Cumulative Effects Discipline Report

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<th>Description</th>
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<tr>
<td>APE</td>
<td>Area of Potential Effect</td>
</tr>
<tr>
<td>CDBG</td>
<td>Community Development Block Grant</td>
</tr>
<tr>
<td>CDID #1</td>
<td>Consolidated Diking Improvement District No. 1</td>
</tr>
<tr>
<td>CFR</td>
<td>Code of Federal Regulations</td>
</tr>
<tr>
<td>CLC</td>
<td>Columbia &amp; Cowlitz Railway and Patriot Woods Railroad</td>
</tr>
<tr>
<td>CO$_2$e</td>
<td>Carbon dioxide equivalent</td>
</tr>
<tr>
<td>CWCOG</td>
<td>Cowlitz-Wahkiakum Council of Governments</td>
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<tr>
<td>dBA</td>
<td>decibel</td>
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<td>EGT</td>
<td>Export Grain Terminal</td>
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<td>Federal Highway Administration</td>
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<td>Grade-Separated Option A Alternative</td>
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<td>IRC</td>
<td>Industrial Rail Corridor</td>
</tr>
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<td>Longview Switching Company</td>
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<tr>
<td>MBTL</td>
<td>Millennium Bulk Terminals—Longview</td>
</tr>
<tr>
<td>MSA</td>
<td>Metropolitan Statistical Area</td>
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<td>MSE</td>
<td>Mechanically Stabilized Earth</td>
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<td>NAAQS</td>
<td>National Ambient Air Quality Standards</td>
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<td>Noise Abatement Criteria</td>
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<td>NRHP</td>
<td>National Register of Historic Places</td>
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<td>Partial Grade-Separated Option B Alternative</td>
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<td>SR</td>
<td>State Route</td>
</tr>
<tr>
<td>UPRR</td>
<td>Union Pacific Railroad</td>
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<tr>
<td>WSDOT</td>
<td>Washington State Department of Transportation</td>
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1.0 INTRODUCTION

The Industrial Way/Oregon Way Intersection Project is located in the industrial area of Longview, Washington at the intersection of Industrial Way (State Route (SR) 432), Oregon Way, and SR 433. This intersection provides a critical connection of two Highways of Statewide Significance that support significant passenger and freight truck movement. The purpose of the project is to develop an affordable long-term solution that:

- Maintains or improves emergency response
- Improves travel reliability for all vehicles
- Accommodates current and future freight truck and passenger vehicle movement through the intersection and across the region and states.

The purpose of this document is to evaluate the potential for this project to contribute to cumulative effects and identify any mitigation measures needed to address adverse effects. The information contained in this discipline report supports the project’s Environmental Impact Statement (EIS).

1.1 What are cumulative effects and why are they considered?

Cumulative effects (cumulative impacts) are defined as:

[T]he 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. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. (40 Code of Federal Regulations [CFR] 1508.7)

In other words, a cumulative impact is a project’s direct and indirect impacts on a particular resource combined with the impacts of other past, present, and future human activities on the same resource (Figure 1). Actions may appear to be small with few impacts when considered individually, but when combined with other past, present, and future actions could produce unexpected future conditions.

This broader, collective context of an action’s impacts is why federal regulations (40 CFR 1508.7 and 1508.8) require an EIS to consider cumulative effects. Cumulative effects analysis informs the public and decision-makers about possible unexpected future conditions resulting from a project that are not always evident when examining direct impacts alone.

It is important to note the distinction between cumulative and indirect impacts. Indirect impacts are caused by the project, separated from direct impacts by time and/or distance, and can include induced growth and/or encroachment impacts. Cumulative effects, however, are the collective outcome of the incremental direct and indirect effects of the proposed project, past and present actions, and reasonably foreseeable future actions. This analysis presents the Industrial Way/Oregon Way Intersection project’s contribution to cumulative effects on individual environmental resources.
2.0 DESCRIPTION OF ALTERNATIVES

Three alternatives are being evaluated to address the project’s purpose and need. Each alternative is described briefly below.

2.1 No Build Alternative

Under the No Build Alternative, no major changes would be made to the roadway network with the exception of signal timing revisions implemented at the intersection of Industrial Way and Oregon Way. The No Build Alternative also assumes that other nearby transportation-related improvements and developments identified in the City of Longview’s Comprehensive Plan and Zoning Code, Cowlitz-Wahkiakum Council of Government’s travel demand model, the Port of Longview’s Barlow Point Master Plan, and the Millennium Bulk Terminals – Longview Project Environmental Impact Statement would be constructed. Thus, future (2040) conditions associated with the No Build Alternative would include:

- **Vehicular traffic growth**: Vehicle traffic (passenger and freight truck) is anticipated to increase approximately one to two percent annually due to regional growth based on projected population and land use changes. This increase translates to an overall growth in traffic demand...
(volume on most major arterials in the area) of approximately 40 to 50 percent by 2040 compared to existing conditions (2015).

- **Increased rail service on the Reynolds Lead:** The Reynolds Lead crosses Industrial Way west of the intersection and Oregon Way north of the intersection (Crossings A and B in Figure 2). Both crossings are at-grade. Rail service on the Reynolds Lead is expected to increase from up to four trains per day (two inbound, two outbound) under existing conditions to up to 20 trains per day (10 inbound, 10 outbound) prior to 2040 based on other private and public development proposals (Table 1). The types of trains operating on the Reynolds Lead are also anticipated to change over time. Currently, industry trains operate on the Reynolds Lead (4 trains per day), whereas by 2040 rail service would include 4 industry trains per day and 16 unit trains per day. An industry train, or manifest train, comprises rail cars that haul various commodities and have different origins and destinations. For this project, typical industry trains are assumed to be 2,000 feet or less in length. A unit train comprises rail cars that haul the same commodity and have a single origin and destination. For this project, typical unit trains are assumed to be 6,800 to 8,000 feet in length.

- **No change to rail service on the Port Lead:** The Port Lead crosses Industrial Way at-grade and east of the intersection (Crossing C in Figure 2). Rail traffic on the Port Lead is anticipated to remain at current levels with up to six industry trains per week (three inbound, three outbound) through 2040 (Table 1).

- **Extension of the Industrial Rail Corridor (IRC) and new rail service:** The Port of Longview plans to extend the IRC to provide rail service west of the existing IRC terminus to the Port’s Barlow Point property. This extension would create a new at-grade roadway/railroad crossing on State Route (SR) 433 south of Industrial Way although the exact location of the crossing has not been determined (Table 1; Crossing D in Figure 2). The IRC extension is assumed to connect to the Reynolds Lead west of the intersection. Rail service is anticipated to involve up to eight unit trains per day (four inbound, four outbound) by 2040.

<table>
<thead>
<tr>
<th>Rail Facility</th>
<th>Expected Frequency of Trains</th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Reynolds Lead</td>
<td>4 industry trains per day</td>
<td>8 trains per day (4 industry and 4 unit trains)</td>
<td>20 trains per day (4 industry and 16 unit trains)</td>
</tr>
<tr>
<td>Port Lead</td>
<td>6 industry trains per week</td>
<td>6 industry trains per week</td>
<td>6 industry trains per week</td>
</tr>
<tr>
<td>IRC Extension</td>
<td>Not in service</td>
<td>Not in service</td>
<td>8 unit trains per day</td>
</tr>
</tbody>
</table>

Note: The future increases in rail service are based on other private and public development proposals that are independent of the Industrial Way/Oregon Way Intersection Project.
Figure 2. Rail Crossings at the Industrial Way/Oregon Way Intersection

2.2 Grade-Separated Option A (GSA) Alternative

The GSA Alternative would include all changes in the future conditions as described for the No Build Alternative. In addition, a fully elevated signalized intersection would be constructed southwest of the existing intersection as shown in Figure 3. Under the GSA Alternative, the Reynolds Lead rail line would be realigned to pass under the new elevated intersection. All turning and through movements for the Industrial Way/Oregon Way intersection would be accommodated on the elevated intersection that would cross over the Reynolds Lead (Figure 3, Detail 1). A new surface roundabout at the Oregon Way/Alabama Street intersection (Figure 3, Detail 2) would allow through and turning movements in all directions. In addition, a new one-way surface road for houses facing onto the west side of Oregon Way and properties on the east side of Oregon Way south of Alabama Street would be constructed and provide local access. This surface road would loop under the elevated structure and connect back to Oregon Way on the east side of the new roundabout. On-street parking along the west side of Oregon Way would be eliminated south of Alabama Street; on the east side of Oregon Way on-street parking
would be eliminated approximately 90 feet south of Alaska Street to Industrial Way. Existing driveways within 130 feet of the new roundabout would be closed or relocated.

A new local surface road would provide a northbound to eastbound connection from East Port Way to Columbia Boulevard. This surface road would serve businesses located on the north side of Industrial Way and would pass under the east leg of the elevated intersection to provide access to the properties on the south side of Industrial Way west of Columbia Boulevard (Figure 3, Detail 3). Driveways along Industrial Way between Columbia Boulevard and Oregon Way would be changed to right-in/right-out only.

West Port Way and East Port Way would be reconstructed to provide a one-way loop road with access to the Port of Longview and businesses south of the Industrial Way/Oregon Way intersection. Access to the Weyerhaeuser industrial complex would be consolidated and reconfigured: the existing access on West Port Way (Gate 3) would be converted to an emergency-only access gate; the existing access on Industrial Way just west of Oregon Way (Gate 4) would be permanently closed; and, a new gate would provide access from the north end of West Port Way, which would consolidate all traffic that currently uses Gate 3 and Gate 4. On-street parking along East Port Way would be eliminated to accommodate the shared-use path.

One at-grade roadway/railroad crossing of the Port Lead rail line would exist for the new surface roadway that connects East Port Way to Columbia Boulevard. The GSA Alternative would accommodate the planned extension of the Port of Longview's IRC under a bridge structure for SR 433, but this extension would likely result in a second at-grade roadway/railroad crossing with East Port Way.

The GSA Alternative would include the following bicycle and pedestrian network improvements, all of which would be compliant with the standards of the United States Access Board Revised Draft Guidelines Accessible Public Rights-of-Way (2005) to meet the Americans with Disabilities Act (ADA):

- A new shared-use path along East Port Way that runs north-south, crosses under the east leg of the elevated intersection, runs east-west and crosses under the north leg of the elevated intersection, and connects to the Highlands Trail on the west side of Oregon Way
- Reuse or reconstruction of the existing Oregon Way sidewalk (west side) on the one-way surface roadway that runs along the west side of Oregon Way from Highlands Trail to the Oregon Way/Alabama Way roundabout
- New sidewalk on the new surface roadway that runs along the east side of Oregon Way from the new shared-use path to the Oregon Way/Alabama Way roundabout
- Reuse or reconstruction of the existing Industrial Way sidewalk (north side) on the north side of the new surface road along Industrial Way from the shared-use path to Columbia Boulevard
- New sidewalk on south side of Industrial Way from the point where Industrial Way touches down on the surface to Columbia Boulevard.

### 2.3 Partial Grade-Separated Option B (PGSB) Alternative

The PGSB Alternative would include all changes in the future conditions as described for the No Build Alternative. In addition, a new grade-separated intersection would be constructed with some movements elevated and other movements retained on the surface as shown in Figure 4. A new elevated signalized intersection would be constructed southwest of the existing intersection. The new
elevated intersection would accommodate all northbound and southbound turning and through movements, as well as all eastbound and westbound turning movements. All westbound and eastbound through movements on Industrial Way would occur at the new surface roundabout that would be constructed where the existing intersection is located. This surface roundabout would also provide northbound and eastbound/westbound circulation from the south side of the intersection. Southbound movements would have to use the elevated intersection to access the Port of Longview and other locations south of the Industrial Way/Oregon Way intersection (Figure 4, Detail 1). Emergency service providers would be able to use the elevated structure for westbound and eastbound through movements if needed to quickly navigate through the intersection (for example, during train crossings).

The elevated north leg of the new intersection would touch down on to the surface just north of the intersection of Oregon Way and Alabama Street, limiting turning movements along the surface roadway and at the intersection with Alabama Street to right-in/right-out only (Figure 4, Detail 2). On-street parking along the west side of Oregon Way would be eliminated south of Alabama Street; on the east side of Oregon Way on-street parking would be eliminated approximately 90 feet south of Alaska Street to Industrial Way. To improve circulation for properties located on Alabama Street east of Oregon Way, the PGSB Alternative would include improvements to 14th Avenue between Alabama Street and Beech Street, which would allow for one northbound and one southbound travel lane.

A new two-phase signal on Industrial Way east of the intersection with Oregon Way would accommodate the merge of eastbound surface traffic on Industrial Way with eastbound traffic coming off the elevated intersection, and across westbound traffic on Industrial Way (Figure 4, Detail 3). Driveways along Industrial Way between Columbia Boulevard and Oregon Way would be changed to right-in/right-out only.

Similar to the GSA Alternative, West Port Way and East Port Way would be reconfigured to provide a one-way loop road and the access locations to the Weyerhaeuser industrial complex would be consolidated and reconfigured. On-street parking along East Port Way would be eliminated to accommodate the shared-use path.

No rail lines would be realigned under this alternative. At-grade roadway/railroad crossings of the Reynolds Lead and the Port Lead would be located on the surface roadway segments of Oregon Way and Industrial Way. The PGSB Alternative would accommodate the planned extension of the Port of Longview’s IRC under a bridge structure for SR 433. This rail extension would likely create an additional at-grade roadway/railroad crossing with the northbound surface roadway connection from East Port Way to eastbound Industrial Way.

The PGSB Alternative would include the following ADA-compliant bicycle and pedestrian network improvements:

- A new shared-use path along East Port Way that runs north-south, crosses at the new surface roundabout with a crosswalk, connecting to the Highlands Trail on the west side of Oregon Way
- Reuse or reconstruction of the existing Oregon Way sidewalk (west side) on the new one-way surface roadway that runs along the west side of Oregon Way from the Highlands Trail to just north of the Oregon Way/Alabama Way intersection
- New sidewalk on the new surface roadway that runs along the east side of Oregon Way from the new shared-use path to the Oregon Way/Alabama Way roundabout
- New sidewalk on the north and south sides of Alabama Street from Oregon Way to 14th Avenue
- New sidewalk on the east and west sides of 14th Avenue from Alabama Street to Beech Street
- Reuse or reconstruction of the existing Industrial Way sidewalk (north side) on the north side of the new surface road along Industrial Way from the shared-use path to Columbia Boulevard
- New sidewalk on south side of Industrial Way from the point where Industrial Way touches down on the surface to Columbia Boulevard.

2.4 Project Construction

Both the GSA Alternative and the PGSB Alternative would involve the construction of an elevated intersection, new surface roadways, a new roundabout, and new ramps to connect to SR 433. Table 2 provides a summary and comparison of key construction activities required for the two build alternatives, which are further described below.

<table>
<thead>
<tr>
<th>Table 2. Summary of Construction Activities</th>
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<tr>
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<td></td>
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<tr>
<td>---------------------------------------------</td>
</tr>
<tr>
<td>Construction Duration</td>
</tr>
<tr>
<td>Detours and/or Temporary Roads</td>
</tr>
<tr>
<td>Closure of Oregon Way</td>
</tr>
<tr>
<td>Realignment of Reynolds Lead</td>
</tr>
<tr>
<td>Utility Relocations</td>
</tr>
<tr>
<td>Realigned Access Points/Driveways</td>
</tr>
<tr>
<td>Property Acquisitions</td>
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<tr>
<td>Easements</td>
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</table>

2.4.1 Construction Duration and Phasing

The GSA Alternative would be constructed in four phases spread over 5 years. The PGSB Alternative would be constructed in three phases spread over 3.5 years.

2.4.2 Construction Approach

GSA Alternative

Constructing the elevated intersection would require a combination of embankment, retaining walls, and bridges to raise the structure and to accommodate the surface roadway network. Early activities would include utility relocations, constructing several of the features on the perimeter of the intersection, establishing temporary roads, and realigning access points/driveways. Once these elements are in place, construction of the elevated features would be undertaken, which would involve rerouting traffic to temporary roads or using detour routes. The final stages of construction would include finishing all the connecting ramps and remaining surface roads.
The GSA Alternative would also require relocating a segment of the Reynolds Lead, which would involve constructing the new alignment while rail service continues to use the existing track. Upon completion, rail service would start using the realigned track and the existing track would be removed.

In the vicinity of the intersection, traffic on Oregon Way would be detoured for 1 to 1.5 years to other routes, such as utilizing Tennant Way to 3rd Avenue to Industrial Way. Local access to properties on Oregon Way would be provided during construction, although no on-street parking would be available. No additional right-of-way would need to be acquired for this detour.

The GSA Alternative would acquire property from approximately 41 parcels of which 15 parcels may be fully acquired and 26 parcels may be partially acquired. In the case of partial acquisitions, a portion of the property would be acquired and the remainder would be retained by the current owner. In addition, new and expanded easements would be needed from railroad parcels and approximately 59 temporary easements would be needed during project construction.

**PGSB Alternative**

The PGSB Alternative would follow the general sequence of construction activities similar to the GSA Alternative. However, travel on Oregon Way would be retained and reduced to one lane in each direction for most of the construction duration. No realignment of the Reynolds Lead would occur.

The PGSB Alternative would require property acquisition from approximately 33 parcels of which 12 parcels may be fully acquired and 21 may be partially acquired. Expanded easements would be obtained from the railroad parcels and approximately 71 temporary easements would be needed during project construction.
Figure 3. GSA Alternative

1. Fully elevated signalized intersection
2. New roundabout at Oregon Way/Alabama Street intersection
3. East leg of intersection, including Industrial Way/Columbia Blvd intersection and local access roads
4. New one-way local access road providing access to residences on Oregon Way
5. Reynolds Lead realigned under new elevated intersection
6. Surface roadway/rail crossing
7. One-way local access road providing access to properties south of Industrial Way
8. New access to Weyerhaeuser replacing closed access on Industrial Way
9. New shared-use path providing connectivity between residential and industrial employment areas
10. Water treatment ponds and staging area
11. Future planned extension of the Port of Longview’s Industrial Rail Corridor Line
12. Future surface roadway/rail crossing

LEGEND
- Purple: Surface Roadway
- Light Gray: Elevated Roadway
- Dark Gray: Shared-use Path
- Green: Sidewalk
- Light Green: Existing Railroad
- Red: Realigned Railroad
- Orange: Project Footprint
- Dark Orange: Future IFC Extension
- Gray: Bridge Structure Limits
- Light Blue: Embankment
- White: Rail Crossing

Included in this Project
Separate Projects to be Implemented by Others

This graphic is conceptual in nature and subject to change.
Figure 4. PGSB Alternative

1. New elevated roadway intersection and surface roadway roundabout
2. Oregon Way/Alabama Street intersection revised to right-in/right-out only
3. East leg of intersection, including a new signal on Industrial Way
4. New one-way local access road providing access to residences on Oregon Way
5. 14th Ave improved to local road standards
6. Surface roadway/rail crossing of existing rail lines
7. One-way local access road providing access to properties south of Industrial Way
8. New access to Weyerhaeuser replacing closed access on Industrial Way
9. New shared-use path providing connectivity between residential and industrial employment areas
10. Water treatment ponds and staging area
11. Future planned extension of the Port of Longview’s Industrial Rail Corridor Line
12. Future surface roadway/rail crossing

This graphic is conceptual in nature and subject to change.
3.0 METHODOLOGY

3.1 How are cumulative effects analyzed?

The cumulative effects analysis is based on guidance provided in Chapter 412 of Washington State Department of Transportation’s (WSDOT) Environmental Manual (2016) and the eight-step process outlined in joint guidance issued by WSDOT, FHWA Washington Division, and the US Environmental Protection Agency (EPA) Region 10, entitled, *Guidance on Preparing Cumulative Impact Analyses* (WSDOT 2008b). The methodology for analyzing cumulative effects is described in detail in the Cumulative Impact Assessment Methodology Memorandum, which is included as Attachment A.

3.2 Which resources were analyzed for cumulative effects?

All resources are included in the cumulative impact analysis. Using the information gathered in the Industrial Way/Oregon Way Intersection project’s technical analyses, the level of analysis of cumulative effects for each resource corresponds to the extent of direct and indirect project impacts and the extent of impacts likely to result from other current and reasonably foreseeable future actions.

3.3 How was the study area for cumulative effects defined?

3.3.1 Temporal Resource Study Area

For this analysis, Cowlitz County and WSDOT framed the historic and future context by examining land use and transportation development patterns. General trends are described from the mid-1850s, when European settlement of the project area began (see Section 4.1.3), through 2040, the project design horizon.

3.3.2 Geographic Resource Study Area

The cumulative effects study area (Figure 5) comprises the area where direct and indirect impacts resulting from the project as well as potential impacts resulting from other current and reasonably foreseeable actions in the region. The cumulative study area follows logical boundaries, such as neighborhoods and census blocks. This analysis uses the same geographic resource study area used in assessing direct and indirect impacts on land use, relocation, social, economic, public services, and environmental justice. The study areas for direct and indirect impacts of other resources are smaller than the cumulative effects study area and are fully captured within the cumulative effects study area.
Figure 5. Cumulative Effects Study Area
4.0 AFFECTED ENVIRONMENT

4.1 What is the history of the project vicinity?

The following section describes the history of the project vicinity’s natural setting, early human history, and development in the region.

4.1.1 Natural Setting

The cumulative effects study area is located within the Portland Basin geological region. This region has both oceanic sedimentary rocks from the formation of the western coast as well as some volcanic materials that originated to the east. It is primarily underlain by alluvium deposited over bedrock. The deposits in the study area are generally consistent with the structure of the Troutdale Formation. These deposits are believed to have occurred in lake-bed and slack-water environments caused by catastrophic floods that were periodically released by the breaching of an ice dam on glacial Lake Missoula 12,800 to 14,700 years ago (WSDOT 2007).

The Cascade Landslide Flood, dating to AD 1250, occurred when a natural earthen dam broke in the vicinity of the current day Bonneville Dam, causing extensive flooding downstream that likely destroyed aboriginal settlements and caused significant changes in the morphology of river channels and adjacent lands. As a consequence of this flood, villages were likely relocated in response to shifts in salmon migration and changes to stream courses used for transportation (Pettigrew 1981).

Dominant vegetation within the project vicinity includes western hemlock, Douglas fir, and western red cedar. The *Tsuga heterophylla* zone, in which the study area is located, has a wet, mild maritime climate that varies depending on latitude, elevation, and location relative to the mountains. Vine maple, salal, and Oregon grape form the dominant understory in the undeveloped portions of the project vicinity. Himalayan blackberry and spotted knapweed have invaded portions of the project area. Prior to the flood control system developed for Longview in the 1920s, much of the current project area was a marsh or wetland (Franklin and Dyrness 1973).

The natural setting of the study area is further described in the Cultural Resources Survey Report and Biological Assessment prepared for this project.

4.1.2 Early Human History

The study area lies within a region defined as the Northwest Coast. The earliest human inhabitants are thought to have occupied the area during the Paleoindian Period (10,500 BC and earlier) subsisting on a highly mobile foraging way of life that depended on hunting large game that are now extinct, such as mammoth (Ames and Maschner 1999).

The study area includes the traditional area of the Chinook and Cowlitz peoples. The Chinook inhabited riverside villages with political and economic ties along both banks of the Columbia River from the Pacific Coast upriver to The Dalles. The Chinook were dependent on fishing and sea mammals along with hunting and gathering and storage. Their social status was based on birth and wealth, and they inhabited permanent structures in villages that were occupied seasonally. Their winter settlements were generally located along the Columbia River and tributaries with seasonal movement to resource locations to the interior and uplands. Contact with the Euroamerican world began in the late eighteenth century, and increased as explorers came to the Columbia River more frequently to trade for furs, metal goods, guns, and other items. Their location along the Columbia River gave Chinookans the opportunity to regulate trade between Euroamericans and Plateau tribes. The mid-nineteenth century saw
Chinookans ravaged by disease and their population shrank. Eventually the survivors were gathered to be placed on reservations. Today, the Chinook Indian Nation has a membership of approximately 2,000 people (Boynton et al. 2008; Hajda 1984; Ray 1966; Silverstein 1990).

The Cowlitz are considered to be an interior tribe with no direct access to the ocean; however, the boundaries between the Cowlitz and Chinook were eventually blurred through intermarriage, trade, and occasional warfare. The Cowlitz eventually established villages along the Columbia River. Like the Chinook, the Cowlitz also practiced seasonal exploitation of resources – occupying a longhouse in a riverside village in winter before moving to the prairies and mountains in the spring to access camas bulbs, wapato, and berries. The Cowlitz declined to sign away their rights during treaty sessions in 1855, remaining on their land, but not becoming a federally recognized tribe until 2002. Today the Cowlitz Tribe has offices in Longview and Chehalis, Washington (Hajda 1984; Ray 1966; Silverstein 1990; Weber et al. 2012).

Additional detail on early human inhabitants is in the project’s Cultural Resources Survey Report.

4.1.3 Regional Development

Longview’s waterfront has undergone dramatic physical modifications with its long history of industrial development, connecting road and rail-based industries with marine transport on the Columbia River. The beginning of major settlement in the project vicinity occurred in 1849 when Harry Darby Huntington settled in the Longview area and established a community called Monticello through a series of donation land claims. These settlers were a major influence in creating a new territory separate from Oregon, north of the Columbia River. Monticello was named the county seat in 1854. Floods destroyed Monticello in 1867 and by the 1880s almost nothing remained of the original town site (Gillespie 1974; Weber et al. 2012).

Development in the project area was re-initiated in the early 1900s to support the timber industry. R.A. Long, president of the Long-Bell Timber Company, and other company leaders selected a site along the Columbia River to build a large lumber mill. Realizing that the large workforce needed to operate the mill was not available, Long began buying out local farmers and landowners in the vicinity to make way for his professionally planned and privately financed city, which he named Longview. Residential areas were organized into socially stratified neighborhoods separated by large tracts of land. The City of Longview was incorporated in February 1924 (Weber et al. 2012). Figure 6 provides Cowlitz County and Longview population growth data from periodic decennial censuses (1870, 1900, 1930, 1960, 1990, 2000, 2010) and population projections from the City of Longview (2006) and Washington State Office of Financial Management (2012). Longview first appeared in the US Census in 1930, documenting nearly 10,700 residents in the six years since the city’s incorporation.

Because the lands on which Longview would be built were largely marshland and prone to flooding, an important part of planning for the city involved reclamation and flood control. A system of dikes and levees was built around the perimeter of the proposed city, with dredged spoils redistributed throughout what would be the residential areas to make them suitable for development (Nueschwanger 1985). In 1923, seven independent operating diking districts were merged to become the Consolidated Diking Improvement District No. 1 (CDID #1). Today, CDID #1 manages 19 miles of levees, more than 35 miles of sloughs, ditches, drains, and seven pump stations to protect Longview from flooding (CDID #1 2016).
In 1925, the Weyerhaeuser Timber Company purchased a 700-acre site with 2 miles of Columbia River waterfront from the Long-Bell Company and built a sawmill to salvage timber from the 1902 Yacolt Burn. Construction began in October 1927 and was completed in 1929. While the mill was under construction, Weyerhaeuser built a railroad, the Columbia & Cowlitz Railway, to haul its logs to the mill (HistoryLink.org 2008). The Longview, Portland, and Northern Railway (currently referred to as the Reynolds Lead and jointly owned by BNSF Railway and Union Pacific Railroad [UPRR]) was also built in the 1920s to serve the growing industrial infrastructure along the banks of the Columbia River. In the late 1920s, Weyerhaeuser built the Weyerhaeuser Woods Railroad and several spurs (owned by Patriot Rail since 2010 and now referred to as the Patriot Woods Railroad) to serve its various logging camps throughout Washington (Patriot Rail 2017). The Longview Bridge (currently referred to as the Lewis and Clark Bridge) was built in 1929, connecting Longview to the Oregon side of the Columbia River (DeJoseph 2009).

As the demand for aluminum to support the World War II effort increased, the Reynolds Metals Company opened a large aluminum processing plant in Longview. Reynolds purchased 400 acres of
waterfront property along the Columbia River west of the Weyerhaeuser site and opened the plant in 1941 (WSDOT 2007).

Operating since 1921, the Port of Longview is the first full-service operating port on the Columbia River as river traffic travels up the Columbia from the Pacific Ocean. The Port was originally located along the Cowlitz River, but was moved to its current location on the Columbia River in 1926 to accommodate a deep-draft harbor. The Port includes a 150-acre marine terminal complex, a 300-acre industrial park, and eight marine terminals that handle and store dry bulks, breakbulks, forest products, containers, steel, and heavy-lift project cargo. Commodities handled include steel, lumber, logs, and pulp and paper products. In 2004, the Port completed the $21 million IRC, its most significant infrastructure development in decades. This rail facility provides direct access to the Port property from the nearby BNSF Railway mainline (Port of Longview 2016b).

In 1995, following a decade of efforts to encourage industrial land development and diversification from the timber industry, the City of Longview decided to take on the role of "developer" and acquired a 435-acre site for industrial park development with over 200 acres of buildable land. Three years later, the Mint Farm Industrial Park held its grand opening. The City created a phased master plan for the site with a 20-year buildout. Much of the buildable land today has been sold or is pending sale to various industries (The Mint Farm 2016).

Deepening of the Columbia River channel was initiated with a request from the Lower Columbia ports to the US Army Corps of Engineers in 1988. In 2004, a Record of Decision was issued to deepen the 40-foot shipping channel by 3 feet to allow continued navigation access and the economic benefits of marine commerce. This channel spans 106 miles from the mouth of the Columbia River to Portland/Vancouver. The dredging began in 2006 and was completed in 2010. This channel deepening made new business possible for the Port of Longview, including the Export Grain Terminal (EGT) (USACE 2017).

4.2 How is the region expected to change by 2040?

Over time, anticipated changes to the study area involve various roadway improvements to accommodate anticipated vehicular traffic growth and anticipated increases in rail operations (Section 2.1). The City of Longview’s Comprehensive Plan (2006) provides population projections for 2025. The City is currently updating its Comprehensive Plan and will continue to use the 1 percent growth rate for population projections. As shown previously in Figure 6, the City anticipates adding approximately 4,000 residents by 2025 and 11,000 residents by 2040 over its 2015 population. The Washington State Office of Financial Management (2012) provides population projections at the County level through 2040. These projections estimate steady growth in Cowlitz County adding approximately 6,600 County residents by 2025 and 11,800 by 2040 over its 2015 population.

Employment in Longview and Cowlitz County is also expected to grow steadily in coming years. The Washington State Employment Security Department projects an average growth rate of 1.8 percent for total non-farm employment in Southwest Washington (Clark, Cowlitz, and Wahkiakum Counties), increasing employment from 184,100 in 2014 to 219,400 by 2024 (Figure 7). In 2014, Cowlitz County employment was approximately 21 percent of total employment in Southwest Washington at 38,200. The average annual growth rate of employment in Cowlitz County from 2000 through 2015 was only 0.1 percent compared to 1.6 percent for Clark County, which represents more than 75 percent of employment in Southwest Washington (Washington State Employment Security Department 2016a, 2016b, and 2016c).
The currently undeveloped commercial and industrial lands in the region (e.g., the Mint Farm) would shape the future landscape when developed. Several development projects in the area have been delayed or cancelled, such as the proposed Washington Energy Storage and Transfer propane export terminal. However, the City of Longview continues to position the area for future industrial development independent of specific development projects, as indicated by its recent approval to rezone the Barlow Point area from mixed use residential to heavy industrial and its investments in the Mint Farm public-private partnership (TDN 2017a). In addition, several of the available commercial and industrial properties are within the study area, further highlighting the potential of the region’s undeveloped commercial and industrial lands (CEDC 2017). The Cowlitz Economic Development Council estimates that there is currently about $4 billion worth of capital investments proposed for public and private projects in Cowlitz County (TDN 2017b).

4.3 What are the other current and reasonably foreseeable actions?

Figure 8 identifies the projects that comprise other current and reasonably foreseeable actions within the cumulative effects study area that could affect environmental and community resources. Table B-1 in Attachment B provides additional details for each identified action. This list of other current and reasonably foreseeable actions are the projects evaluated to characterize conditions in the foreseeable future under each resource in Section 5.0. Of particular note are several large-scale industrial development projects:

- **Millennium Bulk Terminals—Longview (MBTL)** acquired a lease for the former Reynolds Metals property in 2011 and proposes a large industrial remediation and development project to establish a coal export facility. The MBTL project has the potential to impact resource conditions in the direct and indirect effect study areas of various resources as well as within the cumulative effects study area for the Industrial Way/Oregon Way project. The cumulative effects analysis for this project evaluates the impacts disclosed in the MBTL Final Washington State Environmental Policy Act (SEPA) EIS (Cowlitz County and DOE 2017).
Figure 8. Other Current and Reasonably Foreseeable Projects

REASONABLY FORESEEABLE PROJECTS

**BICYCLE/PEDESTRIAN IMPROVEMENTS**
1. Sidewalks along SR 432 near Industrial Way
2. Sidewalks on Lewis and Clark Bridge

**RECREATION IMPROVEMENTS**
3. Solo View Drive Trail
4. Diking District Trails
5. Dibbilee Point Developed Recreational Site
6. Archie Anderson Park Redesign and Redevelopment
7. Cloney Park Redevelopment

**INDUSTRIAL DEVELOPMENT**
8. Barlow Point Development
9. Berth 1 and 2, Warehouse Complex Redevelopment
10. Berth 4 Redevelopment
11. Millennium Bulk Terminals Longview
12. Mint Farm Industrial Park
13. Teevin Brothers Mooring Dolphins Construction

**COMMERCIAL DEVELOPMENT**
14. Columbia Crossing Shopping Center

**NEIGHBORHOOD IMPROVEMENTS**
15. Highlands Revitalization Plan Projects

**RAIL IMPROVEMENTS**
16. BNSF Spur Improvements
17. Reynolds Lead Upgrades
18. Rail Extension to Barlow Point
19. Industrial Rail Corridor Improvements
20. Industrial Rail Corridor Extension

**ROADWAY IMPROVEMENTS**
21. Alabama Street Connector
22. Beech Street Connector
23. Grade-separated SR 432 at Washington Way
24. Improvements at California Way/Industrial Way Intersection
25. Improvements at the SR 432/SR 411 Interchange
26. SR 432/Washington Way Signal Replacement
27. Lewis and Clark Bridge Navigation Light Replacement Project
28. US 30 Congestion Improvements at Lewis and Clark Bridge

**TRANSIT IMPROVEMENTS**
29. River Cities Transit Facilities Improvements
30. Transit Center in downtown Rainier

**UTILITY IMPROVEMENTS**
31. Mint Farm Groundwater Project
32. Stormwater Improvements
33. Wastewater Improvements
34. 2017 Water Line Replacement
Barlow Point is a 280-acre undeveloped waterfront property purchased by the Port of Longview in 2010 for future port industrial development. In March 2016, the Port released the first phase of the Master Plan for Barlow Point (Port of Longview 2016a).

Other larger-scale planned projects include further build-out of the Mint Farm Industrial Park, various rail improvements and extensions, and construction of the Columbia Crossing Shopping Center in Rainer, Oregon.

5.0 CUMULATIVE EFFECTS DISCUSSION BY RESOURCE

The anticipated direct and indirect impacts resulting from the No Build, GSA, and PGSB Alternatives would be the project’s contribution to cumulative effects in the study area. An analysis of existing conditions and direct and indirect effects of the project is provided in greater detail in the discipline report and technical analyses for the respective resources, included as appendices to the project’s Draft EIS and referenced individually under each resource section of this chapter. The remainder of this section provides analysis of cumulative effects by resource when other projects, development, and programs in the vicinity are taken into consideration along with the direct and indirect impacts from the project.

The GSA and PGSB Alternatives are designed to meet WSDOT and FHWA environmental stewardship guidance as well as to comply with all environmental laws. The project improves the Industrial Way/Oregon Way intersection, an economically critical junction within the Washington-Oregon bistate trade corridor. All reasonable measures to minimize adverse effects have been incorporated into the project design. The measures combine avoidance, minimization, mitigation, and enhancement. An example of enhancement is the project’s addition of pedestrian and bicycle facilities that improve connectivity and linkages between the Highlands Neighborhood and nearby services and jobs, which contributes a beneficial cumulative effect on community connectivity. The analysis finds that the GSA and PGSB Alternatives, together with past, present, and reasonably foreseeable future actions, would have only minor contributions to cumulative effects on some natural and community resources in the study area. As a result, no mitigation for cumulative effects is recommended.

5.1 Transportation

Additional detail on transportation is provided in the Transportation Discipline Report.

5.1.1 What trends have led to the present conditions related to transportation in the study area?

With early development starting in the mid-1800s and restarting in the early 1900s, Longview was recognized as a key transportation hub that was strategically positioned to accommodate intermodal transportation, particularly to support regional freight movement by rail, ship, and truck modes including traffic crossing the Lewis and Clark Bridge (SR 433) to and from Oregon (Section 4.1.3). Transit services began in the 1930s as a privately-operated service for mill workers until the City of Longview purchased the operation in 1975. RiverCities currently operates fixed bus routes throughout Longview. In addition, the Columbia County Rider provides fixed route transit service between Rainier, Oregon, and the Longview/Kelso area via the Lewis and Clark Bridge, SR 433, and Oregon Way. The deepening of the Columbia River channel, completed in 2010, enhanced navigation access and waterborne commerce, which led to increased suitability of the industrial lands along the waterfront. Much of the waterfront property is occupied by import/export facilities that transfer goods between rail and trucks to/from marine vessels on the Columbia River.
Over time, population and employment growth has led to increased levels of vehicle congestion in the study area, particularly at the Industrial Way/Oregon Way intersection. Currently, up to four trains per day cross the north and west leg of the intersection; up to six trains per week cross the east leg of the intersection. Current vehicle congestion levels and peak hour delays are moderate and deemed manageable during typical conditions, except during trains crossings where delays approach roadway capacity thresholds.

5.1.2 How are transportation conditions likely to change in the reasonably foreseeable future without the project?

Forecasted traffic volumes are expected to grow 1-2 percent per year, which translates to an estimated 40-50 percent increase in traffic volumes at the Industrial Way/Oregon Way intersection by 2040. At these 2040 traffic levels, the resulting congestion would cause gridlock during the PM peak period (3:00-6:00pm) if no improvements are made to the intersection.

The traffic analysis conducted for the project analyzed two scenarios to understand the influence that trains crossing the intersection legs would have on the intersection’s vehicular traffic operations. A “no train” scenario analyzed intersection operations that would occur when no trains crossed any legs of the intersection; this scenario was analyzed for comparative purposes. A “with trains” scenario analyzed the intersection operations when one train (AM peak period) or two trains (Midday and PM peak periods) crossed various legs of the intersection during each peak period. The “with trains” scenario was developed to estimate expected future conditions due to the planned development in the cumulative effects study area, including Port of Longview’s planned waterfront development at its Barlow Point property and MBTL’s planned development at the Northwest Alloy’s property (formerly owned by Reynolds Metal Company). Both of these developments are expected to involve increased rail service, including use of unit trains.

Under the “no train” scenarios, the future intersection traffic operations would have 30 percent more average vehicle delay in the AM peak period (6:00am-9:00am), 45 percent more delay in the Midday peak period (11:30am-2:30pm), and 300 percent more delay in the PM peak period compared to the 2015 existing conditions “no train” scenario.

Under the “with train” scenarios, future vehicular traffic operations would operate poorly throughout all of the daytime hours when most travel occurs. The number of trains expected to cross through the intersection is anticipated to substantially increase from 4-6 trains per day in 2015 to 28-30 trains per day in 2040. All four legs of the intersection would have at-grade roadway/rail crossings in 2040. As trains travel through these at-grade crossings, the roadway would be completely blocked for 5-8 minutes. Furthermore, there would be a recovery period while traffic flow conditions return to the same conditions that occurred before the train crossed, which would extend the impact of the train crossing and lead to worsened congestion. The overall impact would result in 110 percent more average vehicle delay in the AM (congestion doubles), 170 percent more delay in the Midday peak period (congestion nearly triples), and 250 percent more delay in the PM peak period (congestion is more than triple) compared to the 2015 existing conditions “with train” scenario.

This level of increase in congestion would create intolerable driving conditions for freight trucks and passenger vehicles. As an example, vehicles traveling westbound through the intersection (the heaviest movement), would be in stopped by a train or in recovery time conditions (slower traffic flow than before the train crossing) for approximately 55 percent of the daytime period (6:00am-7:00pm).
To further complicate future traffic operations, freight train service would not follow a set timetable. Trains could cross the intersection at any time and at any interval. This lack of schedule would create a situation where drivers and commercial/industrial/public vehicle dispatchers could not reliably plan trips to avoid train crossings. Trip travel times would vary widely depending on whether a vehicle would happen to get stopped by a train or not. This lack of consistency would create highly unreliable travel conditions, particularly for regular users (e.g., commuters, trucks, transit, school buses) and emergency service providers.

Other roadway improvement projects are planned within the study area, although there would be little benefit to the project intersection. These projects would likely contribute to improved traffic operations by expanding the local street network (e.g., Alabama Street and Beech Street connectors), adding capacity at high-volume locations (e.g., SR 432/SR 411 interchange), or grade-separating other at-grade rail/roadway crossings (e.g., SR 432/Washington Way/Reynolds Lead). Reduced congestion and improved safety conditions from these projects would benefit the transportation network within the study area. There are currently no plans by any public agency to increase the capacity of the Lewis and Clark bridge; however, public comment during the project has suggested that future improvements to the bridge should be considered.

The proposed development of the Columbia Crossing Shopping Center in Rainier could draw shoppers from the Longview/Kelso area and generate additional interstate trips that would cross the Industrial Way/Oregon Way intersection to use the Lewis and Clark Bridge. Planned improvements to transit facilities may benefit traffic operations near those facilities, but these improvements would not have a noticeable effect on the operations at the project intersection.

Without the project, indirect impacts would include increased transportation-related costs to all drivers and businesses due to congestion-related delay and lack of travel reliability at the intersection. In addition, the lands currently zoned commercial or industrial in the study area that are vacant or underdeveloped would be less attractive to potential buyers/tenants if the future uses would require an efficient and reliable transportation network to support their business model.

5.1.3 What direct and indirect effects would the project likely have on transportation?

The project would substantially reduce congestion at the Industrial Way/Oregon Way intersection as well as several nearby intersections. Congestion, would be reduced by 40 percent under the GSA Alternative and 60 percent under the PGSB Alternative compared to the No Build Alternative. These reductions would lead to improved travel times and trip reliability for all vehicles, including freight truck traffic, traveling through the Industrial Way/Oregon Way intersection.

The project would substantially improve travel reliability for all vehicles. Under the “with trains” scenario, the GSA Alternative would reduce congestion by 60 percent in the AM peak period, 70 percent in the Midday peak period, and 40 percent in the PM peak period compared to the No Build Alternative. These benefits would result in large part due to grade-separating the entire intersection from all four railroad crossings (including the future IRC extension). One surface road that provides local access to properties on the southeast quadrant of the intersection would have at-grade railroad crossings, but the traffic volumes that would use this surface road would be low and would have no impact to the intersection operations. Travel reliability would greatly increase, since no trips through the intersection would be blocked by trains.

Under the PGSB Alternative, congestion would be reduced even further. Average vehicle delay during the “with trains” scenario would be reduced by 75 percent in the AM peak period, 80 percent in the
Midday period, and 60 percent in the PM peak period compared to the No Build Alternative. These benefits would result from elevating all of the high traffic volume movements and separating these movements from the railroads. The lower volume movements, such as the westbound-eastbound through movements, would remain on the surface and be blocked when trains would cross.

The PGSB Alternative would also increase travel reliability for drivers. Only those movements on the surface would be blocked by train crossings. For example, less than half the westbound movement (35-45 percent of vehicles) would use surface roads that connect to the surface roundabout and have at-grade roadway/railroad crossings. These trips would be blocked when trains cross, but would experience quicker recovery times. For these westbound travelers, their trips would be stopped for trains or in recovery time for 25 percent of their travel time during the daytime period compared to all westbound travelers stopped or in recovery for 55 percent of the daytime under the No Build Alternative.

Some congestion would still occur under both the GSA and PGSB Alternatives that results from the limited capacity of the Lewis and Clark Bridge. Southbound travel would still need to merge from two lanes to one lane to head south on the bridge, which would spill back into the intersection during the PM peak period.

The indirect impacts that would occur under the No Build Alternative, such as increased business- and transportation-related costs and lost economic development opportunities due to severe congestion at this intersection, would be avoided by the GSA and PGSB Alternative.

5.1.4 Would the project contribute to cumulative effects on transportation, and would mitigation be recommended?

The project would substantially reduce traffic congestion and improve travel reliability, which would benefit all vehicular traffic operations for the Industrial Way/Oregon Way intersection and surrounding intersections. The project would have a beneficial cumulative effect; no mitigation is recommended.

5.2 Roadway Safety and Emergency Response

Additional detail on roadway safety and emergency response is provided in the Transportation Discipline Report.

5.2.1 What trends have led to the present roadway safety and emergency response conditions in the study area?

Regional growth, development, and increased traffic volumes over time have contributed to increased congestion, which adversely affects roadway safety and emergency response. Nearly half of all collisions around the project intersection between 2012 and 2016 were rear end crashes likely due to a combination of both traffic congestion and driver behavior (e.g., following too closely).

Currently, the Washington-based Longview Fire Department and Cowlitz 2 Fire & Rescue and the Oregon-based Columbia River Fire & Rescue and Clatskanie Rural Fire Protection District are the emergency responders that operate within the study area. All four services have at least one designated critical route that travels through the Industrial Way/Oregon Way intersection. Emergency response trips experience additional delay when trains cross the intersection. Although ambulances, fire trucks, and other emergency service providers can use signal preemption, lights and sirens, and counter-flow travel to move more quickly than non-emergency vehicles, all vehicles, including emergency service providers, must stop while trains are passing through at-grade rail/roadway crossings. As congestion at the Industrial Way/Oregon Way intersection has increased over time, emergency response has
experienced greater challenges in providing quick response times, particularly during the evening (PM) peak period, which is the most congested time of day. The Longview Fire Department reports that in 2015, it was only able to achieve a 6-minute response time 70-75 percent of the time to industrial areas south of Industrial Way due to congestion, which was below the 90 percent threshold for a 6-minute response time established by City Council resolution.

**5.2.2 How are roadway safety and emergency response conditions likely to change in the reasonably foreseeable future without the project?**

Continued growth and development in the study area would lead to increased traffic congestion and travel times, thus continuing to adversely affect roadway safety and emergency services. The projected higher levels of congestion often lead to increased risk-taking behaviors by drivers and would result in more crashes.

With substantially more rail service operating on the Reynolds Lead and the expanded IRC in the future, the frequency of blockages at the at-grade crossings when trains cross the intersection legs would exacerbate traffic congestion, increase travel times, and reduce travel reliability for all vehicles, including emergency service providers. With 28-30 trains crossing through the intersection each day, there would be a 5 to 8-minute roadway blockage for all vehicles, including emergency service providers, at the intersection every 50 minutes on average. These blockages would be followed by increased congestion as the blocked traffic begins to recover to pre-train crossing traffic flow conditions. Although emergency service providers could navigate more quickly through congested conditions compared to general traffic, the emergency service providers would be stopped while trains cross the roadways. This condition would make it nearly impossible for the Longview Fire Department to achieve a 6-minute or less response time if the trip is blocked by a train crossing.

In the future, emergency response times would likely experience noticeably longer delays, especially during the PM peak traffic period. For example, PM travel times for many movements through the intersection would take 1 to 3 minutes longer in 2040 than they currently do. However, the travel times for several of the highest volume movements would increase from approximately 4 minutes to 24-28 minutes, which would have severe consequences for the community. In addition, the travel times through the project intersection would degrade significantly during the morning (AM) and midday peak periods by 2040.

**5.2.3 What direct and indirect effects would the project likely have on roadway safety and emergency response?**

By grade-separating all or most of the high traffic volume routes from rail crossings, the project would reduce conflicts between trains and vehicles, which would improve safety conditions within the project intersection.

The project would also reduce traffic congestion (40-60 percent) at the intersection and decrease travel times for most intersection movements in the future compared to traffic congestion without the project, which would benefit all vehicles, including emergency service providers. In addition, emergency service providers would avoid all roadway blockages by train crossings by traveling on the elevated structures of the intersection, substantially improving response times.

Travel reliability would also improve, because no emergency service provider trips would be interrupted by train operations; thus, service providers would have more consistent travel times among repeated trips (trips that occur at the same time but on different days). In the case of the Longview Fire
Department, response times of 6 minutes or less would be possible since emergency vehicles would bypass train blockages when traveling through the intersection.

For Oregon-based emergency service providers, trips northbound over the Lewis and Clark Bridge would continue to be congested due to the limited capacity of the bridge. However, these providers would also benefit from quicker travel once they reach the Industrial Way/Oregon Way intersection and continue north to the PeaceHealth St. John Medical Center. During a February 2017 meeting, emergency service providers indicated that both build alternatives would meet their needs for emergency response (Cowlitz County 2017).

Benefits from the project in terms of congestion reduction and improved travel reliability would be expected to continue further in time (beyond 2040), producing indirect benefits as well to emergency service providers.

5.2.4 Would the project contribute to cumulative effects on roadway safety and emergency response, and would mitigation be recommended?

The project would benefit emergency response times and travel reliability. Therefore, the project would not contribute to adverse cumulative effects to roadway safety and emergency response, so no mitigation for cumulative effects is recommended.

5.3 Pedestrian and Bicycle Travel

Additional detail on pedestrian and bicycle travel is provided in the Relocation, Social, Economic, Environmental Justice, and Public Services Technical Analysis and the Transportation Discipline Report.

5.3.1 What trends have led to the present pedestrian and bicycle travel conditions in the study area?

Transportation facilities in the study area were historically planned to accommodate rail, truck, and automobile travel. The early layout of the City of Longview was designed with areas segregated by use—residential, industrial, and commercial—with residential areas located a considerable distance from the industrial and commercial areas. Over time, as industry evolved and diversified, companies such as Weyerhaeuser, Reynolds Metals, and others were established in Longview, which led to infill development occurring between the residential areas and industrial and commercial areas (McClelland 1976).

The segregated and spread-out land uses that still exist today pose a challenge to pedestrian and bicycle modes and safety with limited facilities that are non-contiguous. For example, residential areas north of the Industrial Way/Oregon Way intersection lack bicycle and pedestrian connectivity to the income-producing businesses south of the intersection. Furthermore, in a recent 3-year timespan (2013 to 2015) 10-15 collisions within the study area involved a bicyclist or pedestrian and a vehicle. Though pedestrian and bicyclist collisions (combined) represent about 1.5 percent of the total vehicle-related accidents in the Cowlitz-Wahkiakum Council of Governments (CWCOG) region, the potential severity of these collisions is notably higher than the severity of vehicle-only collisions (CWCOG 2016).

In recent years, the City of Longview and Cowlitz County have committed more funding and implemented new and improved pedestrian and bicycle facilities throughout the study area. This trend continues, as noted in city- and county-level plans, including the City of Longview’s Park and Recreation Comprehensive Plan (2016) and Cowlitz Regional Trails Plan (2006).
Within the study area, some of the streets have sidewalks, but many amenities and community resources are not easily accessible to residents without a vehicle or transit service. Moreover, there are limited dedicated bicycle facilities and routes. Bike-friendly trails are established around Lake Sacajawea, which borders the study area to the north. In addition, the 1.3-mile Highlands Trail, which serves bicyclists and pedestrians, parallels Industrial Way from Douglas Street to Oregon Way immediately south of the Highlands Neighborhood.

Some pedestrians and bicyclists travel across the Lewis and Clark Bridge (SR 433) despite the bridge having no dedicated sidewalk or bicycle lanes. On the Oregon side, SR 433 connects directly to on- and off-ramps to US 30, which does not have any dedicated bicycle lanes although there are roadway shoulders and signs to warn drivers about sharing the road with frequent bicyclists. This segment of Highway 30 is part of the annual Portland to the Coast bicycle route.

Within the industrial area of Rainer that is in the study area, pedestrian and bicycle facilities are also limited and non-contiguous.

### 5.3.2 How are pedestrian and bicycle travel conditions likely to change in the reasonably foreseeable future without the project?

Future influences on pedestrian and bicycle travel in the study area include new and improved pedestrian and bicycle facilities, new and extended trails, industrial and commercial developments, and roadway improvements. For example, east-west bicycle and pedestrian connectivity across Oregon Way is anticipated to occur along the CDID #1 ditches in Longview as the city implements segments of the planned Diking District Trail loop (City of Longview 2016). However, an improved north-south connection between residences north and businesses south of the intersection is not currently planned.

All new or improved sidewalks, trails, and multiuse paths would benefit pedestrians and bicyclists by increasing connectivity within Longview and across the Lewis and Clark Bridge, if sidewalks were added. Similarly, roadway improvement projects would be designed to current City or County standards, which would typically involve adding sidewalks to roads that currently do not have these features. For example, the Alabama Street Connector and Beech Street Connector would be designed to City standards and enhance pedestrian and bicycle access to the shopping area between California Way and 3rd Avenue.

Commercial development in the future would likely include pedestrian and bicycle facilities on site, such as bicycle parking and on-site sidewalks, but not beyond the development site limits. One outcome of some of the planned industrial development, such as at the Port of Longview’s Barlow Point property and the MBTIL proposal, would be increased rail service on the Reynolds Lead and the extension of the IRC. The number of trains crossing through the Industrial Way/Oregon Way intersection would increase from 4-6 trains per day to 28-30 trains per day. Many of these trains would be longer trains, and may travel at higher speeds. Pedestrians and bicyclists would be stopped on sidewalks, trails, paths, and roadway shoulders as trains traveled through at-grade rail crossings. This future condition would be less safe for pedestrians and bicyclists than conditions under current rail traffic operations, and pedestrian and bicycle travel would be interrupted and delayed more frequently.

### 5.3.3 What direct and indirect effects would the project likely have on pedestrian and bicycle travel?

Bicycle and pedestrian facilities, including sidewalks, a shared-use path, and designated crosswalks, would be improved and made more continuous under both the GSA Alternative and PGSB Alternative,
providing increased connectivity and safety. Both the GSA and PGSB Alternatives would retain or rebuild existing sidewalks and add new sidewalks on Oregon Way and Industrial Way. In addition, the PGSB Alternative would reconstruct 14th Avenue and Alabama Street, east of Oregon Way, to City standards with sidewalks. The GSA and PGSB Alternatives would also improve north-south connectivity between the Highlands Neighborhood and the employment areas south of Industrial Way by providing a north-south shared-use pedestrian and bicyclist path along Oregon Way and East Port Way.

This shared-use north-south path would also connect to new sidewalks that would be built at the intersection. The distance that pedestrians and bicyclists would travel may be slightly longer and require some out-of-distance travel compared to current conditions. However, the proposed shared-use path, and sidewalks would be on designated surface facilities and would have fewer crossings with the surface roads compared to the No Build Alternative, which provides an overall safety benefit to these users. Additionally, these surface roads would have lower traffic volumes compared to the existing and future No Build Alternative conditions, further increasing safety for pedestrians and bicyclists.

Pedestrians and bicyclists would continue to be exposed to a similar number of train crossings and blockages as would occur in the future No Build Alternative conditions because all pedestrian and bicycle crossings and pathways would have at-grade rail crossings. The number of train crossings is anticipated to increase, independent of the project, so pedestrians and bicyclists would encounter more frequent and sometimes longer (approximately 3 minutes) wait times while trains block sidewalks and the shared-use path.

The City of Longview plans to extend the Highland Trail east of its current terminus at Oregon Way. The Industrial Way/Oregon Way project would not preclude this planned extension of the Highlands Trail, which would further enhance pedestrian and bicyclist safety. Overall, the Industrial Way/Oregon Way project would contribute to the City of Longview and Cowlitz County’s goals of increasing overall pedestrian and bicycle facilities on a regional level.

Over time, an indirect benefit of the project is that more bicycle and pedestrian activity through the study area may occur as users would have increased bicycle or pedestrian connectivity between origins and destinations.

5.3.4 Would the project contribute to cumulative effects on pedestrian and bicycle travel, and would mitigation be recommended?

Pedestrian and bicycle travel would benefit from the improvements associated with the project. Some out-of-direction travel would be required for bicycle and pedestrians depending on their destination, but both alternatives would result in improved, safer, and more continuous bicycle and pedestrian facilities. Overall, the project would create a net benefit to pedestrians and bicyclists; therefore, the project would not contribute to adverse cumulative effects to bicycle and pedestrian facilities. No mitigation for cumulative effects is recommended.
5.4 Social and Economic Elements

Additional detail on social and economic elements is provided in the Relocation, Social, Economic, Public Services, and Environmental Justice Technical Analysis.

5.4.1 What trends have led to the present conditions for the social and economic elements in the study area?

The local and regional economy of the greater Longview area was built upon industry and manufacturing, which over time have leveraged the rail, interstate highway, and marine transportation network. Continual investments by local municipalities and businesses have incrementally enhanced the industrial- and manufacturing-driven economy. Most recently, the deepening of the Columbia River channel was completed in 2010 and enhanced navigation access and related commerce. The Port of Longview is Washington State’s third largest port, and the first deep draft, full-service operating port on the Columbia River inland from the Pacific Ocean.

Today, the principal industries in the study area and its surrounding cities and counties include marine-based bulk exports, wood/paper products, manufacturing, agriculture, fishing, and tourism. Moreover, Longview is the state’s largest timber exporting point. Many of these businesses depend on the efficient and reliable movement of freight trucks, service providers, customers, and employees through the Industrial Way/Oregon Way intersection, which has over 20 million tons of annual gross truck tonnage, making it one of Washington’s busiest truck tonnage intersections. This is reflected in the Washington State Freight Mobility Plan designating the SR 432 corridor as a T1 Truck Freight Economic Corridor (carrying more than 10 million tons of freight by truck per year), an R-1 Rail Route (moving more than 5 million tons of freight by rail per year), and a W-1 Economic Waterway (moving more than 25 million tons by water per year via the Columbia River) (WSDOT 2014).

For the last 20 years, Cowlitz County and Columbia County unemployment rates have stayed about two percent above national averages despite a small but steady increase in jobs in recent years. Median household income in Cowlitz County is notably lower than that of the state. The industrial and manufacturing history shaped the Longview community that exists today. In the early 1900s, the Long-Bell Timber Company bought out local farmers and landowners to build a city that could support the large workforce needed to operate the company’s lumber mill. Residential areas were separated by large tracts of land from the industrial and commercial areas. The study area is a mix of residential, industrial, and commercial lands and includes community resources such as housing services, health care providers, ethnic food retailers, churches, schools, and mobile home parks.

Within the study area, residential areas include the distinct and cohesive Highlands and St. Helens neighborhoods, Longview mobile home parks, dispersed rural residences, and a mobile home park in Columbia County, just outside of Rainier. Businesses in the study area range from the large industrial businesses along the Columbia River waterfront, such as Weyerhaeuser, KapStone, and EGT, to a variety of smaller commercial businesses.

5.4.2 How are the social and economic conditions likely to change in the reasonably foreseeable future without the project?

In the future, commercial and industrial investments would contribute to the area’s growing economy as would the infrastructure improvement projects that support those investments. Large-scale projects such as Barlow Point, MBTL, Mint Farm Industrial Park, Columbia Crossing Shopping Center, and Reynolds Lead and IRC upgrades are the most likely to impact the economy at both the local and
regional scales. These projects could provide jobs and increase economic activity in the area when workers and new or expanded businesses buy locally, otherwise employment is expected to continue increasing at a modest level.

Residents would likely also benefit from future community improvement projects, such as those outlined in the Highlands Revitalization Plan, various bicycle and pedestrian improvements, and transit improvements such as the new transit center in downtown Rainier. Projects recommended in the Highlands Revitalization Plan are being implemented in phases as funding is available and include housing repair, street and yard beautification, street and alley lighting, and sidewalk repair (City of Longview 2008). The plan also outlines strategies to enhance the economic conditions of Highlands Neighborhood residents, such as financial literacy education, employment services, and housing counseling. Additional current and reasonably foreseeable actions that would likely benefit residents include utility and roadway improvements (e.g., the Alabama Street Connector).

All travelers that rely on the intersection, including passenger and freight vehicles, would experience significant congestion and delays as a result of population and employment growth in the Longview area. In addition, increased rail service would lead to higher frequency of trains crossing the Reynolds Lead and extended IRC, which would exacerbate traffic congestion and result in delays to freight truck and passenger vehicle traffic when trains block at-grade roadways on each leg of the Industrial Way/Oregon Way intersection. As vehicular traffic increases, all travel through this intersection would be less reliable, including commuting to and from work, whether by personal vehicle, transit, bicycle, or on foot. Over time, this increased congestion would lengthen travel times to all trips made through the intersection. Delays for passenger vehicles, while negatively affecting all drivers, would be particularly cumbersome for drivers trying to access jobs within the study area and would negatively impact the local economy as a result.

The increased congestion and delay would have severe adverse economic effect on existing businesses that depend on freight truck movement and reliable travel for service providers, customers, and employees. Delays for freight vehicles would increase time and costs for the affected goods and services, potentially affecting both the local and regional economy. It could also lessen business viability and reduce the attractiveness of the area to recruit new businesses, resulting in an adverse impact on current and future employment. Any potential loss of business could result in workers becoming under-employed or unemployed all together.

On a larger economic scale, the congestion at this intersection could reduce the regional and national economic competitiveness of the Port of Longview and could reduce the economic opportunities for international bulk import/export business development at Barlow Point. Increases in truck operational costs related to congestion at one of the busiest truck tonnage intersections in Washington State could have severe impacts on the state’s timber and agriculture industries, which compete globally for market share.

5.4.3 What direct and indirect effects would the project likely have on the social and economic elements?

Project construction would temporarily have an adverse effect on neighborhoods and business-related travel through detours, delays, and lane closures resulting in some out-of-direction travel, increased travel time through the intersection, and encroachment from equipment noise and vibration, airborne dust, and construction lighting. Some potential customers may avoid businesses near the intersection during construction. Project construction would also create temporary local jobs which could benefit
workers living in the study area and nearby communities as well as economic activity at local businesses from the influx of construction workers and associated expenditures.

The project would result in no residential displacements, no changes in community cohesion, and minor changes to travel routes. The project would add bicycle and pedestrian connectivity between the residences north of the Industrial Way/Oregon Way intersection and the businesses and jobs south of the intersection.

Over the long-term, the project would reduce delay and provide more reliable travel for freight truck and passenger vehicles through the intersection, which benefits local and regional economies with reduced travel related costs. With lower levels of congestion, businesses would be able to plan and implement freight shipments on more reliable schedules, thereby lowering business costs. Over time, this increased efficiency for business-related and freight truck travel through the Industrial Way/Oregon Way intersection would enhance the regional and national economic competitiveness of the Port of Longview and improve economic opportunities for international bulk import/export business development at Barlow Point and on available developable land such as the Mint Farm Industrial Park. Improved traffic operations of the Industrial Way/Oregon Way intersection would also enhance safety for business-related and local community travel, and would improve travel reliability for workers accessing jobs.

The project would also avoid bisecting existing neighborhoods. The local street network and public amenities would remain and continue to contribute to the cohesiveness of neighborhoods in the study area. Access to public services, such as parks and healthcare clinics, would remain unchanged, although travel routes to and from these locations may change slightly. Access to neighborhoods via the local road network would remain unchanged by the GSA Alternative. The new roundabout at the Oregon Way/Alabama Street intersection would enhance the safety of turning movements at this location, which is an access point to the Highlands and St. Helens neighborhoods from Oregon Way. Under the PGSB Alternative, the intersection of Oregon Way and Alabama Street would be modified to right in/right out movements, so some out-of-direction travel may be required using the surface roundabout. On-street parking along the surface portion Oregon Way would be removed under both the GSA and PGSB Alternatives. All residences facing Oregon Way would retain parking in driveways that provide access to Oregon Way, except for one house and multi-housing unit immediately south of Alabama Street, or the alley behind the residences. The PGSB Alternative would include sidewalks along Alabama Street and improve 14th Avenue to city standards with sidewalks between Alabama Street and Beech Street. Access to undeveloped land immediately to the east of 14th Avenue would also be improved.

New right-of-way would be acquired for the project, which would lead to commercial and industrial displacements. The GSA Alternative would result in displacing approximately 10 small businesses (less than 50 employees), 3 billboards, and 1 cell/radio tower. The PGSB Alternative would result in displacing approximately 7 small- businesses, 2 billboards, and 1 cell/radio tower. No residences would be displaced under either alternative. There are over 1,200 acres of vacant land in the study area, most of which is zoned for industrial development (over 900 acres) or mixed use commercial/industrial (over 180 acres), where the 7 to 10 displaced industrial and commercial businesses could potentially relocate. No large employers would be relocated, and less than 5 percent of jobs within the study area would be displaced.

WSDOT follows a standard, systematic process for relocation of property-owners, residents and tenants, in compliance with the Uniform Relocation Assistance and Real Property Acquisition Polices Act of 1970 as amended. The legal requirements and relocation process are described in Right-of-Way Manual M 26-
Chapter 12. Compensation would be provided for businesses to relocate if they are physically displaced by the project or if property values decrease as a result of the project. Other businesses may choose to relocate if altered property access and/or traffic patterns do not meet the needs of a specific business, but these businesses would not be compensated. Relocating could have indirect effects on businesses because of the costs of relocation, including costs to secure a replacement site; moving costs; profits lost during the moving period; or higher lease/rental costs at a replacement site. Furthermore, relocating could alter the volume of customers a business receives – it could take customers some time to find the business in its new location, and the new location could attract a different type or number of customers. These indirect effects could ultimately affect the long-term viability of businesses currently located near the Industrial Way/Oregon Way intersection.

Other project impacts that would affect residents in the study area are discussed in other sections as follows:

- Section 5.1: Transportation
- Section 5.2: Roadway Safety and Emergency Response
- Section 5.3: Pedestrian and Bicycle Travel
- Section 5.5: Protected Populations
- Section 5.6: Visual Resources
- Section 5.9: Hazardous Materials
- Section 5.12: Noise
- Section 5.16: Air Quality.

**5.4.4 Would the project contribute to cumulative effects on the social and economic elements, and would mitigation be recommended?**

Many of the current and reasonably foreseeable actions would be anticipated to support local and regional economic development as well as revitalization of the Highlands Neighborhood.

The primary adverse impacts from the project affecting neighborhoods and social elements would be temporary construction impacts, which would be minimized to the extent possible through use of mitigation measures such as maintaining reasonable business access, installing signs to discourage construction-related cut-through traffic to the Highlands and St. Helens neighborhoods, and distributing English and Spanish notices to residents, businesses, and project stakeholders in advance of construction activities. The temporary adverse construction impacts that would be mitigated during construction would not contribute to cumulative effects.

Most long-term effects from the project would be beneficial, such as improvements to pedestrian and bicycle connectivity, improved travel reliability for all vehicles, and reduced travel times for employees, customers, and freight truck shipments, which would benefit local businesses. The project would have minimal contributions to cumulative effects through the displacement of 7-10 small businesses. Impacts from business displacement would be mitigated if the displaced businesses would choose to relocate; available commercial and industrial properties currently exist within the study. Any displaced businesses would be offered relocation benefits and compensated in accordance with the Uniform Relocation Assistance Act. No additional mitigation for cumulative effects is recommended.
Social and economic impacts from other planned projects are not quantifiable at this time; however, several of the other future planned projects may have a set of trade-offs of adverse impacts mixed with benefits for the Highlands and St. Helens neighborhoods and other residential areas. Other reasonably foreseeable projects in the cumulative impact study area would be required to comply with various local, state and federal ordinances and laws such as critical areas ordinances, noise ordinances, zoning requirements, building permit reviews, and environmental regulations which would consider their respective beneficial and adverse impacts and provide a framework for minimizing adverse impacts.

5.5 Environmental Justice Populations

Additional detail on environmental justice populations is provided in the Relocation, Social, Economic, Public Services, and Environmental Justice Technical Analysis.

5.5.1 What trends have led to the present conditions for environmental justice populations in the study area?

Residential neighborhoods in the study area are some of the most affordable in Longview and Rainier, which is likely a result of the smaller home sizes and proximity to major roads and industrial land uses. The Highlands Neighborhood has an active neighborhood association and is primarily composed of small, older, single-family homes with a few multi-family, commercial, and industrial properties. The St. Helens Neighborhood does not have a formally-designated neighborhood association, although it appears visually consistent with and similar to the Highlands Neighborhood in terms of it being an intact and cohesive residential neighborhood comprised of primarily smaller, older single-family homes and multi-family units, along a tree-line street grid. Additional affordable housing options in the study area include a cluster of about 20 micro and small homes on Baltimore Street just east of Oregon Way, six mobile home parks within Longview, and one mobile home park near Rainier. These neighborhoods and mobile home parks are home to various traditionally underserved populations, including individuals who are low-income, minority, disabled, elderly, youth, transit-dependent and/or those who have limited English proficiency. The residential areas that are within and directly adjacent to the project footprint are the Highlands Neighborhood and the Columbia Trailer Court, which is included in the Industrial Way and California Way Neighborhood. These two neighborhoods have a higher proportion of racial or ethnic minority and low-income individuals compared to the overall study area composition; thus, are considered environmental justice populations for the purpose of this project.

The Highlands neighborhood is a “prioritized and targeted” area in the 2014-2018 Longview Consolidated Housing Plan, which describes the neighborhood as experiencing the highest rates of poverty and level of public assistance in the Longview-Kelso area. Housing units, much of which are rental stock, need visible improvement and have deferred maintenance issues. Over time, the deferred maintenance leads to housing unit depreciation and is especially challenging for low-income and older residents who are financially unable to afford improvements (City of Longview 2015b).

5.5.2 How are conditions for environmental justice populations likely to change in the reasonably foreseeable future without the project?

All residents, including environmental justice populations, would benefit from future neighborhood improvement projects, bicycle and pedestrian improvements, and transit improvements planned within the study area. Neighborhood improvement efforts include those that address the four major focus areas identified in the Highlands Revitalization Plan: crime prevention, improving housing conditions, expanding access to economic opportunities and resources, and meeting public infrastructure needs
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(City of Longview 2008). For example, Highlands Neighborhood properties have been and will likely continue to be prioritized in various City of Longview HOME Program and Community Development Block Grant Program proposals to improve the neighborhood’s quality of housing stock and rental affordability, rent subsidies, and streetscape, including lighting and sidewalk improvements (City of Longview 2017a).

Any new and improved transit facilities would benefit environmental justice populations in the study area through enhanced transit accessibility and service, such as through projects like the RiverCities Transit facilities improvements and downtown Rainier Transit Center. Similarly, bicycle and pedestrian improvements and other roadway projects and utility projects would also benefit environmental justice populations with improved traffic operations and associated multimodal amenities as well as improved utility infrastructure. Commercial and industrial development in the future could possibly provide employment opportunities for environmental justice populations in the study area; the extent of which cannot be predicted at this time.

Future vehicular traffic volumes in the study area are forecasted to continue increasing over time with significant congestion and delays at the Industrial Way/Oregon Way intersection. Some of the planned industrial development, such as the MBTL proposal, would increase rail service on the Reynolds Lead adjacent to the neighborhoods with concentrations of environmental justice populations, resulting in more frequent trains crossing Industrial Way and Oregon Way that affect vehicular traffic operations. Adverse impacts for residents’ travel would include increased delays in vehicle, transit, pedestrian and bicycle travel and decreased reliability of travel times. Reduced travel time reliability would impact all travelers passing through the project intersection, but could have more acute adverse financial impacts to low-income persons who may incur additional expenses, such as childcare, the longer time they spend waiting in traffic.

In addition to changes in travel delay and reliability over time, the MBTL SEPA EIS disclosed unavoidable and disproportionately high and adverse effects on environmental justice populations due to noise impacts from increased rail traffic on the Reynolds Lead, vehicle delay at four public at-grade rail/roadway crossings, and increased cancer risk from diesel particulate matter emissions from increased train locomotives traveling on the Reynolds Lead, BNSF Spur, and BNSF main line. No mitigation for the adverse impacts to air quality resulting from the MBTL proposal were provided (Cowlitz County and DOE 2017).

5.5.3 What direct and indirect effects would the project likely have on environmental justice populations?

The primary adverse impacts to environmental justice populations would be short-term, occurring during the construction phase and including detours and lane closures; increased and less reliable travel time through the intersection; delay to public transit and school bus schedules; and equipment noise and vibration, airborne dust, and artificial lighting. During construction, mitigation measures would include abatement for construction dust and equipment noise, providing bilingual communication notices, maintaining vehicle, bicycle and pedestrian access to neighborhoods, and establishing detour routes that minimize neighborhood cut-through traffic.

Most of the long-term effects from the project would benefit environmental justice populations from reduced delay associated with congestion, improved safety, enhanced bicycle and pedestrian facilities, and improved travel time reliability. However, some long-term adverse impacts would also occur under both the GSA and PGSB Alternatives. The project would displace 7-10 businesses, all of which are
located in the project footprint. Under the GSA Alternative, 10 businesses would be displaced and employ a total of 121 workers. Four of these 10 businesses are currently minority-owned businesses. Of the 121 total employees who would be displaced under the GSA Alternative, 24 percent are racial minorities (non-white), 11 percent are Hispanic/Latino, and 49 percent are low-income. Under the PGSB Alternative, seven businesses would be displaced and employ 65 workers; three of the seven businesses are minority-owned businesses. Of the 65 employees who would be displaced under the PGSB Alternative, 15 percent are minority (non-white), 8 percent are Hispanic/Latino, and 42 percent are low-income. There are over 1,200 acres of vacant land in the study area, most of which is zoned for industrial development (over 900 acres) or mixed use commercial/industrial (over 180 acres), where the displaced industrial and commercial businesses could potentially relocate. With several thousand jobs located in the study area, the number of displaced jobs would be minimal (less than 5 percent).

The elevated portions of the intersection may create isolated spaces underneath that could attract crime, vandalism, and maintenance security concerns under both the GSA and PGSB Alternatives (WSDOT 2014). During final design, mitigation measures include coordinating with the City of Longview to promote safety and security by installing illumination in areas where the elevated intersection creates isolated or concealed spaces.

On-street parking along the west side of Oregon Way would be removed south of Alabama Street (approximately 15 parking spaces); on the east side of Oregon Way, on-street parking would be eliminated south of Alaska Street (3 parking spaces). This loss of on-street parking would affect Highlands Neighborhood residences that are adjacent to Oregon Way as well as any residents of the Columbia Trailer Court who park vehicles on Oregon Way. No replacement parking spaces would be provided, but all of the affected Highlands residences would retain parking that is currently available on the alley behind the homes and in driveways that connect to Oregon Way. However, driveways for one house and one multifamily housing unit immediately south of Alabama Street would be closed under the GSA Alternative.

Environmental justice populations who live along Oregon Way north of the project intersection would experience adverse impacts to their views associated with the new elevated structure and associated ramps and retaining walls. During final design, the project team would provide opportunities for community members to review and provide input on wall textures so these permanent features reflect local preferences and character and increase visual harmony with the surrounding environment. Additional details on visual impacts and mitigation are provided in Section 5.6.

In summary, the project with incorporated mitigation measures would have an unavoidable and disproportionately high and adverse impact on the residential areas near the Industrial Way/Oregon Intersection, which have high concentrations of low-income and minority populations, as well as several minority-owned business and businesses that employ minority and low-income staff.

5.5.4 Would the project contribute to cumulative effects on environmental justice populations, and would mitigation be recommended?

The project is anticipated to have both beneficial and adverse impacts on environmental justice populations. Both build alternatives include measures to reduce impacts and mitigate short-term impacts associated with construction, including abatement of construction dust and equipment noise, providing bilingual communication notices; maintaining vehicle, bicycle and pedestrian access to neighborhoods; and establishing detour routes that minimize neighborhood cut-through traffic. And, mitigation measures recommended as part of the project to address long-term impacts include
considering residents’ input on wall textures, installing illumination in isolated and concealed areas, and compensating owners of displaced businesses in accordance with the Uniform Relocation Assistance Act. As a result of the project’s proposed mitigation, the project is not anticipated to contribute to adverse cumulative effects. No mitigation for cumulative effects is recommended.

Other local efforts to address the needs of environmental justice populations are largely centered around the Community Development Block Grant Program (CDBG), which is an annually funded entitlement program from the Department of Housing and Urban Development. Projects may be comprised of housing, community facilities, public facilities, economic development, and/or public services, and must principally benefit low and moderate-income persons, prevent or eliminate blight, or meet an urgent need to public health or safety. In 2017, the City of Longview is requesting proposals for projects under the CDBG program and has an estimated $166,358 for infrastructure projects, code enforcement, down payment assistance, energy conservation, homeowner rehabilitation (minor), creation of residential units, and loans for economic development. The City also has an estimated $38,390 for stabilization and revitalization activities, such as food bank expansion, legal services to low-income families and veterans, senior services, childcare, Fair Housing training, and crime reduction program development in the Highlands, Olympic West, and Broadway neighborhoods, with an emphasis on activities addressing the needs of seniors and families with children (City of Longview 2017e).

5.6 Visual Resources

Additional detail on visual resources is provided in the Visual Discipline Report.

5.6.1 What trends have led to the present visual resources of the study area?

From its origination, Longview has been recognized as an optimal location for industry and manufacturing based on its proximity to the Columbia River. The construction of a flood management system together with the large scale industrial development along the Columbia River waterfront has led to the present urbanized appearance of the study area. The construction of a system of dikes and levees was a major earthwork project that opened up the flat riverbank terrain for development and created nearby areas planned for residential and commercial uses, shaping the character of natural environment and the built environment. The existing buildings and infrastructure are a prominent and important component of the urbanized appearance of the project area.

5.6.2 How are visual resources of the study area likely to change in the reasonably foreseeable future without the project?

Without the project, the existing appearance and visual character of the study area, including at-grade rail/roadway crossings, would generally remain as-is. Other current and reasonably foreseeable actions would continue to urbanize the study area. These actions include continued development of the Mint Farm Industrial Park, development of the Port of Longview’s Barlow Point property with large-scale industrial uses, and redevelopment of the National Register of Historic Places (NRHP)-eligible Reynolds Metals Reduction Plant Historic District by MBTL (Cowlitz County and DOE 2017). Additional commercial, neighborhood, recreational, rail, and roadway actions would also add elements to the built environment.

More frequent roadway blockages by trains would occur as a result of increased rail service that would occur as industrial lands along the Columbia River are developed. The proposed MBTL project would add 16 trains per day (Cowlitz County and Ecology 2017), and up to 8 trains per day would serve new industrial development at the Port of Longview’s Barlow Point property (Port of Longview 2011). These
trains plus the four to six trains already in service would increase trains crossing at-grade on one or more of the four intersection legs. Each train crossing event would activate gates and signals, making them more visually prominent, and result in significant vehicular traffic congestion and severe queuing. Without the project, the visual changes from more frequent train crossings and severe queuing would adversely affect the appearance of the study area.

5.6.3 What direct and indirect effects would the project likely have on the visual resources?

The primary visual change from the GSA Alternative would be the grade-separation of the Industrial Way/Oregon Way intersection that would result in a new and visually dominant structure. As this area is comprised of flat terrain, the new structure would block and alter existing views, particularly from locations adjacent to the elevated roadway. From the perspective of people traveling through the study area, the new grade-separated intersection would improve visual resources by reducing the visual distraction of rail infrastructure within the roadway by grade-separating roadway/rail crossings; providing new, elevated views of the surroundings hills; and improving local surface roads that would benefit wayfinding.

The GSA Alternative would be expected to benefit the project area’s appearance for most people living and working in the project vicinity because it would visually separate the industrial uses along the south side of Industrial Way from the Highlands Neighborhood and Highlands Trail; relocate the Reynolds Lead farther from the neighborhood and trail; and improve local surface roads that would benefit wayfinding. However, residents adjacent to the elevated section of Oregon Way would have their views blocked by a large retaining wall in the immediate foreground, which would be expected to be an adverse direct effect to visual resources from their perspective.

Similar to the GSA Alternative, the primary visual change from the PGSB Alternative would be the grade-separation of the Industrial Way/Oregon Way intersection that would result in a new and visually dominant structure. Compared to the GSA Alternative, the PGSB Alternative would have a more adverse effect on visual resources for most people living and working near the intersection because it would extend further west than the GSA Alternative; would include a bridge structure with vehicle and rail traffic traveling underneath; would retain the current location the Reynolds Lead adjacent to a neighborhood and trail; and obstruct residential views along Oregon Way with a large retaining wall in the immediate foreground that would extend further north than under the GSA Alternative.

During final design, a range of options for wall textures consistent with local projects to reflect landscape context and blend with the local environment would be developed, and residents in the adjoining neighborhoods would be engaged to review and provide input on these options. In addition, revegetation along CDID Ditch No. 3 and the wetlands on the Weyerhaeuser property would provide light and glare screening.

From the perspective of people traveling through the study area, the new grade-separated intersection would reduce the visual distractions that occur at existing roadway/rail crossings and provide new views of the surroundings hills under both the GSA and PGSB Alternatives. From the new elevated roadway and intersection, there would also be new views down into the adjacent industrial properties, which could attract travelers’ attention to these industrial elements and activities. In addition, the removal of the tall trees along West Port Way and at the southwest corner of the intersection, would reduce the natural harmony of the existing landscape. The GSA Alternative would improve project coherence by providing more visual channelization and improved wayfinding, resulting in improved visual quality for travelers. Under the PGSB Alternative, however, there would be more visual uncertainty for travelers
navigating the elevated and surface roadways, so the resulting change in visual quality for this group would be neutral.

The GSA and PGSB Alternatives are not expected to have growth-inducing indirect effects that would cause further changes in the appearance of the project area. Over time as rail service frequency and traffic volumes increase, roadway blockages would be avoided for the elevated vehicular movements and project coherence would be improved, leading to a beneficial indirect effect to visual quality.

5.6.4 Would the project contribute to cumulative effects on visual resources, and would mitigation be recommended?

The incremental impact of the GSA or PGSB Alternatives on visual resources in combination with other past, present, and reasonably foreseeable actions would be to continue to introduce more development within an industrialized urban area with some residential and recreational uses. Thus, the project would have a minor contribution to adverse cumulative effects to visual resources in the study. No mitigation for cumulative effects is recommended.

5.7 Historic and Archeological Resources

Additional detail on historic and archaeological resources is provided in the Cultural Resources Discipline Report and in the Section 4(f) Technical Analysis.

5.7.1 What trends have led to the present historic and archaeological resources conditions in the study area?

The Area of Potential Effect (APE) lies at the interface between the Chinook and Cowlitz peoples whose presence in the area dates back to 10,500 BCE and earlier when people employed highly mobile foraging strategies based on hunting large game. Strategies evolved to include hunting, fishing, gathering, and eventually farming, which supported increasing sedentism and establishment of more permanent settlements.

Euroamerican presence in the study area was established by the 1820s when the Hudson’s Bay Company was engaged in salmon trade along the Lower Columbia. The City of Longview was established in the 1920s and subsequent development included construction of transportation and flood control infrastructure. The Reynolds Lead was initially part of the former Longview, Portland, and Northern Railway alignment that was originally built to service the growing industrial infrastructure along the banks of the Columbia River. The Consolidated Diking Improvement District No. 1 (CDID #1) system of dikes was established to protect the city from flooding, including 15 miles of levees and 35 miles of stormwater collection ditches. CDID #1 currently maintains 19 miles of levees due to recent construction.

Over time, the City of Longview has continued to develop, and modernization has gradually altered or removed some of the historic properties in the study area. For example, a building at 304 Oregon Way was initially identified as potentially eligible for listing on the NRHP during field surveys in 2015; however, the property owner removed the building (independent of this project) in 2016 to make room for a back-up generator to support other functions on the property. Other changes have included extensions to the rail system, including spur lines to individual properties, such as the Port Lead that connects from the Reynolds Lead to the Port of Longview.

Two historic properties in the project’s APE were found eligible for listing on the NRHP and qualify as a Section 4(f) property under Section 4(f) of the US Department of Transportation Act of 1966: the
Reynolds Lead and the CDID Ditch No. 3. The cumulative effects study area is larger than the APE, and there are likely other historic properties throughout the study area, including segments of the railroads and stormwater collection ditches, as well as historic buildings and districts.

The majority of the APE has undergone a high level of ground disturbance by development since the City of Longview was established, particularly the southeast industrial sector of the city.

5.7.2 How are historic and archaeological resources conditions likely to change in the reasonably foreseeable future without the project?

Historic resources are most likely to be affected by redevelopment of properties, such as the redevelopment of the Reynolds Metals Reduction Plant Historic District, as proposed by MBTL, which was deemed an unavoidable and significant adverse impact (Cowlitz County and DOE 2017). Other types of projects that may affect historic resources include rail and roadway improvements, particularly if they involve property acquisition, such as the IRC extension or SR 432/SR 411 Interchange Improvements. Neighborhood improvement efforts, like the remodeling of rundown properties called for in the Highlands Revitalization Plan, could also affect historic properties.

Archaeological resources, if present, are most likely to be disturbed by projects that require grading and ground disturbance, such as construction of new roadways (e.g., the Alabama Street and Beech Street Connectors) and utility lines. New trail construction, such as the Solo View Drive Trail, would also involve ground disturbance that could disturb archaeological resources, if present.

As the study area continues to change, efforts will continue to preserve, interpret, and celebrate the area’s history. For example, Longview and the surrounding areas are served by the Stella Historical Society Museum in Longview, the R.A. Long Historical Society in Longview, the Cowlitz County Historical Museum in Kelso, and the Columbia River Ancient Resources Museum in Kalama.

5.7.3 What direct and indirect effects would the project likely have on historic and archaeological resources?

The GSA Alternative and the PGSB Alternative would both result in no direct or indirect adverse effects on the two historic resources within the project APE, and result in a Section 4(f) de minimis use. The GSA Alternative would realign a short segment of the Reynolds Lead, but would maintain the overall historic alignment of the railway. The PGSB Alternative would not alter the alignment, but would require reconstruction of the at-grade crossings of Oregon Way and Industrial Way (non-contributing elements of the historic property). Both alternatives would require extension or replacement of the twin culverts that cross under Oregon Way (non-contributing elements of the historic property) for CDID Ditch No. 3.

The historic setting and viewshed of both historic resources have been changed by modern development and the industrial nature of the area. Therefore, neither alternative would cause indirect effects to either historic resource.

No archaeological resources were identified within the project APE during the database review and pedestrian survey conducted as part of this cultural resource survey. As disclosed in the Cultural Resources Discipline Report, subsurface testing has not yet been conducted because the urbanized nature of the project area assumes that intact archaeological deposits, if present, would not be readily accessible for subsurface shovel testing. Investigations of subsurface artifacts have been deferred until later in the project design process. Therefore, impacts, if any, to archaeological resources are unknown at this time.
5.7.4 Would the project contribute to cumulative effects on the historic and archaeological resources, and would mitigation be recommended?

Although current and reasonably foreseeable actions would likely alter historic and archeological resources over time from continued development in the Longview area, they would include mitigation measures compliant with applicable laws protecting these resources.

Based on the historic resources analysis and coordination with the tribes and Washington State Department of Archaeology and Historic Preservation, the Industrial Way/Oregon Way Intersection project is not expected to significantly impact historic resources. Historic and archaeological resource coordination requirements include measures to address inadvertent discoveries. Thus, the project would not contribute to adverse cumulative effects to historic resources. No mitigation for cumulative effects is recommended.

Direct and indirect effects to archaeological resources by the project are unknown. If subsurface investigations conducted later in the project identify archaeological resources, the project will respond according to applicable regulations and consider any cumulative effects at that time. No mitigation for cumulative effects is recommended.

5.8 Land Use and Development

*Additional detail on land uses is provided in the Land Use Technical Analysis.*

5.8.1 What trends have led to the present land use and development conditions in the study area?

Longview’s industrial history dates back to the early 1900s. Over time those industries have expanded and modernized, and much of the study area, particularly around the project intersection, has become highly urbanized. The predominant land uses near the project intersection comprise industrial and commercial uses to the south and residential and commercial uses to the north. Beyond the vicinity of the intersection, land in the study area is predominantly zoned for industrial uses, including vacant and/or redevelopable land zoned for industrial and commercial development in Longview and Rainier.

5.8.2 How are land use and development conditions likely to change in the reasonably foreseeable future without the project?

The City of Longview’s Comprehensive Plan (2006) embraces the City’s industrial foundation and recognizes that the industrial lands are vital to maintaining the region’s economy. The comprehensive plan envisions a balance of industrial uses with enhanced public access to the water and mixed use or commercial development that allows for diversification of uses. The plan shows that industrial uses will remain a predominant land use within the City, with over 30 percent of the City’s land designated for industrial uses in the future. Cowlitz County’s Comprehensive Plan Update (draft 2016) similarly notes that a sustained regional economy is reliant on industry and states that the County will strive to protect sites for industry while balancing other public interests.

There are over 1,200 acres of vacant land in the study area, most of which are zoned for industrial development. Large areas zoned for industrial development within the land use study area include the Port of Longview’s Barlow Point property (280 acres), the Mint Farm Industrial Park (435 acres), and MBTL (530 acres). Master plan development of a marine terminal for liquid or dry bulk commodities is underway for Barlow Point; approximately 240 acres remain to be developed at the Mint Farm; and MBTL currently operates a bulk materials port on-site but is in the process of planning, designing, and
obtaining permits for an expanded coal export facility that would not substantially change current land use at the site (Cowlitz County and DOE 2017). Smaller scale commercial development would also likely occur in the study area over time, including the proposed 20-acre Columbia Crossing Shopping Center under construction in Rainier.

5.8.3 What direct and indirect effects would the project likely have on land use and development?

The GSA and PGSB Alternatives would convert approximately 19 or 14 acres of land, respectively, in the immediate project vicinity from existing land uses to transportation right-of-way; the majority of this land is used for industrial and commercial purposes and zoned accordingly. While this change would result in displacement of approximately 7-10 businesses, 2-3 billboards, and 1 cell/radio tower and would slightly reduce the quantity of industrial and commercial lands in the study area, there are over 1,200 acres of vacant land in the study area, most of which is zoned for industrial development (over 900 acres) or mixed use commercial/industrial (over 180 acres), where the 7-10 displaced industrial and commercial businesses could potentially relocate. No full acquisitions of residential properties would be required, and no residences would be displaced.

The GSA and PGSB Alternatives would not be expected to have growth-inducing effects; no changes in the location, magnitude, or pace of future development would result from the project. The GSA Alternative would realign a segment of the Reynolds Lead; however, neither of the GSA and PGSB Alternatives would make any changes to rail capacity of this facility or make any significant improvements that would facilitate growth in rail operations or the ability for MBTL project or future tenants at Barlow Point to establish rail-served industrial operations. Thus, these alternatives would not facilitate or inhibit development of the large industrial areas that would be served by rail transport.

The GSA and PGSB Alternatives would benefit freight truck and vehicle travel through the Industrial Way/Oregon Way intersection in terms of reduced congestion and delay, improved safety and increased travel reliability. This improvement in roadway operations is not anticipated to directly or indirectly affect how properties develop or contribute to induced growth in the study area. The GSA Alternative would be consistent with all applicable land use plans and regulations, and the PGSB Alternative would be consistent with most of the applicable land use plans and regulations. Transportation improvements from the GSA or PGSB Alternative would not be expected to induce growth in the area; they would not cause or facilitate development or redevelopment.

5.8.4 Would the project contribute to cumulative effects on land use and development, and would mitigation be recommended?

The conversion of approximately 16 acres under the GSA Alternative or 12 acres under the PGSB Alternative of land represents a conversion of less than 1 percent of the 7,140 acres of land in the study area. Under both the GSA and PGSB Alternatives, this change to land use is negligible in the context of the other anticipated land use changes expected with current and reasonably foreseeable actions, and neither alternative would contribute to induced growth in the study area. Therefore, the project would have a minimal contribution to cumulative effects on land uses and development, and no mitigation for cumulative effects is recommended.
5.9 Hazardous Materials

Additional detail on hazardous materials is provided in the Hazardous Materials Discipline Report.

5.9.1 What trends have led to the present hazardous materials conditions in the study area?

Longview has a long history of industrial development, dating back to the early 1900s. Due to the nature of industrial land uses, these properties are often the site of hazardous materials that have leaked from tanks and/or accumulated over a long period of time. Historical mapping sources show land uses in the study area from the 1970s were similar to current land uses, which reflect the industrial nature of Longview's frontage along the Columbia River with a number of large import and export facilities.

The site survey and records review conducted for the 1-mile radius from the Industrial Way/Oregon Way intersection identified 15 properties as sites of concern within the hazardous materials study area, including industrial sites, commercial sites, and railroad rights-of-way. Hazardous materials noted at one or more of these sites of concern include petroleum, compressed gas, volatile organic compounds, solvents, polycyclic aromatic hydrocarbons, metals, and creosote.

The cumulative effects study area is larger than the 1-mile project footprint buffer covered by the hazardous materials records review. Therefore, there are likely other properties that could contain hazardous materials.

5.9.2 How are hazardous materials conditions likely to change in the reasonably foreseeable future without the project?

Existing hazardous materials conditions are likely to be affected by other current and reasonably foreseeable actions involving ground disturbance that could result in exposure to existing contamination, and/or the development of new facilities that use hazardous materials, potentially creating new sites of concern. Examples of other current and reasonably foreseeable actions that could potentially change hazardous materials conditions include roadway projects like the proposed grade-separated SR 432 and Washington Way interchange, utility projects like the 2017 water line replacement in the St. Helens neighborhood, development activities outlined in the Barlow Point Master Plan (Port of Longview 2016a), and industrial site redevelopment such as the Reynolds Metals Reduction Plant. Redevelopment efforts could both expose soil and groundwater contamination, but could also provide remediation of existing hazardous materials that would otherwise be left onsite (Cowlitz County and DOE 2017). In general, new development projects remediate past contamination and result in improved conditions.

Other types of projects that may affect hazardous materials conditions include those that involve transport of hazardous materials, which could involve hazardous material spills or releases. However, projects that involve transport of hazardous materials would likely implement mitigation to reduce adverse impacts, such as cleanup and monitoring of existing hazardous materials and emergency response and clean up protocol to minimize and contain any spills or releases.

5.9.3 What direct and indirect effects would the project likely have on hazardous materials?

The GSA and PGSB Alternatives would both require either an easement (temporary or permanent) or acquisition (full or partial) of 11 of the 15 sites of concern within the hazardous materials study area. Construction activities within the portions of these sites would potentially disturb hazardous materials during construction. Direct effects of hazardous materials from either the GSA Alternative or PGSB Alternative could include contaminated soil removal during construction and potential worker exposure.
to hazardous materials. Hazardous materials impacts resulting from normal operations of the improved roadways under both the GSA and PGSB Alternatives would be primarily associated with contaminants in stormwater runoff, such as petroleum-based fuel and lubricants, compounds from tires, and automobile engine coolants such as ethylene glycol. Under both alternatives, stormwater and water quality treatment facilities would be designed to collect and retain pollutants from traffic operations providing benefits to water quality. Neither alternative would result in direct effects to hazardous materials beyond the project footprint within the larger cumulative effects study area.

One potential adverse indirect effect of the build alternatives within the project footprint would include the possible future spreading of contamination through new or relocated utility corridor conduits. Conversely, hazardous materials releases that might have occurred over time would be avoided for sites that are cleaned up during construction of the build alternatives, resulting in a beneficial indirect effect.

5.9.4 Would the project contribute to cumulative effects on hazardous materials, and would mitigation be recommended?

Although current and reasonably foreseeable actions would be anticipated to alter hazardous materials conditions over time from continued development and redevelopment in the Longview area, any adverse impacts resulting from the GSA Alternative and the PGSB Alternative would be minor and would be mitigated through proper handling of and disposal of any hazardous materials encountered during construction. The alternatives could provide benefits by remediating hazardous materials that might otherwise be left in place or potentially migrate further through soil and groundwater over time. Therefore, the GSA and PGSB Alternatives would not contribute to adverse cumulative effects to hazardous materials conditions, so no mitigation for cumulative effects is recommended.

5.10 Railroads and Public Utilities

Additional detail on railroads and public utilities is provided in the Transportation Discipline Report and the Utilities Memorandum.

5.10.1 What trends have led to the present conditions of railroads and public utilities in the study area?

Longview's history is grounded in industrial development along the Columbia River and the associated rail, marine, and road intermodal transport of freight. To serve the growing industrial infrastructure along the banks of the Columbia River, the Longview, Portland and Northern Railway was built in the 1920s and included a segment the study area. Now referred to as the Reynolds Lead, this rail segment has changed ownership numerous times and is currently jointly owned by the BNSF Railway and UPRR. The Reynolds Lead is in good condition and still in use by the Longview Switching Company (LVSC), Patriot Rail, BNSF Railway, and UPRR.

Also in the 1920s, the Columbia & Cowlitz Railway Company constructed the Columbia & Cowlitz Railway, and Weyerhaeuser built the Weyerhaeuser Woods Railroad and several spurs to serve its various logging camps throughout Washington. Today, the two rail lines connect to operate as one railroad known as the CLC. Patriot Rail acquired the CLC in 2010, renaming the Weyerhaeuser Woods Railroad portion to Patriot Woods Railroad. Patriot Rail provides service through the study area to serve Mint Farm and adjacent industrial areas, but there is no scheduled service to Weyerhaeuser due to lack of demand (Patriot Rail 2017; TDN 2015).

In 1996, the Port of Longview began development of the IRC to provide more efficient rail access to existing Port import/export facilities and to stimulate economic growth in the region. The Port
completed the IRC in 2004, providing direct access to the Port property from the nearby BNSF Railway mainline.

In the study area today, all trains on the Washington side originate from the BNSF mainline. Trains exit the BNSF mainline via the BNSF Spur to cross the Cowlitz River, and either enter the LVSC yard or travel on the IRC. At the LVSC, trains can be uncoupled as needed for further rail service where BNSF, UPRR, or Patriot Rail transport trains to specific freight destinations along the Reynolds Lead. When trains exit the Longview area, the reverse movements occur.

At the Industrial Way/Oregon intersection, up to four trains per day currently travel on the Reynolds Lead and cross the north leg (Oregon Way) and the west leg (Industrial Way) of the intersection at-grade. Up to six trains per week travel on the Port Lead and cross the east leg (Industrial Way) of the intersection at-grade. In addition to delivering freight, empty trains moving west along the Reynolds Lead pick up material before turning back east where they are often coupled with other train sets in the LVSC yard and eventually transported via the BNSF mainline to further destinations. There is no rail crossing on the south leg (SR 433) of the intersection today. Throughout the study area, there are additional at-grade and grade-separated rail/roadway crossings as well as different volumes of trains serving the Longview area.

Similar to rail, public utilities evolved to meet the needs of the study area and reflect its developed setting. Public utilities in the study area include water; sanitary sewer; storm drainage; telephone, fiber optics, and cable television; and, natural gas and electric utilities. At least 10 entities provide above and/or below ground utility services to residential, commercial, and industrial areas. The City of Longview provides municipal water, sanitary sewer service, and storm drainage. WSDOT and CDID #1 provide additional storm drainage, including drainage into CDID Ditch No. 3. Another critical component of storm drainage infrastructure in the study area is the Oregon Way Pump Station that, in combination with the six other pumping stations operated by CDID #1, is instrumental for removing stormwater and preventing local and area-wide flooding.

Telephone, fiber optics, and cable television providers in the study area include Century Link, Wave Broadband/Cascade Network, Comcast, Sprint, and NoaNet. Cascade Natural Gas delivers the area’s natural gas, and Cowlitz County Public Utility District and Bonneville Power Administration supply electrical services to the study area.

5.10.2 How are railroads and public utilities conditions likely to change in the reasonably foreseeable future without the project?

Upgrades and additional rail facilities are typically implemented by the rail owners in response to market demands. As industrial and manufacturing sectors grow, rail service often increases as a result. If the increased rail service warrants upgrades (e.g., switches, turnouts, signal system) or new facilities (sidings, tracks), then the rail owner would program these changes.

Future improvements to the Port of Longview’s IRC include adding capacity to the existing facility between the LVSC yard and its current terminus on port property. In addition, the Port would extend the IRC west across SR 433 to connect to the Reynolds Lead. To serve the Port’s Barlow Point property, a new rail facility would need to be added from the western terminus of the Reynolds Lead to the Barlow Point property. At this time, it is unknown which rail owner would undertake this extension.

Joint rail owners BNSF Railway and UPRR may upgrade the BNSF Spur, including the rail bridge over the Cowlitz River, LVSC yard, and Reynolds Lead as needed to meet rail service demand from local
businesses. The proposed development at Barlow Point and MBTL would add up to 24 trains per day to the Reynolds Lead and/or IRC that passes through the Industrial Way/Oregon Way intersection, which could prompt rail upgrades or other modifications to the rail facilities (Cowlitz County and DOE 2017; Port of Longview 2016a). Other development in the study area could generate more demand for rail service, which in turn rail owners would modify their rail infrastructure as needed.

Without implementing the project, the Industrial Way/Oregon Way intersection would have at-grade rail crossings on each of the four intersection legs in the future with substantially increased train crossing frequencies: 20 trains per day would be expected to cross the west and north legs; eight trains per day would cross the south leg; and six trains per week would cross the east leg.

Minor improvements, repair, and routine maintenance to public utilities are typically implemented by utility owners and operators as needed over time. Standard utility line upgrades would be expected in the future. Planned public utility improvements include the Mint Farm Groundwater Project, water line replacement in the St. Helens neighborhood, and various improvements to stormwater and wastewater infrastructure. Other reasonably foreseeable actions that may impact public utilities likely include projects that require grading and ground disturbance, such as construction of new roadways (e.g., the Alabama Street and Beech Street Connectors) and rail improvements (e.g., IRC extension and Reynolds Lead upgrades). Additional development of trails along the CDID #1 ditches could impact the various CDID ditches in the study area and any nearby overhead or underground utility lines. All projects that impact public utilities would need to coordinate with the relevant utility companies and relocate any affected utilities as needed.

5.10.3 What direct and indirect effects would the project likely have on railroads and public utilities?

The Industrial Way/Oregon Way Intersection Project is independent of any projects to improve rail capacity or operations. The purpose of the project is to address roadway operations, including emergency response, travel reliability for all vehicles, and freight truck and passenger vehicle movement through the intersection. Although the current rail operations influence vehicular operations at the intersection and future rail operations would have an increasing level of influence vehicle operations, this project would not alter (improve or hinder) rail operations.

While the GSA Alternative would realign a segment of the Reynolds Lead at the Industrial Way/Oregon intersection to consolidate rail facilities and minimize the structural components of the elevated intersection design, there would be no change in the resulting railroad capacity or operational conditions. Thus, the GSA Alternative would not facilitate growth in rail operations by any existing or future rail-dependent businesses. This alternative would elevate all legs of the intersection over all existing and future rail facilities (Reynolds Lead, Port Lead, and IRC). Only one surface road under the GSA Alternative that connects East Port Way to Columbia Boulevard would have an at-grade rail crossing with the Port Lead, which would continue to support approximately 6 trains per week, and the future IRC extension, which is anticipated to support 8 trains per day.

The PGSB Alternative would grade-separate the project intersection roadways that carry higher vehicular traffic volumes from the rail facilities. Some of the lower volume roadways would remain as surface roadways with at-grade rail crossings, which would be reconstructed to accommodate roadway widening. No other changes to rail facilities in the study area would occur. Similar to the GSA Alternative, the PGSB Alternative would not facilitate growth in rail operations by any existing or future rail-dependent businesses.
During construction of either build alternative, coordination would be undertaken with rail owners and operators to maintain rail operation during the relocation of the Reynolds Lead (GSA Alternative only) and any temporary changes to the at-grade rail crossings (both alternatives). Over the long-term, the project is not expected to have indirect effects on future rail operations nor preclude future improvements that rail owners may implement.

The project would require relocating public utilities within the project footprint; however, the project would coordinate with affected utility companies to ensure service disruptions are minimized or avoided during project construction and all utility service would continue in the future as it operates today. There are no anticipated indirect effects to utilities from the project.

5.10.4 Would the project contribute to cumulative effects on railroads and public utilities, and would mitigation be recommended?

Although other current and reasonably foreseeable actions would be anticipated to increase railroad operations and expand rail facilities in the future, neither the GSA Alternative nor PGSB Alternative would affect railroad operations or the ability of rail owner to improve their facilities. The project would realign a segment of one rail facility, but this would have no effect to overall rail service. Therefore, the project would not contribute to cumulative effects on railroads, so no mitigation for cumulative effects is recommended.

The GSA and PGSB Alternatives would require relocation of various public utilities, which would be mitigated within the conditions of existing utility agreements. No overall change to utility service would occur; therefore, neither alternative would contribute to cumulative effects on utilities, and no mitigation for cumulative effects is recommended.

5.11 Parks and Recreation

Additional detail on park and recreation resources is provided in the Section 4(f) Technical Analysis.

5.11.1 What trends have led to the present parks and recreation conditions in the study area?

Parks and recreation resources in the study area reflect the Longview area’s roots as a city “completely planned down to the last sidewalk and the last street name before construction ever began” (City of Longview 2017b). The planning directed growth inward, following organized lines and areas designated for business, industrial, and residential uses. Today, Longview is still an industrial city with deliberate investment in parks and recreation. Plans for expansion of current recreation facilities and building new facilities are proposed throughout the area.

Existing park, recreational, and open space resources within the cumulative effects study area include:

- Archie Anderson Park, a 6-acre park installed in 1996 and managed by the City of Longview, immediately north of the Highlands Trail with baseball diamonds, basketball hoops, tennis courts, and a playground
- Cloney Park and Cloney Park Trail, a 5-acre linear park with a 0.25-mile trail installed in 1997 and managed by the City of Longview, adjacent to Washington Way with a playground, skate park, and BMX bike track
- Highlands Trail, a 1.3-mile long trail constructed by the City of Longview in 2011 and immediately adjacent to the project intersection and serves bicyclists and pedestrians
Dibblee Point, a 107-acre natural area managed by Columbia County since 2016, along the Columbia River waterfront in Oregon that is a popular fishing location.

5.11.2 How are parks and recreation conditions likely to change in the reasonably foreseeable future without the project?

Park, recreation, and open space conditions in the cumulative effects study area would likely be enhanced in the reasonably foreseeable future. These conditions would be most directly enhanced through: redesign and redevelopment of Archie Anderson Park; redevelopment of Cloney Park and Cloney Park Trail; construction of the planned Diking District Trails that would extend the Highlands Trail both east and west along the diking ditches; construction of the Solo View Drive Trail; and development of Dibblee Point with enhanced facilities including a park host site, improved road access, restrooms, and access gates. Bicycle and pedestrian improvements, as well as construction/extension of trails could improve connectivity and access to park and recreation facilities.

Park, recreation, and open space resources could also be affected by other actions nearby that result in property acquisitions, access changes, or changes to the setting such as noise, air quality, or visual impacts or benefits.

5.11.3 What direct and indirect effects would the project likely have on parks and recreation?

The GSA and PGSB Alternatives would not physically alter the Highlands Trail or its function. With this trail located in an urban environment, the GSA and PGSB Alternatives would not significantly alter the noise, air quality, or visual setting that trail users experience on the trail. Access from Oregon Way to the Highlands Trail would be temporarily modified during construction; however, a permanent access point to the sidewalk along Oregon Way would be restored. In addition, the design of the GSA and PGSB Alternatives accounts for a future extension of the Highlands Trail planned by the City of Longview and would not preclude such an extension, although the exact alignment of the trail has not yet been determined. These impacts would be a de minimis impact under Section 4(f) of the US Department of Transportation Act. The GSA and PGSB Alternatives would not have any direct or indirect impacts on other park and recreation resources within the study area.

5.11.4 Would the project contribute to cumulative effects on parks and recreation, and would mitigation be recommended?

Most current and reasonably foreseeable actions would be anticipated to improve or have no adverse impact on parks and recreational facilities in Longview. This project would not contribute to adverse cumulative effects to parks and recreation; no mitigation for cumulative effects is recommended.

5.12 Noise Levels

Additional detail on traffic noise levels is provided in the Noise Technical Analysis.

5.12.1 What trends have led to the present noise levels in the study area?

The current noise levels in the study area are a result of residential, commercial, and industrial development, as well as transportation-related noise that has increased as land use development and population growth occurred over time, as described in Section 5.8.1. Ambient noise results from short-term events (e.g., a passing train or fire engine using sirens) and more static conditions (e.g., commercial and industrial operations, vehicle traffic). Traffic on Industrial Way, Oregon Way, SR 433, Highway 30, and local streets vary by peak traffic periods and by the percentage of truck volume (approximately 25
percent) mixed with passenger vehicles. Existing noise levels (55 to 65 dBA) are close to exceeding the FHWA’s Noise Abatement Criteria (NAC).

5.12.2 How are noise levels likely to change in the reasonably foreseeable future without the project?

Over time, land use changes, population growth, and increased traffic volumes would continue to occur, which would increase noise in the study area. Noise modeling completed for the project intersection, which accounts for increased traffic volumes, indicates that modeled worst-hour traffic noise levels for the residential areas near the project intersection would range from 59 dBA to 69 dBA. And, 32 residences and 1 trail (Highlands Trail) of the 81 modeled sites in 2040 would experience noise levels at or above the NAC threshold of 66 dBA.

Planned industrial development would substantially increase the rail service along the Reynolds Lead and IRC, which would also increase noise and vibration levels along those rail corridors. Noise analysis for the MBTL project determined that noise impacts from its daily rail service on the Reynolds Lead would exceed applicable criteria for noise impacts at noise-sensitive locations. The MBTL project may consider implementing a Quiet Zone, if approved by the Federal Railroad Administration, where trains do not need to meet train-horn requirements for at-grade crossings to reduce some of the noise generated by trains (Cowlitz County and DOE 2017).

Roadway projects that grade-separate rail/roadway crossings (e.g. grade-separation of SR 432 at Washington Way) would reduce noise by avoiding the need for train horns to sound at those crossings.

5.12.3 What direct and indirect effects would the project likely have on noise levels?

With the project, the worst-hour traffic noise levels forecasted for 2040 would have the same range as future conditions without the project, 59 dBA to 69 dBA. Of the total 81 modeled sites, 20 residences and the Highlands Trail (GSA Alternative only) are predicted to experience traffic noise levels at or above the NAC. There are fewer noise impacts from roadway traffic on residences with the project compared to without the project. This reduction in impacts occurs as a result of the grade-separated roadways; by elevating all or most of the vehicular traffic, homes along Oregon Way are shielded from some of the traffic noise. The project is not expected to result in any long-term vibration impacts.

The noise analysis is based on the transportation demand forecasting model, which includes the indirect effects of increased transportation capacity. Therefore, the noise analysis already reflects the potential delayed and distant effects of the Industrial Way/Oregon Way Intersection Project.

A noise abatement analysis, including a noise barrier evaluation, was conducted for the project. Due to the traffic noise impacts at residences and the Highlands Trail, three noise barriers were evaluated; however, none were found to be reasonable or feasible.

5.12.4 Would the project contribute to cumulative effects on noise levels, and would mitigation be recommended?

Although other foreseeable future actions are likely to increase noise in the study area, noise impacts from the project would affect fewer residences than without the project. Thus, the project would not contribute to adverse cumulative effects on sensitive noise receptors and no mitigation measures for cumulative effects are recommended.
5.13 Soils and Geologic Resources

Additional detail on soils and geology is provided in the Soils and Geology Technical Analysis.

5.13.1 What trends have led to the present soils and geologic resources conditions in the study area?

Around 13,000 to 15,000 years ago, an ice dam on glacial Lake Missoula in Montana breached and sent about 500 to 600 cubic miles of water racing to the Pacific Ocean. The cataclysmic floodwater scoured the earth in its path, creating the scablands of eastern Washington and depositing rich top soil onto western Washington and Oregon. As a result, soils in and around Longview are primarily alluvium deposited over bedrock. The alluvium (river deposit) generally consists of silt, sand, and gravel. The bedrock is approximately 100 to 150 below ground surface and generally consists of thin layers of sandstone and siltstone over basalt. When development in the study area began in the early 1900s, fill material was placed for construction of the original roadways and railways. Over 90 percent of surface soil in the study area is Caples silty clay loam, which reflects the alluvial origin of the soil material. Slopes are generally 0 to 3 percent.

Two main geologic hazards are associated with the study area: soil liquefaction and lateral spreading. Soil liquefaction involves saturated soils temporarily losing strength and behaving as a fluid in response to shaking events such as earthquakes. Based on the soil types and shallow groundwater, liquefaction may occur in the study area. Lateral spreading involves liquefied soil deposits moving downslope, creating tension cracks, settlement, and slope failure. The project elements that are adjacent to and crossing the existing CDID Ditch No. 3 would have the highest potential for lateral spreading.

Seismicity activity in western Washington is predominantly influenced by the subduction of the Juan de Fuca Plate under the North American Plate. This plate interaction generated three recent earthquakes at approximately 30-year intervals that all caused damage and liquefaction within western Washington (1949, 1965, and 2001).

5.13.2 How are soils and geologic resources conditions likely to change in the reasonably foreseeable future without the project?

Over time, soils and geologic resources are likely to continue to be impacted by geologic events, such as earthquakes resulting in liquefaction, and by activities that involve ground disturbance, such as development and infrastructure projects. Other current and reasonably foreseeable actions involving ground disturbance that could affect soils and geologic resources in the study area include roadway projects, utility projects, development activities outlined in the Barlow Point Master Plan (Port of Longview 2016a), and industrial site redevelopment such as the Reynolds Metals Reduction Plant redevelopment proposed by MBTL. Redevelopment activities that would impact soils and geologic resources include fill and grading, railroad construction, excavating soil for foundations, and road construction (Cowlitz County and DOE 2017).

5.13.3 What direct and indirect effects would the project likely have on soils and geologic resources?

The project would require bridges with foundations 100 to 150 below ground surface, retaining walls with foundations, 10 to 20 feet tall embankments, new at-grade roadways, up to 5 feet of soft soil removal and replacement, general clearing and grubbing including tree removal, and utility relocations. Indirect effects of the project could develop from geotechnical risks which could include localized slope...
failure if embankments are not properly constructed, long-term erosion problems if fill slopes are
graded too steeply, and slope failures during a large precipitation event or earthquake.

5.13.4 Would the project contribute to cumulative effects on soils and geologic resources, and
would mitigation be recommended?

Although natural geologic hazards and current and reasonably foreseeable actions from continued
development and redevelopment in the Longview area would be anticipated to alter soils and geologic
resources over time, any adverse impacts resulting from the project would be minor and would be
mitigated through use of current seismic design standards and appropriate mitigation measures
identified from a detailed geotechnical investigation performed during the design phase. Therefore, the
project would not contribute to adverse cumulative effects to soils and geologic resource conditions, so
no mitigation for cumulative effects is recommended.

5.14 Surface Water, Wetlands, and Floodplains

Additional detail on water, wetlands, and floodplains is provided in the Biological Assessment, Floodplain
Technical Analysis, Section 4(f) Technical Analysis, and Wetland Delineation Report.

5.14.1 What trends have led to the present surface water, wetlands, and floodplains conditions in
the study area?

The area surrounding the City of Longview, including its waterfront, has undergone dramatic physical
modifications to its surface water, wetlands, and floodplains. Because the lands on which Longview was
built were originally largely marshland and prone to flooding, reclamation and flood control were a
prerequisite to development. A system of dikes and levees was built around the perimeter of Longview
before the city was built. Dredged spoils were redistributed throughout what would be the residential
areas to make them suitable for development. Since then, the City and County developed ordinances to
protect critical areas such as wetlands and floodplains (City of Longview 2017c; Cowlitz County 2017).

The City of Longview and adjacent portions of Cowlitz County are located along the Columbia River. As
river traffic travels up the Columbia River from the Pacific Ocean, the Port of Longview is the first full-
service operating port and has been since its beginnings in 1921. In 2010, over 20 years after it was
initially proposed to the US Army Corps of Engineers, a stretch of the Columbia River channel around
Longview was deepened by 3 feet to allow continued navigation access and the economic benefits of
waterborne commerce. Much of the waterfront property in Longview and Rainier is occupied by
import/export facilities that use the Columbia River and/or the roads and railways to transport goods.
With all the activity around the waterfront industries, there is routine in-water work to maintain and
improve berths, docks, mooring dolphins, and other similar facilities in the Columbia River channel.

The Columbia River is also a designated floodway by the Federal Emergency Management Agency
(FEMA). The CDID #1 was established in 1923 for local flood protection and currently operates a system
of dikes including 19 miles of levees and 35 miles of stormwater collection sloughs, ditches, and drains.
The drainage ditch system is composed of a combination of manmade ditches and improved natural
channels. CDID #1 also operates seven pump stations located throughout the greater Longview area that
are used for removing stormwater and preventing local and area-wide flooding. Pump stations within
the cumulative effects study include the Oregon Way Pump Station, the Reynolds Pump Station, the
Industrial Way Pump Station, and the Pioneer Pump Station. These improvements dramatically altered
the study area’s natural water, wetland, and floodplain conditions, leaving CDID Ditch No. 3 as the only
mapped floodplain crossing the Industrial Way/Oregon Way Intersection. Within the larger cumulative
effects study area, there are numerous additional mapped floodplains such as the Columbia River, Log Pond, and Solo Slough.

The area around the project footprint is highly urbanized with a few small pockets of natural areas that include wetlands and small groves of trees. Larger natural areas, including critical areas regulated by the City of Longview and Cowlitz County, are present in the cumulative impact study area where there is less development. In the past, impacts to the resources were not regulated, but today, federal, state, and local regulations have been enacted to balance development with the conservation of natural resources.

5.14.2 How are surface water, wetlands, and floodplains conditions likely to change in the reasonably foreseeable future without the project?

Other reasonably foreseeable future actions that could affect surface water, wetlands, and floodplains include projects that require in-water work, wetland fill, roadway and rail improvement projects, and development projects. These projects would be required to obtain critical areas ordinance, shoreline, and/or floodplain permits from the applicable local agency depending on the level of impacts to these resources. For example, berth redevelopment by the Port of Longview and mooring dolphin construction by the Teevin Brothers would involve in-water work in the Columbia River channel. Developing Dibblee Point as a recreational site could also modify surface water, wetlands, and floodplains that exist on or near the site. The MBTL project is anticipated to result in 24 acres of wetland fill, but would implement applicable mitigation measures to minimize adverse impacts to wetlands (Cowlitz County and DOE 2017). The National Wetland Inventory identifies wetlands on the Barlow Point property, which could be adversely affected by industrial development on that site. Projects that increase impermeable surfaces would also contribute to additional stormwater runoff in the area that would flow into the CDID #1 stormwater management system.

5.14.3 What direct and indirect effects would the project likely have on surface water, wetlands, and floodplains?

Four wetlands were delineated within the project’s footprint: three wetlands are associated with CDID Ditch No. 3 and one wetland is located on Weyerhaeuser property just south of Industrial Way. All four wetlands near or crossed by the project are expected to be subject to the jurisdiction of the US Army Corps of Engineers under Section 404 of the Clean Water Act. Additional wetlands exist within the larger cumulative effects study area, including wetlands mapped on the Barlow Point, Mint Farm, and MBTL sites. The project would result in filling less than 1.0 acre of wetlands, removing 1.0 to 2.0 acres of wetland buffer, and filling less than 0.5 acre of a pond, a former barge turnaround, on Weyerhaeuser property. The project would obtain applicable federal, state and local permits for all wetland impacts. It is anticipated that mitigation for wetlands impacts would be accomplished through purchase of mitigation bank credits. Wetland buffer restoration and enhancement would improve overall conditions of these urbanized wetlands.

The project would enhance stormwater treatment by reducing the amount of impervious surface area and by increasing the amount of treated impervious surface area from approximately 3 to 8 percent to approximately 60 to 75 percent.

Conveyance for CDID Ditch No. 3 under Oregon Way and conveyance from the pond on the Weyerhaeuser property into CDID Ditch No. 3 under Industrial Way would be maintained either through culvert replacement or by lengthening the existing culverts. The conveyance pipe that runs from CDID Ditch No. 3, across Industrial Way, and south through the Weyerhaeuser property would either be maintained, replaced, or slightly relocated. Piers for the elevated portion of Oregon Way over CDID
Ditch No. 3 would avoid impacts to the CDID #1 facilities. Fill embankment for the elevated portion of Industrial Way west of the intersection would be designed to allow access to the CDID #1 easement and conveyance pipe from the Oregon Way Pump Station and across to the Weyerhaeuser property. A minor amount of fill in the pond on the Weyerhaeuser property would be required to accommodate the Reynolds Lead realignment under the GSA Alternative or the widened roadway footprint under the PGSB Alternative; neither would be anticipated to result in a net rise in the floodplain. In addition, the project would revegetate embankments and stabilize slopes. Access to the Oregon Way Pump Station would be maintained from surface roadways. The project would avoid impacts to the mapped floodplain in CDID Ditch No. 3 and the Oregon Way Pump Station. Any work within the CDID #1’s areas of ownership would require an encroachment review and permitting prior to beginning construction.

The project would result in no indirect effects to mapped wetlands or floodplains.

5.14.4 Would the project contribute to cumulative effects on surface water, wetlands, and floodplains, and would mitigation be recommended?

The project would have a positive cumulative impact on surface water by substantially increasing stormwater treatment within the project footprint from the current 3-8 percent impervious surfaces treated to 60-75 percent impervious surface treated.

The project would have minimal impacts on wetlands, with less than 1.0 acre of fill. Future, foreseeable actions in the study area would have much greater impacts to wetlands and surface waters, but would likely be required to provide compensatory mitigation on a project-by-project basis. The impacts to wetlands from this project are expected to have a negligible contribution to cumulative effects; thus, no mitigation for cumulative effects is recommended.

The minor changes to the culverts for CDID Ditch No. 3 would not alter this waterbody in a substantive way. The ditch would continue to operate as it currently does today. The project would have no impact on other waterbodies, such as the Columbia River, and it would not alter floodplains beyond the project intersection. Therefore, the project would not contribute to cumulative effects to surface waters or floodplains. No mitigation for cumulative effects is recommended.

5.15 Wildlife, Fish, and Vegetation

Additional detail on fish, wildlife, and vegetation is provided in the Biological Assessment.

5.15.1 What trends have led to the present wildlife, fish, and vegetation conditions in the study area?

Wildlife, fish, and vegetation conditions in the study area reflect its long industrial history. Reclamation and flood control in the early 1900s lead to a system of dikes and levees that transformed what was once largely marshland and prone to flooding into the highly urbanized study area present today. Most land in and around the study area is developed industrial, commercial, or residential, with some vacant land zoned for industrial and commercial use. The Columbia River runs through the study area between Longview and Rainier.

Outside the Columbia River, aquatic habitat in the project vicinity is limited and consists of the pond on the Weyerhaeuser property and CDID Ditch No. 3. Fish protected under the Endangered Species Act (ESA) are documented to occur in the Columbia River; however, the CDID ditches go through multiple screened weirs, culverts, and finally detention ponds before reaching the Columbia River, making the pond and CDID Ditch No. 3 inaccessible to ESA-listed fish under normal conditions. The Columbia River
channel is dredged and provides migratory habitat for fish, but poor rearing conditions for ESA-listed fish.

Vegetation is limited in the project vicinity due to the highly urbanized character of the area, consisting primarily of landscaping alongside the roads and in residential yards and a small patch of forest on the southwest corner of the project intersection. This limited vegetation is suitable habitat for common species found in urban areas, such as the dark-eyed junco and American robin; however, there is no suitable habitat for terrestrial species protected under the ESA.

5.15.2 How are wildlife, fish, and vegetation conditions likely to change in the reasonably foreseeable future without the project?

Over time, the study area would likely see further reduction in the remaining wildlife and fish habitat as currently vacant and underutilized lands continue to be developed and redeveloped, converting or degrading the limited habitat in the study area. However, projects may also include enhancement and mitigation strategies that could provide new habitat in the study area that offsets some or all impacts to wildlife, fish, and vegetation.

Other reasonably foreseeable future actions most likely to affect wildlife, fish, and vegetation include roadway and rail improvement projects, development and redevelopment projects, and projects that require in-water work. For example, developing Dibblee Point as a recreational site could modify terrestrial and aquatic habitat that exists on or near the site. Berth redevelopment by the Port of Longview and mooring dolphin construction by the Teevin Brothers would involve in-water work in the Columbia River channel. Development at Barlow Point would convert currently vacant land to industrial uses. The MBTL project’s clearing and grading is anticipated to permanently remove 26 acres of upland forest/scrub-scrub and herbaceous habitat, 24 acres of wetland habitat, and 5 acres of aquatic habitat. The project would also permanently alter 48 acres of deep-water habitat from dredging in the Columbia River (Cowlitz County and DOE 2017). All development that adversely affects wildlife, fish, and vegetation would be subject to federal, state, and local regulations. Project proponents would be required to obtain applicable permits and comply with the associated mitigation stipulations.

5.15.3 What direct and indirect effects would the project likely have on wildlife, fish, and vegetation?

The project may affect, but would not likely adversely affect one ESA-listed bird species, the streaked horned lark. While no streaked horned lark suitable nesting or foraging habitat is present in the study area, there are known populations present along the Columbia River. It would be possible that an individual bird could pass through the project area as part of localized movement; however, it is highly unlikely that streaked horned lark would be exposed to project activities. Project construction would not affect other ESA-listed wildlife. Common wildlife found in the project area could be temporarily disturbed by noise, dust, and vegetation removal; however, it is likely they could move elsewhere within the study area.

The project may affect, but would not likely adversely affect eight ESA-listed fish species and their designated critical habitat. Water in CDID Ditch No. 3 could become contaminated from construction activities or spills and then drain into the Columbia River, where it could potentially impact fish; however, with proper control measures and best management practices, this is unlikely to occur. Other fish species are unlikely to be impacted. Some species could be, but are unlikely to be, indirectly affected by more turbid water in CDID Ditch No. 3 carrying higher levels of sediment to the Columbia River, thus reducing the availability of prey for juvenile fish.
Project construction would remove some vegetation, including removal of the trees in the southwest corner of the intersection. This vegetation removal, as well as other construction activities that generate noise, dust, and human disturbance, could displace common wildlife found in the study area; however, it is likely they could move elsewhere nearby, and populations would not be adversely affected. Furthermore, the project would comply with WSDOT’s Roadside Policy Manual (2015) and revegetate using native plant material, with possible exceptions if a specific landscaping need required the specific functionality of a naturalized plant such as non-invasive Boston ivy on retaining ways to reduce reflective glare.

The project would not be expected to result in long-term or indirect effects to wildlife, fish, and vegetation.

5.15.4 Would the project contribute to cumulative effects on wildlife, fish, and vegetation, and would mitigation be recommended?

Although other current and reasonably foreseeable actions would be anticipated to reduce terrestrial and aquatic habitat in the future, the project would not adversely affect endangered species and their critical habitat in the study area. The project would remove some vegetation that could displace common wildlife found in the study area, but it is likely they could move elsewhere nearby and impacts to populations would be minimal. Therefore, the project would be expected to have a negligible contribution to cumulative effects on wildlife, fish, and vegetation; thus, no mitigation for cumulative effects is recommended.

5.16 Air Quality

Additional detail on air quality is provided in the Air Quality Technical Memorandum.

5.16.1 What trends have led to the present air quality conditions in the study area?

The present air quality conditions in the study area are a result of the mix of residential, commercial, and industrial development and use that has occurred over time and the vehicular traffic associated with that development and use. Automobiles and freight trucks are major contributors to air pollution, including in the study area where freight trucks make up over 20 percent of the vehicle mix due to the high concentration of industry and export activities. The project is located in an area that currently meets the National Ambient Air Quality Standards (NAAQS) for the seven pollutants of concern, as identified in the Clean Air Act, and is deemed as being in “attainment.” In the project's air quality study area, the amount of particulate matter in the air is monitored due to diesel emissions from ships and trucks traveling to and from the Port of Longview. The monitoring data indicates that particulate matter levels in Longview are below the NAAQS level.

5.16.2 How are air quality conditions likely to change in the reasonably foreseeable future without the project?

Future development in the area would be expected to increase air emissions from industrial activities, increased vehicular traffic volumes, and increased rail service. Air quality analysis from the project used forecasted traffic volumes to evaluate the potential change in pollutant emissions without the project. The traffic model accounts for projected traffic volumes based on future (2040) population levels, planned development, and planned changes to the transportation system. Increased rail service and changes in industrial point-source discharges to the air were not included in this analysis. Based on the growth in traffic volumes, the air quality conditions surrounding the project intersection are not
expected to substantially change. Emissions for criteria pollutants emitted from motor vehicles (CO, PM$_{10}$, PM$_{2.5}$, and ozone precursors—volatile organic compounds and oxides of nitrogen (NO$_x$)) are expected to remain under below the NAAQS. In addition, future MSAT emissions likely would be lower than present levels as a result of EPA’s national control programs that are projected to reduce mobile source air toxics (MSATs). Advances in vehicle technology and cleaner fuels are expected to dramatically reduce MSATs in the future.

Changes to air quality would be influenced by the MBTL project. Air quality analysis for that project indicates that fugitive emissions of particulate matter from coal piles and handling the coal would be the largest source of pollutant increase; however, these levels are still predicted to be below the NAAQS (Cowlitz County and DOE 2017). The increased rail service associated with MBTL would have an unavoidable and significant adverse impact on air quality related to increased diesel particulate matter emissions, which would result in areas of increased cancer risk at or above 10 cancers per million (Cowlitz County and DOE 2017).

Any other development in the study area that would increase rail service, such as the development at Barlow Point or the Mint Farm, could also increase diesel particulate matter and degrade air quality conditions in the future.

**5.16.3 What direct and indirect effects would the project likely have on air quality?**

Construction-related air quality impacts from the project would be temporary and primarily due to emissions (CO, PM$_{2.5}$, and NO$_x$) from heavy-duty construction equipment (e.g., cranes, excavators), diesel-fueled vehicles (e.g., trucks, sweepers), diesel- and gasoline-fueled generators, and project-related vehicles (e.g., worker trips, service trucks). Earthwork could create fugitive dust (PM$_{10}$). Construction impacts would be reduced by incorporating applicable measures from the Associated General Contractors of Washington Guidelines (1997), enforcing WSDOT’s no idle policy, and various other standard construction best practices. Resulting air quality impacts from construction would not be expected to contribute to cumulative effects.

The forecasted traffic volumes used to analyze the future air quality impacts of the project include vehicular traffic from all sources, including other current and reasonably foreseeable actions with the exception of increased rail service by others. Compared to pollutant emissions in the future without the project, the project would result in a small reduction in pollutant emissions due to improved traffic conditions, such as a small reduction in vehicle hours traveled and intersection delay. The project is not expected to affect regional vehicle miles traveled and so the project would not affect regional pollutant levels. Air quality conditions in the study area would slightly improve and would continue to be below the NAAQS level; the study area would continue to be in attainment.

**5.16.4 Would the project contribute to cumulative effects on air quality, and would mitigation be recommended?**

The project would improve future vehicular traffic conditions in the area, which would result in small reductions in pollutant emissions. Therefore, the project would be expected to have a beneficial cumulative impact to air quality by reducing pollutant emissions from vehicular traffic in the area. Together with the US Environmental Protection Agency’s national control programs to reduce MSAT emissions from vehicles, over time the project would be expected to have further beneficial cumulative effects to the air quality of the study area; therefore, no mitigation for cumulative effects is recommended.
5.17 Energy Use and Greenhouse Gases

Additional detail on energy and greenhouse gas is provided in the Energy and Greenhouse Gas Technical Analysis.

5.17.1 What trends have led to the energy use and greenhouse gas conditions in the study area?

Nationally, the transportation sector’s energy demand is growing. For decades, the gap between the leading sector for total US energy use, industrial, and the second leading energy use sector, transportation, has been closing (EIA 2017). Consistent with this national trend, the State of Washington’s transportation sector energy use has increased. In 2014, transportation was the highest end-use energy use sector in Washington State at roughly 29 percent, closely followed by industrial at nearly 28 percent, residential at 24 percent, and commercial at 19 percent (EIA 2016). This trend has roots locally within and around the study area that date back to when the area was first developed as an industrial town connected by road, rail, and water. Growth of the transportation sector’s energy demand in Washington State continues as interconnectivity of roadways, railways, and waterways increase.

Vehicles are a significant source of greenhouse gas emissions and contribute to global warming primarily through the burning of gasoline and diesel fuels. In Washington State, transportation accounts for nearly half of greenhouse gas emissions because the state relies heavily on hydropower (with minimal greenhouse gas emissions) for electricity generation, unlike other states that primarily rely on emission-generating fossil fuels such as coal, petroleum, and natural gas to generate electricity. The next largest contributors to total greenhouse gas emissions in Washington are fossil fuel combustion in the residential, commercial, and industrial sectors at 22 percent, followed by electricity consumption at 17 percent (EIA 2016).

Policies at the federal and state levels support energy conservation and are intended to reduce energy use, including petroleum usage, as well as greenhouse gas levels over the long-term. Fuel efficiency is largely regulated through requirements on vehicle manufacturers. The trend toward more fuel-efficient vehicles is expected to continue. Investment in transit and transit service is also helping reduce emissions.

In March 2008, the Washington Governor signed the state’s Climate Change Framework/Green-Collar Jobs Act (HB 2815). One of the Act’s elements provides statewide per capita vehicle miles traveled reduction goals as part of the state’s strategy to reduce greenhouse gas emissions. Since then, Washington has developed a coordinated set of policies and solutions that support meeting those greenhouse gas emissions reductions, such as: Executive Order 09-05 (2009), which directs implementation of state actions to reduce greenhouse gas emissions, increase transportation and fuel-conservation options for state residents, and protect the state’s water supplies and coastal areas; and Executive Order 14-04 (2014), which outlines steps to cut carbon pollution in Washington and progress development and use of clean energy technologies (DOE 2017).

5.17.2 How are energy use and greenhouse gas conditions likely to change in the reasonably foreseeable future without the project?

Population growth and economic development in and around the study area is projected to continue. Similarly, traffic volumes are increasing with population, leading to increased automotive emissions; this trend is expected to continue in the reasonably foreseeable future. The traffic analyses for the project considered the long-term traffic forecasted to operate within the study area. Without the project,
greenhouse gas emissions (measured in carbon dioxide equivalent \( [\text{CO}_2\text{e}] \)) and energy consumed (measured in million British thermal units \([\text{mBTUs}]\)) would increase in the future compared to the existing conditions due to increased traffic volumes predicted to occur with regional growth.

For the Industrial Way/Oregon Way intersection in 2040, the total estimated annual operational energy consumed is about 148,000 mBTU per year, the total estimated emissions is about 10,000 metric tons of \( \text{CO}_2\text{e} \) per year, and the total estimated gallons of gasoline used is about 1.2 million gallons per year. This represents an increase over existing (2015) conditions at the intersection of about 59,000 mBTU per year in energy consumed, an increase of about 4,000 metric tons of \( \text{CO}_2\text{e} \) per year in emissions, and an increase of about 471,000 gallons of gasoline used per year. The intersection would also continue to require routine maintenance activities over time. Annualized over 20 years, routine maintenance activities are estimated to result in 156 mBTU per year in energy consumed and 11 metric tons of \( \text{CO}_2\text{e} \) per year in emissions.

All other current and reasonably foreseeable actions would be expected to impact energy use and greenhouse gas emissions to varying degrees based on the nature and extent of the action. Projects most likely to impact energy and emissions are large industrial projects like Barlow Point and MBTL, commercial development projects such as the Columbia Crossing Shopping Center, and large infrastructure projects including the increased rail service and future upgrades to the Reynolds Lead and IRC. Impacts from these actions could stem from the amount of energy used and greenhouse gases emitted to construct and operate the future actions, as well as the associated change in road, rail, and waterway traffic and associated energy consumption and emissions. For example, the MBTL SEPA EIS determined total annual emissions related to project operations inside Cowlitz County would be approximately 40,000 metric tons of \( \text{CO}_2\text{e} \) per year in 2028 when the coal export terminal would be fully operational (Cowlitz County and DOE 2017). MBTL proposes mitigation measures, such as using energy conservation measures in buildings and mechanical systems limiting vehicle idling, applying various low-power standby or soft-start modes, managing power loads efficiently, and providing compensatory mitigation for greenhouse gas emissions that are not mitigated through other means.

5.17.3 What direct and indirect effects would the project likely have on energy use and greenhouse gases?

The forecasted traffic volumes used to analyze energy impacts of the project include both existing and future transportation improvements and related energy use; thus, the analysis in that section addresses cumulative effects as well as direct and indirect impacts.

The project is expected to improve traffic conditions at and near the project intersection over time as compared to future conditions without the project. Project outcomes that would lessen energy consumption and greenhouse gas emissions include reduced congestion and delay and improved travel flow and reliability.

In 2040, the project’s total estimated operational energy consumed during the AM and PM peak periods is approximately 159,000-165,000 mBTU per year, and total estimated gallons of gasoline used is about 1.3 million gallons per year. Compared to future 2040 annual conditions without the project, the project would reduce energy consumption during the AM and PM peak periods by 12-16 percent. A similar reduction in greenhouse gas emissions would occur as a result of the project.

The project would also impact energy use and greenhouse gases through construction and maintenance activities. Annualized over 20 years, project construction and routine maintenance activities are estimated to result in 3,100-3,200 mBTU per year in energy consumed and approximately 216 metric
tons of CO₂e per year in emissions. The scale of energy consumption for project construction would be negligible compared to energy production in Washington, the United States, or globally.

Overall, the project would not result in significant direct or indirect impacts to energy use, and would be expected to provide an overall benefit to reducing greenhouse gas emissions.

5.17.4 Would the project contribute to cumulative effects on energy uses and greenhouse gases, and would mitigation be recommended?

The project would result in minor energy consumption, and therefore, would have minimal contributions to cumulative effects on energy resources. No mitigation for cumulative effects is recommended.

The project would reduce greenhouse gas emissions and provide a beneficial cumulative effect on greenhouse gases. No mitigation for cumulative effects is recommended.

5.18 Climate Change

Additional detail on climate change is provided in the Energy and Greenhouse Gas Technical Analysis.

5.18.1 How did the project team consider climate change?

All of WSDOT’s major capital projects undergoing environmental review consider climate change and extreme weather events as part of the agency’s strategic plan commitment. The project team examined available information about climate trends and the results of WSDOT’s assessment of vulnerable infrastructure. WSDOT is aware that past trends for a specific resource (water, habitat, air) may not be accurate predictions for the future. Instead, scientifically-based projections of the changing climate are needed as part of the analysis of cumulative effects.

The results of WSDOT’s Climate Impact Vulnerability Assessment (WSDOT 2011) show the Industrial Way/Oregon Way intersection to have a low vulnerability to climate-related threats. The project may experience extreme wind, rain, and snow storms and more days of extreme heat expected from regional changes in climate, but the area of the project footprint appears resilient to future climate-related effects. The project would be located out of the zone for potential impacts from sea-level rise, but a portion of the project footprint is within the 100-year floodplain. To reduce the likelihood of localized flooding, the project would include elements that address stormwater flow.
6.0 REFERENCES


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Attachment A. Cumulative Impact Assessment Methodology Memorandum
1. **Methodology Introduction**

This memorandum presents the methodology used to analyze potential effects of the proposed Industrial Way/Oregon Way Intersection Project on cumulative effects. This analysis is reported in the Cumulative Effects Discipline Report and will be summarized in the project’s environmental impact statement (EIS).

2. **Study Area**

The study area for cumulative effects is shown in Figure A-1 below. The study area encompasses the area of direct and indirect impacts resulting from the project as well as potential impacts resulting from other current and reasonably foreseeable actions in the region. The cumulative study area follows logical boundaries, such as neighborhoods and census blocks, as was defined specifically for cumulative effects through methods described later in this memo.
Figure A-1. Cumulative Effects Study Area

Legend:
- Orange: Study Area
- Cyan: CDID Ditch
- Orange: Project Footprint
- Dashed Line: State Boundary

Scale:
0 0.5 1 Miles

N
3. **Regulations, Standards, or Guidelines**

The cumulative effects analysis is based on the eight-step process outlined in Washington State Department of Transportation’s (WSDOT) *Guidance on Preparing Cumulative Impact Analyses* (February 2008). The eight steps are as follows:

1. Identify the resources that may have cumulative effects to consider in the analysis
2. Define the study area and timeframe for each affected resource
3. Describe the current health and historical context for each
4. Identify direct and the indirect impacts that may contribute to a cumulative impact
5. Identify other historic, current, and reasonably foreseeable actions that may affect resources
6. Assess potential cumulative effects to each resource; determine magnitude and significance
7. Report the results
8. Assess and discuss potential mitigation issues for all adverse impacts

4. **Data Gathering**

4.1 **Current Status and Historical Context of Resources**

The historical context and current status/viability of each resource identified for cumulative impact analysis is described based on a variety of resources, including:

- U.S. Census Bureau data
- Historical maps
- Aerial photographs
- Fieldwork
- Environmental baseline conditions documented in the project's environmental reports and other analyses

4.2 **Environmental Resources**

The information gathered in the analyses for each resource was used to determine which resources will be analyzed for cumulative effects. It was determined to include all resources with direct impacts in the cumulative effects analysis:

- Air Quality
- Biological Resources
Current and reasonably foreseeable actions are considered in the cumulative effects analysis. The list of projects was compiled from, but not limited to, the following:

- Bonneville Power Administration Transmission Projects List (2015)
- City of Longview Capital Improvement Program (2015)
- City of Longview City Council’s Strategic Initiatives 2015 Work Plan (2015)
- City of Longview Comprehensive Plan (updated 2006)
- City of Longview Parks & Recreation 6-year Plan (updated 2009)
- City of Longview Stormwater Management Program (2014) and Monitoring Plan
- City of Longview 2015 Work Plan
5. **Analytical Techniques**

5.1 **Geographic and Temporal Scope**

For each resource included in the cumulative effects analysis, the geographic and temporal scope was defined based on WSDOT’s *Guidance on Preparing Cumulative Impact Analyses*. In general, each spatial and temporal scope ranges from a date in the past that captures trends that have led to the current...
state of the resource to a date in the future based on adopted planning documents that relate to actions that will impact the resource. Justification for each resource’s spatial and temporal scope is provided.

5.2 Cumulative Effects

Cumulative effects are the summation of impacts on a resource resulting from the incremental impact of the action when added to other current and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes those actions. In other words, cumulative effects represent all of the direct and indirect impacts of the proposed project, along with the impact of other current and reasonably foreseeable future projects within the area surrounding the proposed project. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time. For example, global climate change is also a result of cumulative effects.

The cumulative effects analysis builds upon information derived from the direct and indirect impacts analyses presented in the discipline analyses for each environmental resource. Cumulative effects are considered separately for each resource. To analyze the Industrial Way/Oregon Way Intersection Project’s contribution to cumulative effects, the analysis evaluates the impact on the environment resulting from each alternative when added to other current and reasonably foreseeable actions, summarizes the impacts, and identifies the contribution of the proposed project to cumulative effects in the affected area. The analysis considers whether implementation of the build alternative makes the other reasonably foreseeable actions more likely to occur, and thus whether the build alternative increases or decreases direct and indirect impacts to resources as a result of those reasonably foreseeable actions.

Where feasible, the cumulative effects analysis is quantitative. Qualitative analyses are also presented where quantitative data are not available and to provide a comprehensive understanding of the resource and how it is affected.

5.3 Potential Mitigation

Analyzing how the effects of the proposed project may combine with other effects provides opportunities to use elements of mitigation (avoidance and minimization) throughout the development of the project. If unavoidable, adverse cumulative effects remain, compensatory mitigation that could be implemented by the appropriate party is described or suggested. Though cumulative effects caused by other projects will not be mitigated as part of the Industrial Way/Oregon Way Intersection Project, this project discloses the impact and describes mitigation that may be planned or suggests possible mitigation to those agencies responsible for the cumulative impact.

6. Limitations and Constraints

Unlike direct impacts, quantifying cumulative effects can be difficult since a large part of the analysis requires projections about what may happen in a study area. The cumulative effects analysis focuses on actions “that are likely to occur or probable, rather than those that are merely possible” (FHWA Questions and Answers Regarding the Consideration of Indirect and Cumulative Impacts in the NEPA Process, accessed September 2015). Even so, plans and circumstances may shift in the future and change anticipated future actions.

Any data gaps, limitations, or obstacles from the analysis of a specific environmental resource are acknowledged and considered, as appropriate, in the cumulative effects analysis. The strengths and/or
weaknesses of the cumulative effects analysis of each environmental resource are disclosed in addition to the analytical methods and assumptions used.
Attachment B. List of Other Current and Reasonably Foreseeable Projects
Other Current and Reasonably Foreseeable Projects

Table B-1 below provides details for each identified other current and reasonably foreseeable action, which are the projects evaluated to characterize conditions in the foreseeable future under each resource in Section 5.0. The number listed in Table B-1 for each project corresponds to the numbers on the other current and reasonably foreseeable projects map (Figure 8) in Section 5.0.
## Table B-1. List of Other Current and Reasonably Foreseeable Projects

<table>
<thead>
<tr>
<th>NO.</th>
<th>NAME</th>
<th>DESCRIPTION</th>
<th>EST. DATE OF COMPLETION</th>
<th>SOURCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sidewalks along SR 432 near Industrial Way</td>
<td>Sidewalk improvements.</td>
<td>Unknown</td>
<td>Washington Department of Transportation (WSDOT), Bicycle Facilities and Pedestrian Walkways Plan (2008a)</td>
</tr>
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<td>2</td>
<td>Sidewalks on Lewis and Clark Bridge</td>
<td>Sidewalks for non-motorized travel across bridge.</td>
<td>Unknown</td>
<td>WSDOT, Bicycle Facilities and Pedestrian Walkways Plan (2008a)</td>
</tr>
<tr>
<td>3</td>
<td>Solo View Drive Trail</td>
<td>Trail connection from Ridgecrest development area to other West Longview trails via a trail between Memorial Park Drive and Solo View Drive.</td>
<td>Unknown</td>
<td>Cowlitz-Wahkiakum Council of Governments (CWCOG), Cowlitz Regional Trails Plan (2006)</td>
</tr>
<tr>
<td>4</td>
<td>Diking District Trails</td>
<td>Additional trail connectivity along the CDID #1 dikes in Longview.</td>
<td>Unknown</td>
<td>City of Longview, Parks &amp; Recreation Comprehensive Plan (2016)</td>
</tr>
<tr>
<td>5</td>
<td>Dibblee Point Developed Recreational Site</td>
<td>Developed recreational site at the 107-acre Dibblee Point, a sandy and forested spit west of Rainier along the Columbia River, including a park host site, improved road access, restrooms, and access gates.</td>
<td>Unknown</td>
<td>The Daily News, &quot;Columbia County to manage Dibblee Point riverfront property&quot; (2016)</td>
</tr>
<tr>
<td>6</td>
<td>Archie Anderson Park Redesign and Redevelopment</td>
<td>Existing facility upgrades, and new facilities and programs at 6-acre park, including: community garden, basketball courts, children’s play area, picnic shelter, multi-use building, parking lots, public plaza, t-ball and baseball fields, and landscaping.</td>
<td>2017</td>
<td>City of Longview, Archie Anderson Park Master Plan (2010)</td>
</tr>
<tr>
<td>7</td>
<td>Cloney Park Redevelopment</td>
<td>Existing facility replacement including trail upgrade, shelter replacement, drainage for BMX park, resurfaced skate bowl, bleacher installation, tree replacement, and drinking fountain replacement.</td>
<td>2019</td>
<td>City of Longview, Cloney Park Information Page (2017)</td>
</tr>
<tr>
<td>NO.</td>
<td>NAME</td>
<td>DESCRIPTION</td>
<td>EST. DATE OF COMPLETION</td>
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<td><strong>INDUSTRIAL DEVELOPMENT</strong></td>
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<td>8</td>
<td>Barlow Point Development</td>
<td>New terminals, rail extension to property, and new entrance to property on SR 432. Development concepts include multiuse, dry-bulk cargo loading, wharf improvements, storage areas, auto import/export, liquefied natural gas terminals, biofuel import/blending/processing/transfer, etc. In Feb. 2017, City Council approved proposal to change comprehensive plan land use designation for Barlow Point from Mixed Use Residential/Commercial to Heavy Industry.</td>
<td>Unknown</td>
<td>Port of Longview, Barlow Point Master Plan Phase I Feasibility Study (2016)</td>
</tr>
<tr>
<td>9</td>
<td>Berth 1 and 2, Warehouse Complex Redevelopment</td>
<td>Redevelopment of Berth 1 and Berth 2 and the warehouse complex.</td>
<td>Unknown</td>
<td>Port of Longview, Revised Comprehensive Scheme of Harbor Improvements (2015)</td>
</tr>
<tr>
<td>11</td>
<td>Millennium Bulk Terminals—Longview (MBTL)</td>
<td>Proposed shipping terminal to export coal at the site of the former Reynolds Metals aluminum plant adjacent to the Columbia River near Longview. Site is approximately 190 acres with work in the Columbia River.</td>
<td>2028</td>
<td>MBTL, SEPA Final EIS (2017)</td>
</tr>
<tr>
<td>12</td>
<td>Mint Farm Industrial Park</td>
<td>Mix of currently-occupied, reserved, and for sale land parcels on 445-acre site, including 2 wetland mitigation sites. As of April 2017, over 124 acres have been fully developed, around 241 acres are developable or pending sale, and about 80 acres are wetland reserves.</td>
<td>Ongoing</td>
<td>Mint Farm, Site Infocenter (2017)</td>
</tr>
<tr>
<td>13</td>
<td>Teevin Brothers Mooring Dolphins Construction</td>
<td>Seven new mooring dolphins and two new single pile structures at river mile 66.5 of the Columbia River to provide mooring opportunities for tugs, barges, and shallow draft vessels midway between Portland and Astoria.</td>
<td>2017</td>
<td>Oregon Department of Transportation (ODOT), ConnectOregon Final Recommendation Report (2016)</td>
</tr>
<tr>
<td><strong>COMMERCIAL DEVELOPMENT</strong></td>
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<tr>
<td>14</td>
<td>Columbia Crossing Shopping Center</td>
<td>New 20-acre shopping center on vacant property in Rainier, including: retail, farmers markets, and restaurants.</td>
<td>2017</td>
<td>The Daily News, &quot;Rainier shopping center soon to break ground&quot; (2016)</td>
</tr>
<tr>
<td>NO.</td>
<td>NAME</td>
<td>DESCRIPTION</td>
<td>EST. DATE OF COMPLETION</td>
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<tr>
<td>15</td>
<td>Highlands Revitalization Plan Projects</td>
<td>Neighborhood revitalization projects, including: permanent Highland Community Center in or adjacent to Archie Andersen Park; continued sidewalk, curb ramp, improve street lighting, alley improvement, and alley lighting; and housing and infrastructure improvements</td>
<td>Ongoing</td>
<td>City of Longview, Highlands Neighborhood Revitalization Plan Steering Committee Recommendations (2008)</td>
</tr>
<tr>
<td>16</td>
<td>BNSF Spur Improvements</td>
<td>Improvements to the current rail infrastructure, as needed to support future development in the area. Improvements could include: new connections, a double track rail line along Industrial way, and additional capacity to the Cowlitz River Bridge.</td>
<td>Unknown</td>
<td>CWCOG, SR 432 Highway Improvements and Rail Realignment Study Final Concept Development Report (2014)</td>
</tr>
<tr>
<td>17</td>
<td>Reynolds Lead Upgrades</td>
<td>Improvements to the current rail infrastructure, as needed to support future development in the area. Improvements could include: new connections, a double track rail line along Industrial way, and additional capacity to the Cowlitz River Bridge.</td>
<td>Unknown</td>
<td>CWCOG, SR 432 Highway Improvements and Rail Realignment Study Final Concept Development Report (2014)</td>
</tr>
<tr>
<td>18</td>
<td>Rail Extension to Barlow Point</td>
<td>Extension of the Reynolds lead to Barlow Point from the existing termination point of the Reynolds lead a half mile east of the property.</td>
<td>Unknown</td>
<td>Port of Longview, Barlow Point Master Plan Phase I Feasibility Study (2016)</td>
</tr>
<tr>
<td>19</td>
<td>Industrial Rail Corridor Improvements</td>
<td>Expansion of current Industrial Rail Corridor to accommodate growth, via an additional through track and six additional rail sidings about 8,500 feet long.</td>
<td>2020</td>
<td>CWCOG, 2040 Regional Transportation Plan (2015)</td>
</tr>
<tr>
<td>20</td>
<td>Industrial Rail Corridor Extension</td>
<td>Extension of current Industrial Rail Corridor across Oregon Way and connecting with rail line west of intersection.</td>
<td>Unknown</td>
<td>Port of Longview, Barlow Point Master Plan Phase I Feasibility Study (2016)</td>
</tr>
<tr>
<td>21</td>
<td>Alabama Street Connector</td>
<td>New connection between 7th Avenue, California Way, and Oregon Way that provides an alternative route to the parallel, designated route for SR 432.</td>
<td>Unknown</td>
<td>CWCOG, SR 432 Highway Improvements and Rail Realignment Study Final Concept Development Report (2014)</td>
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<tr>
<td>22</td>
<td>Beech Street Connector</td>
<td>New connection from Beech Street to 9th Avenue from Tennant Way to Oregon Way that provides alternative route to the parallel, designated route for SR 432.</td>
<td>Unknown</td>
<td>CWCOG, SR 432 Highway Improvements and Rail Realignment Study Final Concept Development Report (2014)</td>
</tr>
<tr>
<td>23</td>
<td>Grade-separated SR 432 at Washington Way</td>
<td>Access road and bridge over railway that provides grade-separated access to Weyerhaeuser and other properties. Location and form of improvement is not yet determined.</td>
<td>Unknown</td>
<td>CWCOG, SR 432 Highway Improvements and Rail Realignment Study Final Concept Development Report (2014)</td>
</tr>
<tr>
<td>24</td>
<td>Improvements at California Way/Industrial Way Intersection</td>
<td>Intersection improvements that could include either include grade-separation, or at-grade improvements that combine the two closely-spaced intersections of SR 432/3rd Avenue at Industrial Way and SR 432/Industrial Way at California Way into one improved signalized intersection.</td>
<td>Unknown</td>
<td>CWCOG, SR 432 Highway Improvements and Rail Realignment Study Final Concept Development Report (2014)</td>
</tr>
<tr>
<td>25</td>
<td>Improvements at the SR 432/SR 411 Interchange</td>
<td>Various improvements to enhance connectivity of city street grid that could include: a double left turn lane from the westbound off-ramp to 3rd Avenue; reconstruction of the eastbound on-ramp terminal and the westbound off-ramp departure from SR 432; replacement of ramps in the southwest interchange quadrant with intersections and other city street improvements.</td>
<td>Unknown</td>
<td>CWCOG, SR 432 Highway Improvements and Rail Realignment Study Final Concept Development Report (2014)</td>
</tr>
<tr>
<td>26</td>
<td>SR 432/Washington Way Signal Replacement</td>
<td>Replacement of signals at intersection.</td>
<td>2020</td>
<td>CWCOG, Metropolitan and Regional Transportation Plan Interim Update (2014)</td>
</tr>
<tr>
<td>27</td>
<td>Lewis and Clark Bridge Navigation Light Replacement Project</td>
<td>A joint ODOT/WSDOT navigation light replacement project.</td>
<td>Unknown</td>
<td>Oregon Transportation Commission Meeting’s July (2017) Agenda and confirmed over email by WSDOT</td>
</tr>
<tr>
<td>28</td>
<td>U.S. 30 Congestion Improvements at Lewis and Clark Bridge</td>
<td>Recommended potential solutions include: installation of a non-conventional signal to improve the flow of northbound traffic across the bridge; installation of a Dynamic Queue Warning system for eastbound traffic or reconfiguration of eastbound traffic to address the safety concerns of slow/stopped queues alongside high-speed, downhill flows; and widening the uphill bridge approach for an uphill acceleration lane allowing for a smoother traffic flow approaching the bridge.</td>
<td>Unknown</td>
<td>Oregon Department of Transportation Study (2018) as reported in The Chronicle and The Daily News on January 18, 2018.</td>
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<td>29</td>
<td>River Cities Transit (RCT) Facilities Improvements</td>
<td>Construction of additional facilities to provide for additional staffing and fleet resulting from service expansion.</td>
<td>2018</td>
<td>RCT, Facilities and Governance Study Final Report (2014)</td>
</tr>
<tr>
<td>30</td>
<td>Transit Center in downtown Rainier</td>
<td>Demolition a gas station and construction of a transit center for the CC Rider.</td>
<td>2020</td>
<td>CWCOG, Metropolitan and Regional Transportation Plan Interim Update (2014)</td>
</tr>
<tr>
<td>31</td>
<td>Mint Farm Groundwater Project</td>
<td>Drinking water quality improvements at the Mint Farm Regional Water Treatment Plant.</td>
<td>Unknown</td>
<td>City of Longview, Longview Drinking Water Improvement Study (2016)</td>
</tr>
<tr>
<td>32</td>
<td>Stormwater Improvements</td>
<td>Improvement and expansion of Port of Longview’s stormwater system, including low impact development biofiltration ponds, modular wetlands, and swales.</td>
<td>2017</td>
<td>Port of Longview, Revised Comprehensive Scheme of Harbor Improvements (2015)</td>
</tr>
<tr>
<td>33</td>
<td>Wastewater Improvements</td>
<td>Improvement and expansion of Port of Longview’s berth area containment and wastewater treatment facility, including a 1.5 million gallon treatment pond, piping and facility improvements.</td>
<td>2018</td>
<td>Port of Longview, Revised Comprehensive Scheme of Harbor Improvements (2015)</td>
</tr>
<tr>
<td>34</td>
<td>2017 Water Line Replacement</td>
<td>Replacement of water main with approximately new 6-inch and 8-inch water main, disconnection and reconnection of 75 private water services, installation of 2 fire hydrants, and street and alley restoration.</td>
<td>2017</td>
<td>Builders Exchange of Washington, Project #LV26 (2017)</td>
</tr>
</tbody>
</table>