (or eligible for listing) on the National Register of Historic Places. American Indian Tribes have rights under specific laws, as well as the opportunity to voice concerns about issues under these laws when their aboriginal territory falls within a proposed project area.

Laws and other federal directives for the management of cultural resources include the following:

- National Historic Preservation Act (NHPA) of 1966 (54 USC 300101 et seq.), inclusive of Section 106
- Executive Order 13007 Indian Sacred Sites
- American Indian Religious Freedom Act of 1978 (PL 95-341, 92 Stat. 469, 42 USC 1996, 1996a)
- Antiquities Act of 1906 (16 USC 431-433)
- Historic Sites Act of 1935 (16 USC 461-467)
- Archaeological Data Preservation Act (ADPA) of 1974 (16 USC 469 a-c)
- Archaeological Resources Protection Act (ARPA) of 1979 (16 USC 470aa-47mm)
- Native American Graves Protection and Repatriation Act (NAGPRA) (25 USC 3001 et seq.)

Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on historic properties, and afford the Advisory Council on Historic Preservation (ACHP) an opportunity to comment. Historic properties are properties that are included in the National Register of Historic Places or that meet the criteria for the National Register. If a federal agency plans to undertake a type of activity that could affect historic properties, it must consult with the appropriate State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Officer (THPO) to make an assessment of the property and to assess adverse effects on identified historic properties. The NHPA specifies that Traditional Cultural Properties (TCPs) may be determined to be eligible for inclusion on the National Register of Historic Places. In carrying out its responsibilities under Section 106, a federal agency is required to consult with any Native American Tribe that attaches religious or cultural significance to any such properties. NAGPRA requires consultation with appropriate Native American Tribal authorities before the excavation of human remains or cultural items (including funerary objects, sacred objects, and cultural patrimony) on federal or tribal lands. NAGPRA recognizes Native American ownership interests in some human remains and cultural items found on federal lands and makes illegal the sale or purchase of Native American human remains, whether or not they derive from federal or Indian land. Repatriation, on request, to the culturally affiliated Tribe is required for human remains.

Executive Order 13007 addresses "Indian sacred sites" on federal and tribal land. "Sacred site" means any specific, discrete, narrowly delineated location on federal land that is identified by a



Tribe, or a Tribal individual determined to be any appropriately authoritative representative of a Native American religion. The site is sacred by virtue of its established religious significance to, or ceremonial use by, a Native American religion, provided that the Tribe or appropriately authoritative representative of an Indian religion has informed the agency of the existence of such a site. This order calls on agencies to do what they can to avoid physical damage to such sites, accommodate access to and ceremonial use of Tribal sacred sites, facilitate consultation with appropriate Native American Tribes and religious leaders, and expedite resolution of disputes relating to agency action on federal lands. The American Indian Religious Freedom Act protects and preserves to American Indians their inherent right of freedom to believe, express, and exercise traditional religions.

Background research and a pedestrian survey of the Central Alternative and Central Option 1 within the project's area of potential effect identified the presence of historic and archaeological resources, and ethnographic resources that may be eligible. Cultural resources are discussed in Chapter 13, Cultural Resources. Ongoing surveys will identify cultural resources sites that could be impacted if they can't be avoided. If, during construction, previously unidentified cultural resources are found that would be adversely affected by the project, BPA would follow all applicable procedures set forth in the NHPA, NAGPRA, ARPA, and the American Indian Religious Freedom Act. Also, if some sites cannot be avoided, BPA will consult with federal and state agency landowners and the Washington or Oregon SHPO or the appropriate THPO, and interested parties and tribes to determine if those sites are eligible for a listing under the NRHP. BPA will consult with the appropriate parties on mitigation for adverse effects to eligible cultural resources that cannot be avoided.

## **27.16 Tribal Consultation**

BPA's Tribal Policy follows the principles set forth in the Department of Energy's American Indian Policy (USDOE Order No. 1230.2—Apr. 8, 1992). BPA fully respects Tribal law, and recognizes Tribal governments as sovereigns. BPA will consult with Tribal governments to assure that Tribal rights and concerns are considered prior to BPA taking actions, making decisions, or implementing programs that may affect Tribal resources. BPA recognizes that Tribal interests are not limited to cultural resources but may also include fish, wildlife, water resources and wetlands, vegetation, health, socioeconomic impacts, noise, and visual resources. BPA also recognizes that Tribes may have specific rights reserved under treaties, such as fishing, hunting, gathering and grazing rights. The Corps, as a federal permitting agency, may also conduct tribal consultation as part of their permit review process.

Throughout the EIS process, BPA involved and consulted with eight Tribes with lands and interests in the project area. These included the Confederated Tribes of Chehalis, Cowlitz Indian Tribe, Quinalt Tribe of Quinalt Reservation, Confederated Tribes of Grande Ronde, Confederated Tribes of the Warm Springs Reservation, Confederated Tribes of the Umatilla Indian Reservation, Nez Perce Tribe, and the Confederated Tribes and Bands of the Yakama Nation. BPA has reached out to its tribal counterparts to share and gather information, to coordinate project activities where appropriate, to address tribal concerns, and to invite further consultation. No Tribe has requested formal government-to-government consultation meetings to date.

## 27.17 Federal Aviation Administration

As part of the transmission line design process, BPA would comply with FAA procedures. According to FAR 49 CFR Part 77.13, the FAA requires BPA to submit its designs for FAA approval if a proposed structure is taller than 200 feet from the ground or water surface where the line crosses a body of water, if a conductor is 200 feet above the ground or water surface where the line crosses a body of water, or if any part of the proposed transmission line or its structure are within a prescribed distance of an airport. According to FAR 49 CFR Part 77.17, BPA must submit Form 7460-1 (Notice of Proposed Construction or Alteration) for a preliminary transmission line design and receive conditional approval at least 30 days before construction. The FAA would then conduct its own study of the project and make recommendations to BPA for airway marking and lighting. General BPA policy is to follow FAA recommendations (see Chapter 12, Transportation). BPA is coordinating with the FAA concerning the proposed project and is providing information to the FAA to aid in its review process.

## 27.18 National Trails System Act

The National Trails System Act of 1968 (16 USC §§ 1241–1251) established a National Trails System with the purpose of promoting the preservation of, public access to, travel within, and enjoyment and appreciation of the open-air, outdoor areas and historic resources of the nation. The Act and its subsequent amendments have created a network of national scenic, historic, and recreational trails throughout the United States. The project area contains two national trails: the Lewis and Clark National Historic Trail, and the Oregon National Historic Trail, both administered by the National Park Service (NPS). BPA has coordinated with the NPS to minimize impacts to these trails.

## 27.19 Lewis and Clark National Historic Trail

This approximately 3,700-mile-long trail was established under the National Trails System Act through an act of Congress in 1978, and is administered by the NPS as a component of the National Park System (NPS 2009). The primary purpose of this trail is to commemorate the Lewis and Clark Expedition of 1804-06. Generally tracing the courses of the Missouri and Columbia rivers, the Lewis and Clark National Historic Trail stretches through 11 states from a point near St. Louis, Missouri to where the Columbia River drains into the Pacific Ocean. From about Richland, Washington westward, the trail generally follows the Columbia River to the Pacific Ocean.

A Comprehensive Management Plan (CMP) was prepared for the Lewis and Clark National Historic Trail in 1982, and the NPS is currently in the process of developing a new CMP. The 1982 CMP recommends various trail sites, segments, and routes. In the project area, the Columbia River and its shores are considered a water trail, and U.S. Highway 197, Washington SR 14, and various local roads on the north side of the Columbia River are considered a motor route. The CMP also identifies various campsites and portage points of the Lewis and Clark Expedition along the Columbia River in the project area. All action alternatives would cross over the Columbia River and the trail.

## **27.20 Oregon National Historic Trail**

This approximately 2,170-mile-long trail was established under the National Trails System Act through an act of Congress in 1978, and is administered by the NPS as a component of the National Park System (NPS 2006). The purposes of this trail are to (1) identify, preserve, and interpret the sites, route, and history of the trail, and (2) commemorate the westward movement of emigrants to the Oregon Country. The Oregon National Historic Trail extends approximately from Kansas City, Missouri to the Portland, Oregon vicinity.

A CMP was prepared for the Oregon National Historic Trail in 1999, and a long-range interpretative plan was finalized for the trail in 2010. These plans cover not only the Oregon National Historic Trail, but also the California, Mormon Pioneer, and Pony Express National Historic Trails as well. The action alternatives cross the Columbia River and would likely be visible near the Oregon National Historic Trail mile marker at the Sandy River Bridge, south of the Columbia River near Troutdale, Oregon.

## **27.21 Noise Control Act**

The Noise Control Act of 1972 as amended (42 USC §4901 et seq.) sets forth a broad goal of protecting all people from noise that jeopardizes their health or welfare. It places principal authority for regulating noise control with states and local governments. Noise standards applicable to the project are established under Chapter 70.107 RCW for the state of Washington, as described in WAC 173-60-049 and WAC 173-60-050; and ORS Chapter 467 (Noise Control) and the OAR Division 35 (Noise Control Regulations) for the state of Oregon. The regulations are administered by Ecology and ODEQ. Responsibility for enforcement of applicable regulations is assigned to local governments in both states.

The allowable noise levels under state law, potential noise impacts from the project, and proposed mitigation are described in Chapter 9, Noise.

## **27.22 Environmental Justice**

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, states that each federal agency shall identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations. Minority populations are considered members of the following groups: American Indian or Alaska Native; Asian or Pacific Islander; Black, not of Hispanic Origin; or Hispanic if the minority population of the affected area exceeds 50 percent, or is 50 percent greater than the minority population in the county. Populations are considered low income if 20 percent or more of residents are below the poverty level, or are 50 percent more than the respective county poverty level's percentage.

The order further stipulates that the agencies conduct their programs and activities in a manner that does not exclude persons from participation in, deny persons the benefits of, or subject persons to discrimination because of their race, color, or national origin. An analysis of the project area shows that none of the action alternatives contain minority populations that are disproportionately impacted compared to populations living within in the affected counties. The Central Alternative does not cross any block groups reporting a minority population, and crosses one census tract reporting a low-income population. When compared to the populations of the

aggregated block groups, census tracts, or affected counties, none of the impacts from this project on low-income or minority populations would be disproportionate (see Chapter 11, Socioeconomics and Appendix H). BPA has considered all input from persons or groups regardless of race, income status, or other social and economic characteristics.

## **27.23 Federal Communications Commission Regulations**

Federal Communications Commission regulations require that transmission lines be operated so that radio and televisions reception would not be seriously degraded or repeatedly interrupted. Further, Federal Communications Commission regulations require that the operators of these devices mitigate such interference.

BPA would comply with Federal Communications Commission requirements relating to radio and television interference from the proposed transmission line if any such interference occurs. None of the action alternatives are expected to increase electromagnetic interference above acceptable limits and applicable guidelines for avoiding interference or above those of other BPA 500-kV lines; however, complaints about electromagnetic interference would be investigated and measures would be taken under BPA's mitigation program to restore reception to the same or better quality (see Chapter 8, Electric and Magnetic Fields).

## **27.24 Farmland Protection Policy Act**

The Farmland Protection Policy Act (7 USC §§ 4201 et seq.) directs federal agencies to identify the quantity of farmland converted by federal programs, to identify and consider the adverse impacts of federal programs on farmland preservation, to consider alternative actions that could lessen adverse impacts, and to assure that the federal programs are compatible with state and local plans and programs. The Act's purpose is to minimize the number of federal programs that contribute to the unnecessary and irreversible conversion of agricultural land to nonagricultural uses. Three types of farmland are recognized by the Act: prime farmlands, unique farmlands, and farmland of statewide or local importance.

The substations, towers, and new and improved access roads would permanently occupy about 203 acres of both prime farmland and farmland of statewide importance along the West Alternative, 245 acres along the Central Alternative, 277 acres along the East Alternative, and 232 acres along the Crossover Alternative. Comparisons among the action alternatives for impacts to agricultural lands, and mitigation measures to reduce impacts are discussed in Chapter 5, Land.

## **27.25 National Scenic Byways Program**

The National Scenic Byways Program designates scenic and historic roads as All-American Roads and National Scenic Highways based on their scenic, historic, recreational, cultural, archeological, or natural intrinsic qualities (National Scenic Byways Program 2009). If these roadways no longer possess the intrinsic qualities that supported their designation or they are not maintained in accordance with their corridor management plan, they can be de-designated (Federal Highway Administration 1995). The management and protection of these scenic byways is carried out by

the state departments of transportation under the Washington Scenic and Recreational Highways Strategic Plan (RCW 47.39) and the Oregon Scenic Byway Program (OAR 734-032).

One highway in the project area, SR 14 in Washington, is designated as a National Scenic Byway according to the National Scenic Byways Program. It is also designated as a Washington State Scenic Byway. See Chapter 6, Recreation and Chapter 7, Visual Resources, for a discussion of visual impacts along this scenic byway.

## **27.26 State, Area-wide, and Local Plan and Program Consistency**

The project would be located primarily in three counties in two states: Cowlitz and Clark counties in Washington, and Multnomah County in Oregon. Depending on the action alternative, from about 67 to 80 miles of the proposed project's rights-of-way are located in the state of Washington. In addition to unincorporated county areas, the rights-of-way for the action alternatives pass through the cities of Kelso, Vancouver, Camas, and Washougal. In addition, an about 0.7-mile portion of the proposed project would be located in the state of Oregon under all action alternatives. The Oregon portion would consist of the crossing of the Columbia River and the portion located in unincorporated Multnomah County and the cities of Troutdale and Fairview.

Council on Environmental Quality (CEQ) regulations for implementing NEPA require EISs to discuss possible conflicts and inconsistencies of a proposed action with approved state and local plans and laws. The project would be undertaken solely by BPA, which is a federal entity. Pursuant to the federal supremacy clause of the U.S. Constitution, BPA is not obligated to apply for local development or use permits in such circumstances. Therefore, BPA would not make formal application to any of the local jurisdictions for permits such as conditional use permits or shoreline development permits. However, BPA is committed to planning the project to meet or exceed the substantive standards and policies of state and local land use plans and programs to the extent practicable. See Chapter 28, Consistency with State Substantive Standards, for a discussion of state standards potentially applicable to the project.

The following sections discuss possible conflicts or inconsistencies of the proposed project with state, county, and city land use plans and programs. Washington State does not have a specific land use plan and the Oregon Statewide Planning Goals are accounted for in the Multnomah County Comprehensive Plan Goals.

### **27.26.1 Washington and Oregon Statewide Plans and Programs**

#### **27.26.1.1 Transportation Plans**

According to RCW Chapter 46.44 (Size, Weight, Load) and the ORS Chapter 818 (Vehicle Limits), oversized or overweight vehicles would need transportation permits to travel on highways and local public roads in each state.

The construction contractors would consult with the WSDOT and the Oregon Department of Transportation (ODOT). Necessary transportation permits for oversized or overweight vehicles used for project construction and maintenance would be secured as required. Where oversized

or overweight loads would be transported on state roads or highways, construction contractors would consult with WSDOT and ODOT to obtain the necessary transportation permits. Where these loads would be transported on local roads, construction contractors would consult with the applicable county or city transportation agency to obtain any required transportation permits.

### **27.26.1.2 Washington State Shoreline Management Act**

The Washington State Shoreline Management Act (the Act) establishes a planning program and regulatory permit process initiated at the local level under state guidance. Ecology is designated as the lead state agency, and local governments exercise primary authority for implementing the Act. Each local government's master program consists of a shoreline inventory and a "shoreline master program" (SMP) to regulate shoreline uses for Shorelines of the State, including Shorelines of Significance (Chapter 173-18 WAC). The SMP for Clark County, adopted in September 2012 as Chapter 13 of the Clark County Comprehensive Plan, and Cowlitz County, adopted in 1977, but currently under revision, regulate land uses affecting these shorelines within the county, but outside the jurisdictions of the local cities. Project facilities could impact state shorelines if they were located within 200 feet of the ordinary high water mark within the 100-year floodplain, or within associated wetlands.

Shoreline uses are regulated under Shoreline Management Districts designated as Natural, Conservancy, Rural and Urban Environments, each with its own goals and objectives. Policies set forth by Clark and Cowlitz counties in their SMPs to address utilities within the shoreline management districts are as follows:

#### **Clark County**

The goal for transportation, utilities, and institutional facilities is to provide for these facilities in shoreline areas without adverse effects on existing shoreline use and development or shoreline ecological functions and/or processes. The following Clark County policies address utilities:

- Locate institutional facilities, utilities and circulation systems that are not shoreline-dependent outside of the shoreline jurisdiction to the maximum extent possible to reduce interference with either natural shoreline ecological functions or other appropriate shoreline uses.
- Locate utility and transportation corridors to avoid creating barriers between adjacent uplands and the shoreline and to harmonize with the topography and other natural characteristics of the shoreline.
- When new utility and transportation facilities are developed in the shoreline jurisdiction, protect, enhance, and encourage development of physical and visual shoreline public access.
- Where feasible, relocate existing utility and transportation facilities, such as transmission lines, rail lines, or freeways that limit public shoreline access or other shoreline uses and convert such rights-of-way to new public access routes.
- Utilities and transportation facilities should be installed and facilities designed and located in a coordinated manner that protects the shorelands and water from contamination and degradation.

## **Cowlitz County**

- **NATURAL DISTRICT**
  - Utility systems, such as permanent electric lines, pipelines, sewer trunk lines, water main lines, and similar facilities shall be prohibited on natural shorelines, except where unavoidably necessary to cross a body of water.
  
- **CONSERVANCY DISTRICT**
  - Utility systems, such as permanent electric lines, pipelines, sewer trunk lines, water main lines, and similar facilities shall be permitted on conservancy shorelines.
  - Any person proposing to install or construct a utility system shall apply for a permit.
  - A permit may be granted subject to the following regulations:
    - All such utility systems shall be underground unless such undergrounding would not be feasible.
    - Where such utility systems occupy shoreline areas, clearing necessary for installation or maintenance shall be kept to the minimum width necessary to prevent interference by trees and other vegetation with the proposed transmission facilities.
    - Upon completion of installation of such utility systems or of any maintenance project which disrupts the environment, the disturbed area shall be regraded to compatibility with the natural terrain and replanted to prevent erosion and provide an attractive, harmonious vegetation cover.
  - Utility hookup linkages to shoreline use facilities shall be underground where feasible.
  
- **RURAL DISTRICT**
  - Regulations Nos. 2, 3, and 4 under conservancy district shall apply to rural shorelines.
  
- **URBAN DISTRICT**
  - Regulations Nos. 2 and 3 under conservancy district shall apply to urban shorelines.
  - Utility hookup linkages to shoreline-use activities shall be underground where feasible

The action alternatives would also cross Kelso, Vancouver, Camas, and Washougal. Kelso has adopted the Cowlitz County SMP in its entirety (18.08.010). Vancouver, Camas, Washougal (and other cities in Washington), and Clark County have created a coalition to update their programs to become more consistent across the region. Although the project would cross Washougal, no alternative crosses a shoreline of the state under their jurisdiction.

Vancouver and Camas adopted updates to their respective SMPs in September 2012 and address transmission utilities within their shorelines as follows:

## Vancouver

- Whenever feasible, all utility facilities shall be located outside shoreline jurisdiction. Where distribution and transmission lines (except electrical transmission lines) must be located in the shoreline jurisdiction they shall be located underground.
- Where overhead electrical transmission lines must parallel the shoreline, they shall be outside of the two hundred (200) foot shoreline environment unless topography or safety factors would make it unfeasible.
- Utilities, including limited utility extensions shall be designed, located and installed in such a way as to preserve the natural landscape, minimize impacts to scenic views, and minimize conflicts with present and planned land and shoreline uses.
- Transmission, distribution, and conveyance facilities shall be located in existing rights of way and corridors or shall cross shoreline jurisdictional areas by the shortest, most direct route feasible, unless such route would cause significant environmental damage.
- Utility production and processing facilities, such as power plants and wastewater treatment facilities, or parts of those facilities that are non-water-oriented shall not be allowed in the shoreline jurisdiction unless it can be demonstrated that no other feasible option is available.
- Where allowed under this program, construction of underwater utilities or those within the wetland perimeter shall be scheduled to avoid major fish migratory runs or use construction methods that do not cause disturbance to the habitat or migration.
- Upon completion of utility installation/maintenance projects on shorelines, banks shall, at a minimum, be restored to pre-project configuration, replanted and provided with maintenance care until the newly planted vegetation is fully established. Plantings shall be native species and/or be similar to vegetation in the surrounding area.

## Camas

- Whenever feasible, all utility facilities shall be located outside shoreline jurisdiction. Where distribution and transmission lines (except electrical transmission lines) must be located in the shoreline jurisdiction they shall be located underground.
- Where overhead electrical transmission lines must parallel the shoreline, they shall be no closer than one hundred (100) feet from OHWM unless topography or safety factors would make it unfeasible, then a shoreline conditional use permit shall be required.
- Utilities shall be designed, located and installed in such a way as to preserve the natural landscape, minimize impacts to scenic views, and minimize conflicts with present and planned land and shoreline uses.
- Transmission, distribution, and conveyance facilities shall be located in existing rights of way and corridors or shall cross shoreline jurisdictional areas by the shortest, most direct route feasible, unless such route would cause significant environmental damage.
- Utility production and processing facilities, such as power plants and wastewater treatment facilities, or parts of those facilities that are non-water-oriented shall not be allowed in the shoreline jurisdiction unless it can be demonstrated that no other feasible option is available, and will be subject to a shoreline conditional use permit.



- Where allowed under this program, construction of underwater utilities or those within the wetland perimeter shall be scheduled to avoid major fish migratory runs or use construction methods that do not cause disturbance to the habitat or migration.
- Upon completion of utility installation/maintenance projects on shorelines, banks shall, at a minimum, be restored to pre-project configuration, replanted and provided with maintenance care until the newly planted vegetation is fully established. Plantings at installation shall be at least 2" minimum caliper at breast height if trees, 5-gallon size if shrubs, and ground cover shall be planted from flats at 12-inch spacing, unless other mitigation planting is recommended by a qualified biologist and approved by the Administrator.

The action alternatives would cross the Columbia River, Lewis River, East Fork Lewis River, Coweeman River, Cowlitz River, Washougal River, Kalama River, and many other creeks and streams, and wetlands identified in Chapter 15, Water and Chapter 16, Wetlands. Project facilities would be placed as far from the water's edge as feasible to avoid floodplains. Clearing would be kept to a minimum; however, all tall-growing vegetation in the right of way would need to be removed for safe operation of the line. Exceptions to this would be in deep canyons or draws. Disturbed areas would be reseeded. Chapters 15 and 16 discuss mitigation measures identified to reduce potential impacts on water and wetlands. BPA would use these measures to meet or exceed shoreline regulations to the extent practicable. Appendix O discusses substantive compliance with the Shoreline Management Act in more detail for the Preferred Alternative.

### **27.26.1.3 Oregon Removal-Fill Law**

Oregon's Removal-Fill Law (ORS 196.795-990) protects "Waters of the state" which are defined as "natural waterways including all tidal and non-tidal bays, intermittent streams, constantly flowing streams, lakes, wetlands and other bodies of water in this state, navigable and non-navigable, including that portion of the Pacific Ocean that is in the boundaries of this state." The law applies to all landowners, whether private individuals or public agencies. In Oregon, the DSL also requires a permit for removal, fill, or alteration involving 50 cubic yards or more of material in any water of the state, including wetlands. For the portion of the project that would be located in Oregon, BPA would work with DSL to ensure consistency with these Oregon state requirements. See Chapter 15, Water, and Chapter 16, Wetlands, for analysis and discussion of impacts and mitigation measures related to these requirements.

### **27.26.1.4 Washington State Parks and Recreation Commission Land Use Plans**

The project does not cross any state parks that have a comprehensive land use plan developed specifically for the park.

## **27.26.2 Washington Local Plans and Programs**

### **27.26.2.1 Critical Area Ordinances**

All cities and counties in Washington must adopt critical areas regulations, as defined by the Growth Management Act (RCW 36.70A.060). The Critical Area Ordinance (CAO) describes the categories of critical areas in the city or county, setback and buffer distances, mitigation

requirements for unavoidable impacts, and guidance for reducing or mitigating hazards to public health and safety in geologically hazardous areas. Critical areas include: wetlands, critical fish/wildlife habitat conservation areas, geologically hazardous areas, aquifer recharge areas, and frequently flooded areas.

Cowlitz County and the City of Kelso's CAOs exempt the "Installation, construction or replacement of utility lines in an improved right-of-way, not including electric substations." Other new construction would have to adhere to the provisions of the ordinance (Cowlitz County 2009, City of Kelso 2012).

Clark County most recently updated their CAO in July 2007. Utilities are not addressed in the aquifer recharge areas and frequently flooded areas sections of the CAO. Utilities are addressed in the following sections:

- Geologically Hazardous Areas: Exempt from provisions of ordinance if in an improved right-of-way.
- Habitat Conservation Areas: Allowed in any area if clearing is done as minimally as possible and the placement of the utilities are in a location where no practical alternative exists.
- Wetlands: Ordinance does not preclude or deny a development proposal for a linear facility provided that no practical alternative exists that has less impact to a wetland or buffer; or if the ordinance hinders providing utilities to the public.

The City of Vancouver and the City of Camas' CAOs do not address transmission lines or utility systems specifically. Project developers need to obtain permits and adhere to the provisions of the ordinance in all CAO categories.

The City of Washougal's CAO exempts the construction of new utility facilities and lines from the provisions of their CAO when they are located "within the improved portion of the public right of-way or recorded easement, or a city-authorized private roadway except those private activities that alter a wetland or watercourse, such as culverts or bridges" (City of Washougal, 2006).

BPA has incorporated some of the standards and guidance from the CAOs in analyzing and proposing mitigation for impacts on potentially critical areas. See Sections 14.2.8, 15.2.8, 16.2.8, 17.2.8, 18.2.8, and 19.2.8 for mitigation measures. BPA would use these measures to meet or exceed critical area ordinance requirements to the extent practicable. Appendix O discusses substantive compliance with CAOs in more detail for the Preferred Alternative.

### **27.26.2.2 Cowlitz County Comprehensive Plan**

The County Comprehensive Plan was adopted by the Board of County Commissioners on November 1, 1976 and is a statement of policies and goals that guides growth and development throughout the county. The purpose of the Plan is to manage the county's growth in an orderly, positive, and constructive fashion. All other development ordinances, including land use, zoning, subdivision, and environmental regulations, must be in compliance with and consistent with the Comprehensive Plan. Applicable sections of Cowlitz County's Code are Title 18 Land Use and Development and Title 19 Environmental Protection. The Plan also provides guidelines for siting substations and utility corridors. The county is currently in the process of updating its

Comprehensive Plan, which is expected to be completed in spring 2016. The following goals and policies are relevant to the project.

### **Guidelines for Siting Power Substations**

Power substations are facilities which are a necessary part of economic growth in the county. Since they are potential nuisances in terms of noise, aesthetics, and safety, they need to be carefully located. The following goals and policies insist on good design and proper location, in furtherance of the goals of this Plan.

Goal:

A. Power substation should be designed and located to minimize conflicts with adjacent land uses and the environment.

Policies:

1. Encourage the location of power substations in non-residential areas due to nuisances that are part of such facilities such as noises which interfere with home entertainment equipment.
2. Screening and landscaping are encouraged in power substation design in order to enhance their appearance and make them compatible with the community in which they are located.
3. Cowlitz PUD power substations planning should be coordinated with the County's long-range plans.
4. Power substations should be planned for location in industrial areas as much as possible.

In most cases, the design, construction, and placement of the proposed transmission line would be consistent with these goals. However, there are a few instances in which the project may be inconsistent.

Regarding Policies 1 and 4, the design, construction, and placement of substations for the project would be consistent with the Plan. BPA considers many factors when siting proposed new substations (see Chapter 2, Facility Siting, Route Segments, and Action Alternatives) and works to avoid or minimize potential impacts to the extent practicable. BPA would conduct its construction activities for the proposed line in conformance with EFSEC's standards concerning maximum permissible noise levels by using appropriate muffling devices on construction equipment and limiting construction to daytime and evening hours (see Chapter 9, Noise). Noise impacts during the operation of the proposed line would be negligible, and the substations would meet state noise standards (see Chapter 9).

Regarding Policy 2, the substations would not be screened or landscaped.

Regarding Policy 3, Cowlitz County is a cooperating agency in this NEPA process. They will provide knowledge, information and expertise to BPA about their long-range plans.

## **Guidelines for Siting Utility Corridors**

Utility corridors in Cowlitz County already occupy 5,062 acres of valuable development and forest lands. Timber production is the backbone of the economy of Cowlitz County. As each new corridor is constructed through the county, more valuable timberland is taken out of production. Utility corridors are also ideal environments for the growth of noxious weeds. The following goals and policies provide planning and development guidelines for the construction of major utility lines in the county.

### **Goal:**

A. Major intra-county and intra-state utility trunk lines should be designed and constructed to minimize environmental problems. Efficient use of existing utilities should be maximized before new utilities are constructed in new or expanded corridors.

### **Policies:**

1. Encourage all required corridor expansion to minimize impact on adjacent land uses.
2. Encourage utilization of corridor areas for agriculture and small tree production.
3. All expansion of utility corridors should adhere to the County's long-range plans.
4. The design, construction, and maintenance of major utility lines should be developed in a manner that minimizes environment problems.
5. The following guidelines should be adhered to in the development of the new utility lines and pipelines in Cowlitz County:
  - a. Establish double or triple deck lines on which small corridors would be used.
  - b. Establish common or jointly used corridors and place utility lines closer together.
  - c. Utility companies seeking new rights-of-way in Cowlitz County should make arrangements, where practical, to use existing rights-of-way.
6. Establish a noxious weed control program. All utility companies shall be responsible for the control of noxious weeds on their rights-of-way.

In most cases, the design, construction, and placement of the proposed transmission line would be consistent with these goals. However, there are a few instances in which the project may be inconsistent.

Regarding Policy 1, when siting the line, BPA considers impacts to people, plants and animals, land uses, farms and other businesses, and important local, cultural and regional features. BPA looks for ways to site new transmission facilities to avoid or minimize these potential impacts to the extent practicable.

The project would be consistent with Policy 2 because BPA would work with individual landowners to enter into a written agreement regarding compatible uses of the land in the right

of-way. Most crops less than 4 feet high could be grown safely under the transmission line. Small tree production would not be an allowable use within the proposed right-of-way.

Cowlitz County is a cooperating agency in this process. They will provide knowledge, information and expertise to BPA about their long-range plans.

Regarding Policy 4, BPA is required by NEPA to address the potential environmental consequences of its proposal and take action to protect, restore and enhance the environment during and after construction. Preparation of this EIS assists in meeting those requirements.

Regarding Policy 5, BPA has taken several steps to reduce congestion on the transmission system without building new lines. BPA has upgraded many facilities to maximize the use of existing transmission lines. A new 500-kV transmission line would increase the 500-kV transmission capacity in the southwest Washington/northwest Oregon area and allow BPA to provide for local load growth, maintain reliable power, and accommodate requests for long-term, firm transmission service. These new facilities would eliminate a transmission capacity constraint for this area, provide an additional electrical pathway, and increase system capacity (see Chapter 1, Purpose of and Need for Action).

BPA would be consistent with Policy 6 because noxious weed control is part of BPA's vegetation maintenance program. BPA works with the county weed boards and landowners on area-wide plans for noxious weed control.

### **City of Castle Rock Comprehensive Plan**

The City of Castle Rock is in Cowlitz County. Both the East Alternative and the Central Alternative are outside the city limits, but within the Urban Growth Boundary described in the City of Castle Rock Comprehensive Plan (2006). The land within the Urban Growth Boundary crossed by the East Alternative and the Central Alternative is classified as low density residential area, and is within the City's Water System Plan (2013).

The Land Development/Subdivision Goal 3 of the City of Castle Rock Comprehensive Plan requires that growth or development includes adequate provisions of public utilities as an integral part of the land development process. The Capital Facilities section (Chapter VI) of the plan calls for the City and utility providers to coordinate future development plans. BPA collected public comments during the extensive scoping periods for this project, and has considered comments from the City of Castle Rock during planning and EIS development.

Project right-of-way (Segment F) would be more than 1,000 feet from the nearest proposed capital improvement project described in the City of Castle Rock Water System Plan, and would cross approximately five parcels of land zoned low-density residential (typically one to two residences, although subdivisions may be allowed) in the City of Castle Rock Comprehensive Plan. Under Section VI, Capital Facilities and Utilities, the plan acknowledges electrical facilities are provided by Cowlitz County Public Utility District No. 1 and that ample capacity to meet existing demand for both the incorporated city limits and urban service area is available. The plan does not address high voltage regional transmission lines or utility lines in general.

### **27.26.2.3 Cowlitz County Zoning Ordinance**

The project area crosses 10 Cowlitz County zoning districts. Utility facilities are not expressly prohibited in any of the zoning districts that fall within the project area (see Table 27-2).

### **27.26.2.4 City of Kelso Comprehensive Plan**

The City of Kelso is in Cowlitz County. The West Alternative crosses the City of Kelso on Segment 9. The City's Comprehensive Plan was last updated in 1994. It provides goals, objectives, and policies that will guide the city's future growth. Policy 9 states that "Utilities shall be placed underground where and when possible." Regarding this policy, BPA considered undergrounding the transmission line and eliminated it from further consideration (see Section 4.7.7, Undergrounding the Transmission Line).

### **27.26.2.5 City of Kelso Zoning Ordinance**

The City of Kelso Municipal Code does not directly address transmission lines or corridors.

### **27.26.2.6 Clark County Comprehensive Plan**

Clark County is subject to the planning provisions of the state GMA. The GMA requires Clark County and each city within the county to adopt a comprehensive plan, and includes 13 planning goals that guide the development of each jurisdiction's plan. Goal 12, Public Facilities and Services, is intended to ensure that those public facilities and services necessary to support development shall be adequate to serve the development, without decreasing current services levels. Each comprehensive plan must include eight mandatory elements, one of which is a utilities element addressing current and future availability of utilities and services. Clark County and each of the cities within the county have adopted a comprehensive plan as required by the GMA, and therefore each of these jurisdictions has policies in place generally supporting infrastructure development. These policies are intended to be general and to provide a vision and guidance for development of local regulations implementing these policies; therefore none of the jurisdictions affected by the project have comprehensive plan policies specific to transmission line corridors in place. Clark County and the City of Camas do have specific standards for development of electrical transmission infrastructure in their local codes (see Section 27.26.2.8, Clark County Zoning Code, and Section 27.26.2.12, City of Camas Zoning Code).

Clark County's 20-year Comprehensive Plan was last adopted in September 2007, and amended in 2010, and plans for growth from 2004 through 2024. The Plan also includes the Community Framework Plan.

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Table 27-2 Local Zoning Codes and Project Consistency

General Zoning Types	Zoning Codes by Jurisdiction <sup>1</sup> and Project Consistency							
	Cowlitz County	Kelso	Clark County	Vancouver	Camas	Washougal	Troutdale	Fairview
	Consistency: all zones allow with a special use permit <sup>2</sup>	Consistency: code does not address utilities	Consistency: permitted in any zoning district	Consistency: see individual codes	Consistency: all zones allow with a conditional use permit <sup>2</sup> (see text for special provisions)	Consistency: code does not address utilities	Consistency: see individual codes <sup>3</sup>	Consistency: see individual codes
Forest	FR	--	FR-80, FR-40, GLSA-80, GLSA-40, GSSA-20, GSFF, GSNFF, GSAG, GSW-40, GSW-20	--	--	--	--	--
Agricultural	AG-38, AG, AG-I	--	AG-WL, AG-20	--	--	--	--	--
Rural Undeveloped	UZ (unzoned)	--	GOS, GPR	--	--	--	--	--
Urban Reserve	--	--	UR-40, UR-20, UR-10	--	--	--	--	--
Preserved Open Space	--	OPN	GSOS, Water, P/WL	P, P/OS, GW, NA: not addressed	P/OS	P/OS	OS: minor, permitted; major, conditional	R/CSP: conditional
Single Family Residential	RR-1, RR-2, RR-5, UR, SR	RSF-5, RSF-10, RSF-15	RC-1, RC-2.5, R1-20, R1-10, R1-7.5, R1-6, R1-5, UH-10, Moratorium (with comprehensive plan designation of SFH, SFM, or SFL)	R-2 LDR, R-4 LDR, R-6 LDR, R-9 LDR-Utility corridor permitted	R-20, R-15, R-12, R-10, R-7.5, R-6, R-5	R1-5, R1-7.5, R1-10, R1-15	R-20, R-10, R-7, R-5, R-4: minor, permitted; major, conditional	R, R-7.5, R-10, R/MH, VSF: not addressed
Rural Residential	AG	--	R-20, R-10, R-5, GR-5	--	--	--	--	--
Multi-Family Residential	MF	RMF	R-12, R-18, R-22, R-30, R-43, Moratorium (with comprehensive plan designation of MFL)	R-10 MDR, R-12 MDR, R-18 MDR, R-22 MDR, R-30 HDR, R-35 HDR: basic utilities permitted; utility corridor conditional use	MF-10, MF-18, MF-24	AR-16, AR-22, TC-WV	A-2: minor, permitted; major, conditional	R/MF, R/TOZ, VTH, VA: not addressed
Neighborhood Commercial	C-1	CNH, CSR	C-2, CR-1	CN, CC: utility corridor conditional use	NC, CC	CC, CV	NC,CC: minor, permitted; major, conditional	NC, TCC, CC, R/MF, VC: not addressed
General Commercial	C-2	CTC, CWK, CMR	GC, CL, C-3, Moratorium (with comprehensive plan designation of COM)	CG: utility corridor permitted	RC, DC	CH	GC,CBD: minor, permitted; major, conditional	--
Mixed Use	--	--	MX, OR-15, OR-18, OR-22, OR-30, OR-43, U	CX, WX, MX: utility corridor conditional use	MX	MX, TC-EV, TC-C, IP	MO/H:minor, permitted; major, conditional	VMU: not addressed
Light Industrial	ML	ILM	ML, BP, OC, UH-40, UH-20, Moratorium (with comprehensive plan designation of LI/BP)	IL, OCI: utility corridor permitted	LI, LI/BP	LI	LI, IP: minor, permitted; major, conditional	LI, GI, VO, AH: permitted
Heavy Industrial	MH	IGM	MH, A	IH: utility corridor permitted	HI	HI	GI, UPAGI: permitted	--

## Notes:

- The project is located within an area designated as an urban reserve in Multnomah County. Therefore, the zoning districts for the City of Troutdale and City of Fairview apply within the area of analysis and Multnomah County's zoning districts do not apply.
- As a federal entity, BPA is not obligated to apply for local development or use permits and would not make formal application to any local jurisdictions for permits. However, BPA is committed to planning the project to meet or exceed the substantive standards and policies of state and local land use plans and programs to the extent practicable.
- Project elements may be covered by both the Utility Facility Major and Utility Facility Minor code categories.

Source: Golder 2011



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### **27.26.2.7 Clark County Zoning Code**

Title 40 of the Clark County Code is the Unified Development Code. It includes Subtitle 40.2 of the County's Code that covers Land Use Districts, Chapter 40.46, which implements the policies and procedures set forth by the Shoreline Management Act of 1971, and Chapter 40.260.240, which regulates the development of transmission lines and substations.

Section 40.260.240 of the Clark County Code discusses utilities other than wireless communications facilities, as follows:

- A. The erection, construction, reconstruction, alteration and maintenance of underground or aboveground transmission and distribution systems, including poles, towers, wires, mains, drains, sewers, in-ground sewage pumping facilities, pipes, conduits, cables, antennas, fire alarm boxes, police call boxes, traffic signals and other similar equipment, which does not require aboveground enclosed buildings as defined by Section 40.100.070, shall be permitted in any zoning district. Utility transmission lines, poles, and towers may exceed the height limitations otherwise provided for in this title. This section does not apply to wireless communications facilities as defined in Section 40.260.250(C).
- B. The erection, construction, reconstruction or alteration of utility substation facilities, as defined in Section 40.100.070, shall be permitted in any zoning district, subject to site plan approval pursuant to Section 40.520.040.
- C. Utilities installed under properties owned by Clark County and properties that are or will be dedicated to the county for road rights-of-way may require a utility permit pursuant to Chapter 12.20A and Chapter 13.12A.

The project is consistent with this section of the Clark County Code.

### **27.26.2.8 City of Vancouver Comprehensive Plan**

The City of Vancouver is in Clark County. The West Alternative crosses Vancouver on portions of segments 9 and 25. The City's Comprehensive Plan was last updated in 2004 and plans for growth from 2003 through 2023. The plan contains policy direction relating to growth and development, environmentally sensitive areas, historic places, public services, and other issues. Plan policies are implemented through subarea plans and provisions of the Vancouver Municipal Code and other local standards.

### **27.26.2.9 City of Vancouver Zoning Code**

Title 20 is the Land Use and Development Code, which became effective on March 11, 2004 and contains regulations to manage the community's growth in a manner that ensures efficient use of land, preserves natural resources, and encourages good design. The action alternatives cross eight zoning districts (see Table 27-2).

### **27.26.2.10 City of Camas Comprehensive Plan**

The City of Camas is in Clark County. All action alternatives cross the city of Camas on Segment 52. The City's Comprehensive Plan was originally adopted in 1994 and was updated in March

2004 to guide development in Camas for the next 20 years. The Comprehensive Plan for the City of Camas provides policies to direct public and private decisions affecting future growth and development and provides guidelines for making decisions on growth, land use, transportation, public facilities and services, parks, and open space. Comprehensive Plan policies are implemented through the provisions of the City of Camas Municipal Code and other local regulations. Title 17 of the City's Municipal Code is the City of Camas Land Development Code, which provides the rules, regulations, requirements, and standards for development of land in the city. The City of Camas Comprehensive Plan does not specifically address power line utility corridors.

### **27.26.2.11 City of Camas Zoning Code**

Title 18 is the zoning code of the City of Camas, which defines city zoning districts, permitted uses in those districts, and standards for those uses. The action alternatives cross eight zoning districts. While the City of Camas Comprehensive Plan does not specifically address power line utility corridors, the City of Camas Municipal Code provides standards for electrical transmission and distribution facilities in Title 8, Section 52. The applicable provisions are as follows:

#### 8.52.050 Electrical transmission facilities—conditional use permit.

- A. Permit Required. No person, firm, corporation, or other entity shall construct, install, erect or cause to be constructed, installed or erected any electrical transmission facility without first obtaining a conditional use permit from the city.
- B. Application. An application for a conditional use permit under this chapter shall be on a form provided by the public works director, and shall include the name and address of the applicant, the nature of the proposed electrical transmission facility, the location of the proposed electrical transmission facility, the existing facility's boundary, the proposed method of construction, installation or erection of the electrical transmission facility, and such other information as may be required by the public works director.
- C. Overhead Transmission Usage. All electrical transmission lines shall be installed underground in all zones except the manufacturing district and light industrial/country technical district, unless the city council finds that exposure to electrical magnetic fields and adverse impact to land value and aesthetics can be reasonably mitigated by prudent avoidance measures. Use of overhead power should consider, among other factors, facility size, location, setback, topography, scheduling, cost, sensitive lands, land value and proximity to children and schools.
- D. SEPA. All applications shall be accompanied with a SEPA checklist and, to the extent required, any impact studies.
- E. Fee. All applications shall be accompanied by a fee of four hundred dollars.

Regarding Provisions A, B, and E, BPA is not obligated to apply for conditional use permits, therefore BPA would not make a formal application to the county.

Regarding Provision C, BPA considered undergrounding the transmission line and eliminated it from further consideration (see Section 4.7.7, Undergrounding the Transmission Line). The project would not be consistent with Provision C.

Regarding Provision D, the project would be designed to meet the standards set forth by the City of Camas insofar as is feasible and is adoptable under SEPA. This EIS does analyze the significant impacts of the proposal to the SEPA-defined natural and built environment. The project would, therefore, be generally consistent with the municipal code 8.52.050.

8.52.060 Provisions applicable to all electrical transmission facilities.

- A. Prudent Avoidance Measures. All electrical transmission facilities shall be designed, constructed, and operated using prudent avoidance measures to minimize exposure to electromagnetic fields, to preserve land values, and to satisfy the other requirements of this chapter. Further, the applicants shall identify the four mG magnetic field line associated with the proposed installation. The mG contour line shall be identified as the line coinciding with normal winter loading which shall be further defined as being eighty percent of the line's rated peak capacity.
- B. Noise Levels. Noise levels generated by electric transmission facilities shall comply with Washington State law as set forth in WAC 173-60.

The project would be generally consistent with Provision A. When BPA builds new high-voltage 500-kV transmission lines, the agency uses "EMF-mitigation" techniques to keep EMF exposure as low as reasonably achievable while maintaining system reliability. See Chapter 8, Electric and Magnetic Fields, for expected average and maximum fields along the action alternatives.

Regarding Provision B, BPA would conduct its construction activities for the proposed line in conformance with EFSEC's standards concerning maximum permissible noise levels through using appropriate muffling devices on construction equipment and limiting construction to daytime and evening hours (see Chapter 9, Noise). Noise impacts during the operation of the proposed line would be negligible, and the substations would meet state noise standards (see Chapter 9).

8.52.070 Setbacks for child intensive locations. Special consideration shall be given to facilities where children assemble. Such areas shall include but not be limited to schools, churches, day cares and playgrounds. Such areas shall be set back in accordance with the following:

- A. One hundred feet from edge of easement for 50- to 133-kV line;
- B. One hundred fifty feet from edge of easement for 220- to 230-kV line;
- C. Three hundred fifty feet from edge of easement for 500- to 550-kV line.

Child-intensive locations are avoided if possible. Since structures are not allowed to be within the right-of-way for safety reasons, BPA looks to avoid structures in the siting process so they need not be removed.

### **27.26.2.12 City of Washougal Comprehensive Plan**

The City of Washougal is in Clark County. All action alternatives cross the city of Washougal on Segment 52. The City adopted its Comprehensive Plan in 1994 and updated it in 2003. The City's Plan is intended to accommodate growth over the next 20 years and provide for future growth in a manner that is compatible with both the current character of Washougal and with the goals specified in the GMA. The City's Comprehensive Plan has one statement about power line utility corridors as follows: "A main BPA transmission line corridor runs north/south through the southernmost portion of the city..." The Comprehensive Plan has no goals, policies or objectives addressing power line utility corridors.

### **27.26.2.13 City of Washougal Zoning Code**

Title 15 of the City's Municipal Code is the building code of the city. Title 16 contains environmental regulations, and Title 18 is the zoning code. Although the action alternatives cross several zoning districts, the zoning code does not address transmission lines or utilities.

## **27.26.3 Oregon Local Plans and Programs**

### **27.26.3.1 Oregon Critical Areas Ordinance**

Counties and cities in Oregon do not have critical areas ordinances that would address potential geologic hazards or other environmental concerns, such as wetlands, in the project area. There are no specific plans or program consistency requirements for floodplains and wetlands protection requirements, or guidelines. Current Oregon building codes are specified in ORS 455.010 through 455.895. Geologic hazard regulations are overseen by the Oregon Department of Land Conservation and Development, as defined in ORS 660.015.

### **27.26.3.2 Multnomah County Comprehensive Plan**

All action alternatives cross a small portion of unincorporated Multnomah County after crossing the Columbia River into Oregon. The Multnomah County Comprehensive Framework Plan (MCCFP) Summary is the County's land-use mission statement. It describes the policies that guide decisions made by the Land Use Planning Division as well as the relationship between Multnomah County land use decisions and the policies adopted by the Metro Council and statewide planning agencies. The MCCFP does not address power line utility corridors or substations. Policy 37 simply states that adequate utilities must be available for proposed development.

### **27.26.3.3 Multnomah County Zoning Code**

Chapter 29 of Volume 1 of the Multnomah County Code contains building regulations. Volume 2 of the Multnomah County Code contains Land Use Ordinances. The project is located within an area designated as an urban reserve in Multnomah County. Therefore, the zoning districts for the cities of Troutdale and Fairview apply within the area of analysis and Multnomah County's zoning districts do not apply (see Sections 27.26.3.5, City of Troutdale Zoning Code and 27.26.3.6, City of Fairview Comprehensive Plan).

### **27.26.3.4 City of Troutdale Comprehensive Plan**

The City of Troutdale is in Multnomah County. All action alternatives cross the city of Troutdale at the Sundial substation site. The Troutdale Comprehensive Land Use Plan was adopted on September 27, 1990 and amended in December 1998. The Plan contains a set of maps, policies, and implementing measures affecting land use within city boundaries. Plan policies define the direction, quantity, and quality of future development and redevelopment. The policies serve as a guide for both public officials and the general public in the use of zoning powers, subdivision regulations, the design and construction of streets, and other improvements. Implementing measures, such as zoning and development ordinances, are specific approaches or techniques for implementing plan policies. They delineate criteria and standards for development addressed within the broad outlines of the Comprehensive Plan. The Comprehensive Plan does not address power line utility corridors or substations.

### **27.26.3.5 City of Troutdale Zoning Code**

Chapter 3 of the Troutdale Development Code contains the zoning districts, Chapter 4 contains the zoning district overlays, and Chapter 6 covers conditional uses. The action alternatives cross nine zoning districts (see Table 27-2).

### **27.26.3.6 City of Fairview Comprehensive Plan**

The City of Fairview is in Multnomah County. All action alternatives cross the city of Troutdale at the Sundial substation site. The City of Fairview Comprehensive Land Use Plan was revised in June 2004. Its contents were guided by the City of Fairview Visioning Document 2022 adopted in 2002. The Visioning Document creates an image of what the community should look like in 2022, and acts as a tool for planning future growth and ongoing development in the Fairview urban area. The City of Fairview Comprehensive Land Use Plan is a formally adopted plan that was structured to recognize guidance from the Visioning Document while meeting its obligations to the Statewide Land Use Goals and Regional Growth Management Plan. The Comprehensive Plan does not address power line utility corridors or substations.

### **27.26.3.7 City of Fairview Zoning Code**

The City of Fairview's zoning code is found in Chapter 19 of its municipal code. The action alternatives cross six zoning districts (see Table 27-2).

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