Chapter 2. Developing the Alternatives

Chapter 2 provides information about the three alternatives studied in detail in this EIS, project construction, and additional alternatives that were considered for the project but were dismissed from further analysis.

2.1. What solutions are being considered?

Three alternatives are being evaluated to address the project’s purpose and need:
» No Build Alternative
» Grade-Separated Option A (GSA) Alternative
» Partial Grade-Separated Option B (PGSB) Alternative.

Each alternative is summarized in Table 2-1 and described in more detail in the following sections.

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 (EIS) 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 1–2 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 at-grade east of the intersection (Crossings A and B in Figure 1-2). 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 2-2). 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 east of the intersection (Crossing C in Figure 1-2). 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 2-2).

» 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 2-2; Crossing D in Figure 1-2). 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.

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 2-1. 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 2-1, Detail 1). A new surface roundabout at the Oregon Way/Alabama Street intersection (Figure 2-1, 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
### Table 2-1: Summary Comparison of Key Elements of Alternatives

<table>
<thead>
<tr>
<th></th>
<th>NO BUILD ALTERNATIVE</th>
<th>GSA ALTERNATIVE</th>
<th>PGSB ALTERNATIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial Way/Oregon Way Intersection</td>
<td>» Surface signalized intersection</td>
<td>» Elevated signalized intersection</td>
<td>» Elevated signalized intersection</td>
</tr>
<tr>
<td></td>
<td></td>
<td>» Surface roundabout with all through and turning movements</td>
<td>» Surface roundabout</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>» Unsignalized, surface intersection with right-in/ right-out turn movements only</td>
</tr>
<tr>
<td>Oregon Way/Alabama Street Intersection</td>
<td>» Unsignalized, surface intersection with all through and turning movements</td>
<td>» New one-way road to access properties along Oregon Way between Industrial Way and Alabama Street</td>
<td>» 14th Street improved to two-way local street</td>
</tr>
<tr>
<td></td>
<td></td>
<td>» New one-way road to access businesses on north and south sides of Industrial Way between Oregon Way and Columbia Boulevard</td>
<td>» New two-phase signalized intersection added on Industrial Way between Oregon Way and Columbia Boulevard</td>
</tr>
<tr>
<td></td>
<td></td>
<td>» West Port Way and East Port Way reconstructed to one-way loop road</td>
<td>» West Port Way and East Port Way reconstructed to one-way loop road</td>
</tr>
<tr>
<td>Local Roads</td>
<td>» No changes to local roads</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reynolds Lead</td>
<td>» No realignment or change to existing at-grade crossings</td>
<td>» Realigned to cross Oregon Way and Industrial Way under elevated intersection</td>
<td>» Widened at-grade crossings of Oregon Way and Industrial Way</td>
</tr>
<tr>
<td>Industrial Rail Corridor</td>
<td>» Port of Longview plans a west extension across SR 433</td>
<td>» Port of Longview plans a west extension across SR 433</td>
<td>» Port of Longview plans a west extension across SR 433</td>
</tr>
<tr>
<td>At-grade Rail Crossings</td>
<td>» 4 at-grade crossings on intersection approach legs</td>
<td>» 0 at-grade crossings on intersection approach legs</td>
<td>» 0 at-grade crossings on approach legs for elevated portion of the intersection (higher traffic volumes)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>» 3 at-grade crossings on approach legs for surface portion of the intersection (lower traffic volumes)</td>
</tr>
<tr>
<td>Access to Weyerhaeuser Industrial Complex</td>
<td>» Gates 3 and 4 remain open</td>
<td>» Gates 3 and 4 consolidated and reconfigured</td>
<td>» Gates 3 and 4 consolidated and reconfigured</td>
</tr>
<tr>
<td>Pedestrian/Bicycle Facilities</td>
<td>» No changes; non-contiguous sidewalks; no bicycle lanes or paths</td>
<td>» New shared-use path and contiguous sidewalks</td>
<td>» New shared-use path and contiguous sidewalks</td>
</tr>
</tbody>
</table>
Table 2-2: Existing and Future Frequency of Rail Service

<table>
<thead>
<tr>
<th></th>
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<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.

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 2-1, 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

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 2-2. 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.
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 2-2, 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 2-2, 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 2-2, 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.

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 2-3 provides a summary and comparison of key construction activities required for the two build alternatives, which are further described below.

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.

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.
Figure 2-1: 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

This graphic is conceptual in nature and subject to change.
Figure 2-2: 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.
Table 2-3: Summary of Construction Activities

<table>
<thead>
<tr>
<th></th>
<th>GSA ALTERNATIVE</th>
<th>PGSB ALTERNATIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction Duration</td>
<td>5 years</td>
<td>3.5 years</td>
</tr>
<tr>
<td>Detours and/or Temporary Roads</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Closure of Oregon Way</td>
<td>Up to 1.5 years</td>
<td>No closure</td>
</tr>
<tr>
<td>Realignment of Reynolds Lead</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Utility Relocations</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Realigned Access Points/Driveways</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Property Acquisitions</td>
<td>15 full acquisitions, 26 partial acquisitions</td>
<td>12 full acquisitions, 21 partial acquisitions</td>
</tr>
<tr>
<td>Easements</td>
<td>59 temporary easements, 2 permanent easements</td>
<td>71 temporary easements, 2 permanent easements</td>
</tr>
</tbody>
</table>

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.

2.2. What other alternatives were looked at?

The project undertook a practical design approach to developing alternatives that would seek the most reasonable low cost solutions to meet the project’s purpose and need statement. The practical design approach started from the ground and built up by seeking alternatives that provide solutions fitting the context of the area while adding the best value to the overall project. This approach first considered what could be done “on the ground” such as improving lane channelization, changing signal timing, implementing travel demand management/transportation systems management solutions, and even rerouting traffic to other roads to reduce the vehicular demand on the intersection. Three traffic rerouting concepts were developed and analyzed. Each concept was eliminated from further analysis because it could not sufficiently reduce traffic congestion at the intersection.

The next step taken by the project team was to develop and analyze incremental strategic capital solutions, starting with preliminary alternatives that would make roadway capacity improvements at the existing intersection, then developing more complex preliminary alternatives by adding grade-separated design elements for the heaviest vehicular movements, and eventually building up to preliminary alternatives with a fully grade-separated intersection. The project team identified a preliminary range of alternatives that included nine preliminary design alternatives (one at-grade alternative, two grade-separated alternatives, and six partial grade-separated alternatives) and the No Build Alternative. The preliminary design alternatives were developed by the project team and incorporated feedback gathered through stakeholder input, the public scoping process, and four public open houses. Using a two-step screening process, the preliminary design alternatives were evaluated against screening criteria to
determine which alternatives should be advanced for further consideration and which should no longer be considered. The first screening focused on operational performance of each preliminary design alternative. The screening criteria for this step included:

- Congestion relief: average vehicle delay without train blockages
- Congestion relief: average vehicle delay with train blockages
- Travel reliability: average vehicle recovery time after train blockage ends
- Travel reliability: probability any vehicle trip is interrupted by train blockage
- Travel reliability: probability emergency response trip is interrupted by train blockage

The second screening focused on context and cost. Screening criteria for this step included:

- Safety: number and severity of conflict points
- Local economy: impacts to business properties
- Local travel circulation connectivity: out of direction travel
- Community: impacts to residential properties
- Construction staging/phasing: feasibility and likelihood of approval
- Bicycle and pedestrian connectivity: safe, connected routes
- Third-party approvals: likelihood of approvals and permits
- Environmental: impacts/benefits to air quality, noise and visual resources
- Cost: comparative costs

Four of the nine preliminary design alternatives (two grade-separated alternatives and two partial grade-separated alternatives) advanced from the first screening to the second screening. The other five alternatives were withdrawn from further consideration because they did not offer the same level of benefits for improved travel reliability (e.g. access for emergency service providers and recovery time after train blockages) as the four alternatives that were advanced.

The four alternatives that were advanced were then further developed to refine the location for major bridge structures, railroad alignments, local access connections, and vertical clearances. This further-developed range of alternatives underwent the second-step screening, which resulted in two of the remaining four preliminary design alternatives (Grade-Separated Option A Alternative and Partial Grade-Separated Option B Alternative) advancing from the second screening to be recommended for further study in the draft EIS. The other two alternatives (Grade-Separated Option B and Partial Grade-Separated Option C) were not advanced because they would have more complicated construction (staging, longer duration, greater traffic disruptions, additional right-of-way for detours, greater geotechnical risk). In addition, the Partial Grade-Separated Option C Alternative provided fewer benefits to traffic operations than the Grade-Separated Option A, which had a similar construction cost. The No Build Alternative was evaluated in both screenings and advanced, as required, for further analysis in the draft EIS.

Figure 2-3 identifies the preliminary design alternatives evaluated during each screening. Additional details regarding the practical design process, traffic rerouting concepts, and preliminary design alternatives, including descriptions and figures, as well as information on the overall screening process, results, and rationale for decisions to advance or dismiss alternatives is provided in Appendix A.