3  Affected Environment and Environmental Consequences

This chapter describes the effects of the No-Build Alternative and the Build Alternative on the transportation system and on the natural and community environments for the following topics:

- Transportation (Section 3.1)
- Land Use (Section 3.2)
- Right-of-Way and Utilities (Section 3.3)
- Socioeconomics (Section 3.4)
- Parks and Recreational Resources (Section 3.5)
- Cultural Resources (Section 3.6)
- Visual Resources (Section 3.7)
- Water Resources (Section 3.8)
- Biological Resources (Section 3.9)
- Air Quality (Section 3.10)
- Noise (Section 3.11)
- Hazardous Materials (Section 3.12)
- Geological Resources (Section 3.13)

Each section describes the existing environment that could be affected and identifies the expected direct and indirect environmental effects.

- Direct effects are defined as those permanent effects that are caused by proposed alternative actions and occur at the same time and place as those actions.
- Indirect effects are defined as those permanent effects that are caused by proposed alternative actions and are later in time or farther removed in distance but are still reasonably foreseeable.

These sections also identify, where applicable, avoidance, minimization, and mitigation measures for adverse effects on the transportation system and on the natural and community environments.

Cumulative effects of the Build Alternative are addressed in Section 3.14. Short-term effects related to activities for constructing the Build Alternative are addressed in Section 3.15.

- Cumulative effects are defined as effects on the environment resulting from the incremental effect of the proposed action when added to other past, present, and reasonably foreseeable future actions.
- Construction effects are defined as those short-term effects that are caused by constructing the Build Alternative and end once construction has been completed.

For more information about each of the topics, please see the appropriate technical documents, which are listed in Appendix G. Appendix G also includes information on how
to obtain the supporting documents referenced in this chapter. This chapter summarizes the technical documentation, which is incorporated by reference into this chapter.

## 3.1 Transportation

This section describes the affected environment for transportation and summarizes the potential traffic effects of the No-Build Alternative and the Build Alternative (see Section 3.4 [Socioeconomics] for a summary of effects on transit and bicycle and pedestrian facilities). Section 3.14 summarizes the traffic cumulative effects of the Build Alternative. Section 3.15 summarizes the transportation construction effects of the Build Alternative. For more information on the transportation analysis, see the Tillamook US 101/OR 6 Project Transportation Technical Report (ODOT, 2012o).

Table 3-1 summarizes the transportation effects of the No-Build Alternative and the Build Alternative. More detailed information is provided in Section 3.1.2 (Environmental Consequences).

### TABLE 3-1

Summary of Transportation Effects

<table>
<thead>
<tr>
<th>Effect</th>
<th>No-Build Alternative(^b)</th>
<th>Build Alternative(^b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2036 US 101 Average Daily Traffic (northbound / southbound)(^a)</td>
<td>17,125/14,725(^c)</td>
<td>17,125/14,725(^c)</td>
</tr>
<tr>
<td>2036 PM Peak Hour v/c ratio(^d) at study area signalized intersections:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Main Avenue/1st Street</td>
<td>1.16</td>
<td>0.88</td>
</tr>
<tr>
<td>Main Avenue/3rd Street</td>
<td>1.26</td>
<td>1.03</td>
</tr>
<tr>
<td>Main Avenue/4th Street</td>
<td>1.04</td>
<td>1.04</td>
</tr>
<tr>
<td>Pacific Avenue/1st Street</td>
<td>0.98</td>
<td>0.93</td>
</tr>
<tr>
<td>Pacific Avenue/3rd Street</td>
<td>0.94</td>
<td>0.94</td>
</tr>
<tr>
<td>Pacific Avenue/4th Street</td>
<td>0.89</td>
<td>0.87</td>
</tr>
<tr>
<td>Would make modifications to the transportation system that could improve transportation safety?(^e)</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

\(^a\) Average daily traffic between Front Street and 1st Street during the summer.

\(^b\) The mobility target for the No-Build Alternative is a volume-to-capacity ratio (v/c ratio) of 0.95. The mobility standard for the Build Alternative is a v/c ratio of 0.90. All ten unsignalized intersections in the transportation study area would meet the mobility standard under the Build Alternative in 2036. Of those unsignalized intersections, one would operate slightly worse under the Build Alternative than under the No-Build Alternative (i.e. 3rd Street and Laurel Avenue). See the Tillamook US 101/OR 6 Project Transportation Technical Report for additional detail.

\(^c\) Average daily traffic would be the same for the No-Build Alternative and Build Alternative.

\(^d\) A v/c ratio (volume-to-capacity ratio) is a ratio of traffic flow rate to capacity of the road to handle that traffic flow. A v/c ratio at or over 1.0 indicates the road or intersection is over-capacity; a v/c ratio under 1.0 indicates additional vehicles can be accommodated.

\(^e\) See Section 3.1.2.2 for details.


### 3.1.1 Affected Environment

This section describes the transportation study area, existing traffic operations, and existing safety conditions.
3.1.1.1 Transportation Study Area

The project’s transportation study area extends to the north along US 101 approximately 1,000 feet north of Hoquarten Slough, bordered to the west by Main Avenue, to the south by 4th Street, and to the east by Miller Avenue (see Figure 3-1). Table 3-2 summarizes the classifications and characteristics of the primary and secondary roadways within the transportation study area. The transportation study area includes roadways that are in the jurisdiction of two agencies—ODOT and the City of Tillamook.
### TABLE 3-2
Primary and Secondary Roadway Classifications and Characteristics

<table>
<thead>
<tr>
<th>Roadway</th>
<th>Jurisdiction</th>
<th>Classification a</th>
<th>Posted Speed</th>
<th>Designated Bike Lanes</th>
<th>Parking Lanes</th>
<th>Sidewalks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Primary Roadways</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>US 101 (north of slough)</td>
<td>ODOT</td>
<td>Principal Arterial</td>
<td>35 mph</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Main Ave (US 101)</td>
<td>ODOT</td>
<td>Principal Arterial</td>
<td>20 mph</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Pacific Ave (US 101)</td>
<td>ODOT</td>
<td>Principal Arterial</td>
<td>20 mph</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>1st St (OR 6)</td>
<td>ODOT</td>
<td>Minor Arterial</td>
<td>25 mph</td>
<td>No</td>
<td>Intermittent</td>
<td>Yes</td>
</tr>
<tr>
<td>3rd St (OR 6)</td>
<td>ODOT</td>
<td>Minor Arterial</td>
<td>20 mph</td>
<td>No</td>
<td>Yes</td>
<td>Intermittent</td>
</tr>
<tr>
<td><strong>Secondary Roadways</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2nd St</td>
<td>City of Tillamook</td>
<td>Local Road</td>
<td>20 mph</td>
<td>No</td>
<td>Intermittent</td>
<td>Yes</td>
</tr>
<tr>
<td>4th St</td>
<td>City of Tillamook</td>
<td>Minor Collector</td>
<td>20 mph</td>
<td>No</td>
<td>Intermittent</td>
<td>Yes</td>
</tr>
<tr>
<td>Laurel Ave</td>
<td>City of Tillamook</td>
<td>Local Road</td>
<td>20 mph</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Madrona Ave</td>
<td>City of Tillamook</td>
<td>Local Road</td>
<td>20 mph</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Ocean Ave</td>
<td>City of Tillamook</td>
<td>Local Road</td>
<td>20 mph</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Miller Ave</td>
<td>City of Tillamook</td>
<td>Local Road</td>
<td>20 mph</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

a OHP (Primary Roadways) and Tillamook TSP (Secondary Roadways)

mph = miles per hour


The State Highway Classification System in the OHP designates US 101 as a Statewide Highway and OR 6 as a Regional Highway. The OHP also designates US 101 (Main Avenue and Pacific Avenue) south of Front Street in downtown Tillamook as a Special Transportation Area (STA) and OR 6 as a Freight Route. US 101 is part of the National Highway System.

None of the roadways within the transportation study area has marked or painted bike lanes (Table 3-2). However, US 101 is a designated State Bike Route (Oregon Coast Bikeway). In addition, all local roads in Tillamook are considered shared roadways where bicyclists and motorists share the same lane.

Sidewalks exist on all blocks within the transportation study area, except on both sides of 3rd Street between Miller and Ocean Avenues. Sidewalks on Main and Pacific Avenues between 1st and 4th Streets are 12 feet wide. Sidewalks in other locations generally vary between 5 and 12 feet in width.

The Tillamook County Transportation District (TCTD) provides fixed-route and dial-a-ride transit service within the City of Tillamook, as well as to other neighboring cities. TCTD service operates five transit routes in the transportation study area.

#### 3.1.1.2 Existing Traffic Operations

ODOT developed state highway mobility targets for the OHP as a method to gauge reasonable and consistent standards for traffic flow along state highways. These mobility targets consider the classification and location of each state highway and are based on

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4 The Oregon Transportation Commission adopted the mobility targets on December 21, 2011.
volume-to-capacity (v/c) ratios. A v/c ratio is a ratio of traffic flow rate to capacity of the road to handle that traffic flow. A v/c ratio at or over 1.0 indicates the road or intersection is over-capacity; a v/c ratio under 1.0 indicates additional vehicles can be accommodated.

ODOT evaluated existing (2010) traffic operations at 16 study intersections within the transportation study area (Table 3-3).

**TABLE 3-3**
Study Intersections

<table>
<thead>
<tr>
<th>Signalized Intersections</th>
<th>Unsignalized Intersections</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Ave (US 101) and 1st St (OR 6)</td>
<td>Main Ave (US 101) and 2nd St</td>
</tr>
<tr>
<td>Pacific Ave (US 101) and 1st St (OR 6)</td>
<td>Pacific Ave (US 101) and 2nd St</td>
</tr>
<tr>
<td>Main Ave (US 101) and 3rd St (OR 6)</td>
<td>1st St (OR 6) and Laurel Ave</td>
</tr>
<tr>
<td>Pacific Ave (US 101) and 3rd St (OR 6)</td>
<td>1st St (OR 6) and Madrona Ave</td>
</tr>
<tr>
<td>Main Ave (US 101) and 4th St</td>
<td>1st St (OR 6) and Ocean Ave</td>
</tr>
<tr>
<td>Pacific Ave (US 101) and 4th St</td>
<td>1st St (OR 6) and Miller Ave</td>
</tr>
<tr>
<td></td>
<td>3rd St (OR 6) and Laurel Ave</td>
</tr>
<tr>
<td></td>
<td>3rd St (OR 6) and Madrona Ave</td>
</tr>
<tr>
<td></td>
<td>3rd St (OR 6) and Nestucca Ave</td>
</tr>
<tr>
<td></td>
<td>3rd St (OR 6) and Ocean Ave</td>
</tr>
</tbody>
</table>


In 2010, all 16 study intersections met their applicable OHP mobility targets (0.95 for signalized intersections and 0.90 for the uncontrolled approaches at unsignalized intersections) during the peak hour of operations, the PM peak-hour. The PM peak-hour within the transportation study area was 3:45 to 4:45 p.m.

Table 3-4 provides a summary of transportation existing conditions that includes average daily traffic and PM peak-hour v/c ratios at study area signalized intersections. See the *Tillamook US 101/OR 6 Project Transportation Technical Report* for the existing transportation conditions of the other study area intersections (i.e., non-signalized intersections).

**TABLE 3-4**
Summary of Transportation Conditions in 2010

<table>
<thead>
<tr>
<th>US 101 Average Daily Traffic (northbound/southbound)a</th>
<th>10,500 / 9,560</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM Peak Hour v/c ratio at the study area signalized intersectionsb:</td>
<td></td>
</tr>
<tr>
<td>Main Avenue/1st Street</td>
<td>0.68</td>
</tr>
<tr>
<td>Main Avenue/3rd Street</td>
<td>0.86</td>
</tr>
<tr>
<td>Main Avenue/4th Street</td>
<td>0.59</td>
</tr>
<tr>
<td>Pacific Avenue/1st Street</td>
<td>0.56</td>
</tr>
<tr>
<td>Pacific Avenue/3rd Street</td>
<td>0.59</td>
</tr>
<tr>
<td>Pacific Avenue/4th Street</td>
<td>0.57</td>
</tr>
</tbody>
</table>

a Average daily traffic between Front Street and 1st Street during the summer.

b The OHP mobility target for all signalized intersections is a v/c ratio of 0.95. All unsignalized intersections in the transportation study area met the applicable OHP mobility targets.

3.1.1.3 Existing Safety Conditions

ODOT analyzed vehicle crash data (ODOT, 2010) for roadway segments and study intersections within the transportation study area to identify existing safety conditions.

- **Roadway Segments.** US 101 northbound, US 101 southbound, OR 6 eastbound, and OR 6 westbound were analyzed. Three of these four roadway segments (US 101 northbound, US 101 southbound, and OR 6 eastbound) had crash rates higher than the statewide average for similar roadway types. However, the crash rates may be artificially inflated because the roadway segments used to calculate the crash rates are shorter than the typical length (at least one mile). The average crash rate on US 101 northbound and southbound in the City of Tillamook was higher than the statewide average on principal arterials in rural cities (2.73 crashes per million vehicle miles, compared to 1.18 crashes per million vehicle miles, respectively).

- **Study Intersections.** Each of the 16 study intersections had an intersection crash rate of less than one crash per million annual vehicles entering the intersection. Typically, when an intersection crash rate is less than one, it is not considered to be showing signs of safety deficiencies. However, the low crash rates may be because the study intersections are close to each other.

ODOT also assesses roadway safety using the Safety Priority Index System (SPIS), which takes into account crash frequency, crash rate, and crash severity. The scores for different roadway segments can be compared to determine where safety improvement funds might best be spent. There were no top-10-percent SPIS locations within the transportation study area on the 2011 SPIS list.5

3.1.2 Environmental Consequences

This subsection summarizes the environmental consequences of the No-Build Alternative and the Build Alternative.

3.1.2.1 No-Build Alternative

In 2036, the following four study intersections are forecast to exceed the applicable OHP mobility target (v/c ratio of 0.95) during the PM peak-hour:

- Main Avenue and 1st Street (v/c ratio of 1.16)
- Pacific Avenue and 1st Street (v/c ratio of 0.98)
- Main Avenue and 3rd Street (v/c ratio of 1.26)
- Main Avenue and 4th Street (v/c ratio of 1.04)

Because the No-Build Alternative would maintain the existing roadway facilities, no changes would be made that would improve transportation safety or operations. The existing travel lanes on Pacific and Main Avenues (US 101) are generally 10 feet wide. The existing lane width is narrower than ODOT’s standard travel-lane width (i.e., at least 11 feet for US 101 in downtown Tillamook), and too narrow to safely accommodate automobiles, trucks, and recreational vehicles. The No-Build Alternative would maintain existing travel-lane widths and, therefore, would not make modifications that could improve safety.

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5 The 2011 SPIS list is based on 2008 to 2010 crash data.
3.1.2.2 Build Alternative

Topographic, natural environment (such as Hoquarten Slough, Sue H. Elmore Park, and Hoquarten Interpretive Trail Park), and built environment (such as existing commercial buildings and residences) constraints limit the ability of ODOT to improve the highway infrastructure within the transportation study area.

As described in Chapter 2, STA goals and objectives, and local plans, policies, and objectives for downtown Tillamook guided the alternatives development and refinement process, along with the topographic, natural environment, and built environment constraints within the study area. The TTRP and US 101/OR 6 Alternatives Study included existing and future traffic analyses to evaluate and screen options and alternatives. The screening, development, and refinement of alternatives have continued through the duration of the Tillamook US 101/OR 6 Project. These design refinements have focused on improving traffic performance to meet the goals and objectives of an STA and local plans, while considering topographic, natural environment, and built environment constraints.

The following summarizes the traffic operations, travel times, freight route, and safety effects with the Build Alternative. Bicycle and pedestrian facility and transit direct and indirect effects with the Build Alternative are addressed in Section 3.4.2.2.

Traffic Operations

ODOT uses the mobility standards in the Highway Design Manual (HDM) for project development (Build Alternative) traffic analyses. Similar to the OHP mobility targets, the HDM mobility standards consider the classification and location of each state highway and are based on v/c ratios. The applicable HDM mobility standard is a v/c ratio of 0.90 at the signalized intersections within the transportation study area.

As summarized in Table 3-1, four of the six signalized intersections in the transportation study area would perform better in 2036 under the Build Alternative, compared to the No-Build Alternative. The intersections on Main Avenue at 1st and 3rd Streets would operate at v/c ratios of 0.88 and 1.03 under the Build Alternative, respectively, compared to 1.16 and 1.25 under the No-Build Alternative. The intersections on Pacific Avenue at 1st and 4th Streets would operate at v/c ratios of 0.93 and 0.87 under the Build Alternative, respectively, compared to 0.98 and 0.89 under the No-Build Alternative.

Also shown in Table 3-1, four signalized intersections in the study are forecast to exceed the HDM mobility standard (v/c ratio of 0.90) during the peak hour of operations in 2036 (the PM peak-hour) under the Build Alternative (i.e., Pacific Avenue and 1st Street, Main Avenue and 3rd Street, Pacific Avenue and 3rd Street, and Main Avenue and 4th Street). Of those four intersections, two would operate better than the No-Build Alternative and two would operate the same as under the No-Build Alternative. During the alternative development process, ODOT considered designs that would allow the Build Alternative to meet HDM mobility standards at those four intersections. However, those designs were dismissed because they would have not met the project’s purpose and need by displacing additional downtown Tillamook buildings, businesses and on-street parking spaces.

Queue lengths in 2036 on US 101 and OR 6 in downtown Tillamook would be similar under the No-Build and Build alternatives. However, between 2016 and 2036, queue lengths on US 101 would generally be shorter under the Build Alternative. For example, in 2016,
northbound queue lengths from the Pacific Avenue/1st Street intersection would extend approximately 45 vehicles under the Build Alternative, but approximately 170 vehicles under the No-Build Alternative. The difference between No-Build Alternative and Build Alternative queue lengths would diminish by 2036. For more information on queue lengths, see the Tillamook US 101/OR 6 Project Transportation Technical Report.

Travel Times
Table 3-5 compares Build Alternative 2036 PM peak-hour travel times to the No-Build Alternative for five common routes within the transportation study area. In 2036, the Build Alternative PM peak-hour travel times for the five routes analyzed would be approximately 29 to 40 percent shorter than the No-Build Alternative.

<table>
<thead>
<tr>
<th>Route</th>
<th>2036 Build Alternative PM Peak-Hour Travel Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Southbound US 101 (Main Avenue/1st Street to Main Avenue/4th Street)</td>
<td>31% shorter than the No-Build Alternative</td>
</tr>
<tr>
<td>Northbound US 101 (Pacific Avenue/4th Street to Pacific Avenue/1st Street)</td>
<td>29% shorter than the No-Build Alternative</td>
</tr>
<tr>
<td>Northbound US 101 to Eastbound OR 6 (Pacific Avenue/4th Street to 3rd Street/Miller Avenue)</td>
<td>29% shorter than the No-Build Alternative</td>
</tr>
<tr>
<td>Southbound US 101 to Eastbound OR 6 (Main Avenue/3rd Street to 3rd Street/Miller Avenue)</td>
<td>29% shorter than the No-Build Alternative</td>
</tr>
<tr>
<td>Westbound OR 6 to Southbound US 101 (1st Street/Miller Avenue to Main Avenue/4th Street)</td>
<td>40% shorter than the No-Build Alternative</td>
</tr>
</tbody>
</table>

Note: Westbound OR 6 to northbound US 101 could not be calculated because there is no signal as the end point on US 101 to calculate delay.


Freight Routes
OR 6 is designated as a freight route by ODOT and modifications to either OR 6 or US 101 (north of 1st Street) would be subject to reduction of capacity review by ODOT. If the Build Alternative is selected as the Preferred Alternative, ODOT would review proposed modifications to these roadways during project design to ensure compliance with Oregon Revised Statute (ORS) 366.215. The capacity review is intended to avoid or minimize the reduction of vehicle-carrying capacity. Because the Build Alternative would improve vehicle-carrying capacity, ODOT does not anticipate that the capacity review would result in any major design concerns or a determination of adverse impact.

Safety
The Build Alternative would make the following modifications that could improve transportation safety:

- Widen the travel lanes from 10 to 12 feet on Main and Pacific Avenues between 1st and 4th Streets
• Provide a more intuitive travel pattern for northbound US 101 traffic by extending Pacific Avenue north
• Maintain all existing crosswalks and construct two new crosswalks (at the north and east sides of the Main Avenue/1st Street intersection)
• Provide a combined shoulder/bicycle lane on Main and Pacific Avenues north of 1st Street and across Hoquarten Slough in both directions
• Provide wider sidewalks and a combined shoulder/bicycle lane on US 101 in both directions for approximately 700 feet north of Hoquarten Slough

3.2 Land Use

This section summarizes the affected environment for land use and the potential land use effects of the No-Build Alternative and the Build Alternative. Section 3.14 summarizes the land use cumulative effects of the Build Alternative. Section 3.15 summarizes the land use construction effects of the Build Alternative. For more information on the land use analysis, see the Tillamook US 101/OR 6 Project Land Use Technical Memorandum (ODOT, 2012i).

Table 3-6 summarizes the direct land use effects of the No-Build Alternative and the Build Alternative. More detailed information is provided in Section 3.2.2 (Environmental Consequences).

<table>
<thead>
<tr>
<th>Table 3-6</th>
<th>Land Use Direct Effects Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effect</td>
<td>No-Build Alternative</td>
</tr>
<tr>
<td>Total land area potentially acquired (acres)</td>
<td>0</td>
</tr>
<tr>
<td>Total number of tax lots with a permanent change in current development</td>
<td>0</td>
</tr>
<tr>
<td>Total number of business units potentially displaced</td>
<td>0</td>
</tr>
</tbody>
</table>

<sup>a</sup> Includes area potentially acquired for right-of-way as fee simple purchases or as permanent easement purchases.

<sup>b</sup> Does not include the approximately 0.43 acre of the Port of Tillamook Bay right-of-way (not a Tillamook County tax lot) that would permanently change land use (to transportation and parkland uses) and the approximately 95 square feet of City of Tillamook parcel that would be converted from parkland to transportation right-of-way.

Source: Tillamook US 101/OR 6 Project Land Use Technical Memorandum (ODOT, 2012i)

3.2.1 Affected Environment

The 2003 City of Tillamook Comprehensive Plan is the current land use plan for the City of Tillamook. This plan guides the future growth and development of Tillamook. The Zoning Ordinance of the City of Tillamook, Oregon (Tillamook Zoning Ordinance) (City of Tillamook, 2003) implements specific goals and policies of the Comprehensive Plan. The Tillamook Zoning Ordinance includes base zoning districts and overlay zoning districts. Existing land uses in the project study area are generally consistent with Tillamook Zoning Ordinance base zoning district designations (Highway Commercial north and Central
Commercial south of Hoquarten Slough, except for Sue H. Elmore Park and Hoquarten Interpretive Trail Park, which are designated as Open Space).

### 3.2.2 Environmental Consequences

This section summarizes the land use effects that would result from the No-Build Alternative and the Build Alternative.

#### 3.2.2.1 No-Build Alternative

The No-Build Alternative would have no land use effects because no land would be acquired, and existing travel patterns and land uses would be maintained.

#### 3.2.2.2 Build Alternative

This subsection summarizes the direct and indirect land use effects of the Build Alternative, and identifies potential mitigation measures during construction. This subsection also provides a summary of the consistency of the Build Alternative with applicable state, regional, and local land use plans, policies, and regulations.

**Direct Effects**

Direct land use effects of the Build Alternative would be caused by property acquisition for right-of-way and permanent easements. The Build Alternative would require the acquisition of approximately 2.00 acres for right-of-way or permanent easements. Of this total, approximately 1.52 acres of land from 13 tax lots within Tillamook County would be acquired for right-of-way and permanent easements within three zoning designations (Table 3-7); approximately 0.43 acre would be acquired from the Port of Tillamook Bay right-of-way; and approximately 0.05 acre would be acquired within Hoquarten Slough from the Oregon Department of State Lands (DSL) for right-of-way and a permanent easement to provide access to maintain the new bridge.

<table>
<thead>
<tr>
<th>Zoning Designation</th>
<th>Area Acquired(^a) (acres)</th>
<th>Percent of City Zoning Designation Affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highway Commercial (C-H)</td>
<td>0.37</td>
<td>0.3%</td>
</tr>
<tr>
<td>Central Commercial (C-C)</td>
<td>1.13</td>
<td>1.9%</td>
</tr>
<tr>
<td>Open Space (O)</td>
<td>0.02</td>
<td>&lt;0.1%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1.52(^b)</strong></td>
<td><strong>0.1%</strong></td>
</tr>
</tbody>
</table>

\(^a\) Area acquired for right-of-way or permanent easements within a Tillamook Zoning Ordinance zoning district. Does not include 0.43 acre that would be acquired from the Port of Tillamook Bay.

\(^b\) An additional approximately 0.43 acre from the Port of Tillamook Bay and 0.05 acre from Hoquarten Slough would be acquired. Neither of these areas is within a Tillamook Zoning Ordinance zoning district.

Source: Tillamook US 101/OR 6 Project Land Use Technical Memorandum (ODOT, 2012i)

Transportation facilities are an allowed use in the Central Commercial and Highway Commercial zones. Transportation facilities are a conditional use in the Open Space zone.
Because transportation uses are allowed in the Central Commercial and Highway Commercial zones, the Build Alternative would have no effect on the supply of the City of Tillamook’s commercial lands.

Property acquisition would not permanently change the current development of 10 of the 13 tax lots. Property would be acquired from these tax lots, but the current development of these tax lots would not change because only a small portion of these tax lots would be acquired (between approximately 1 and 9 percent) and no structures would be displaced.

The Build Alternative would permanently change the current development on three tax lots containing six businesses because the structures would be removed and the six businesses would be displaced (Table 3-8). However, the existing zoning designation (Central Commercial) of these three tax lots would not change.

The Build Alternative would permanently change the land use of the 0.43 acre of the Port of Tillamook Bay right-of-way that would be converted from undeveloped land to park and transportation use (Table 3-8). This land does not have a zoning designation in the Tillamook Zoning Ordinance. In addition, the Build Alternative would permanently change the land use of 95 square feet of a City of Tillamook parcel within the Open Space zone that would be converted from parkland to transportation use (Table 3-8).

TABLE 3-8
Build Alternative Change in Land Use

<table>
<thead>
<tr>
<th>Current Development</th>
<th>Land Use with Build Alternative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial buildings (Mar Clair Inn motel and Pacific House Restaurant) and parking area within the Central Commercial zone.</td>
<td>Hoquarten Interpretive Trail Park (parking lot and open space); transportation (Pacific Avenue extension and new public street). Approximately 1.20 acres available for development; future development would be consistent with the regulations of the Central Commercial District (Section 17) in the Tillamook Zoning Ordinance.</td>
</tr>
<tr>
<td>Commercial building with three businesses (All Star Appliance, Bay Breeze Tanning, and Chez Belle Nails) and parking area within the Central Commercial zone.</td>
<td>Transportation (Pacific Avenue extension [US 101 northbound] and ODOT right-of-way).</td>
</tr>
<tr>
<td>Commercial building (Fei Ying Restaurant) within the Central Commercial zone.</td>
<td>Transportation (1st Street [OR 6 westbound]). Approximately 0.10 acre available for development; future development would be consistent with the regulations of the Central Commercial District (Section 17) in the Tillamook Zoning Ordinance.</td>
</tr>
<tr>
<td>Undeveloped and vacant Port of Tillamook Bay right-of-way (south of Hoquarten Interpretive Trail Park). This land does not have a zoning designation.</td>
<td>Hoquarten Interpretive Trail Park (parking lot and open space) and public street turnaround.</td>
</tr>
<tr>
<td>Undeveloped area that is part of Hoquarten Interpretive Trail Park within the Open Space zone.</td>
<td>Transportation (Pacific Avenue extension [US 101 northbound] and ODOT right-of-way).</td>
</tr>
</tbody>
</table>

Figure 3-2 in Section 3.3 (Right-of-Way and Utilities) illustrates the location of these tax lots. Source: Tillamook US 101/OR 6 Project Land Use Technical Memorandum (ODOT, 2012i)

Property acquisition would require compensation and relocation assistance to affected property owners in accordance with the provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (Uniform Act). Section 3.3 (Right-of-Way and Utilities) provides more information on the Uniform Act.
Indirect Effects
Transportation system improvements could increase the market appeal of downtown Tillamook and adjacent neighborhoods, which could increase the demand for new commercial space or residences, and which could influence decision-makers to allow more intense land uses.

Compliance with Applicable Plans and Policies
The Tillamook US 101/OR 6 Project Land Use Technical Memorandum provides a description of governmental regulations and legally binding plans and policies that would apply to the Build Alternative. The Build Alternative would be consistent with the policies, goals, and objectives of the Tillamook Comprehensive Plan related to promoting economic development, guiding vehicular circulation and parking, and encouraging a safe, convenient, and economical transportation system. No amendments to the Tillamook Comprehensive Plan would be required.

The Build Alternative would be consistent with a capacity and safety project in the Tillamook TSP.6 Because these projects are consistent with the Build Alternative, the Build Alternative would support the goals and objectives of the Tillamook TSP, and no amendments would be required.

The Build Alternative would be consistent with all other applicable state, regional, and local land use plans, policies, and regulations, except for the following, which would require additional actions or approvals:

- **Highway Design Manual.** ODOT would need to approve one HDM design exception and an HDM mobility standard exception for four study-area intersections.

- **Highway Approaches, Access Control, Spacing Standards and Medians** (Oregon Administrative Rule [OAR] 734-051). Approach7 locations would be determined during the design phase.

- **Oregon Coastal Management Program.** The Oregon Department of Land Conservation and Development would need to provide a certification during the next project phase that the Build Alternative would comply with the Oregon Coastal Management Program.

- **Tillamook Zoning Ordinance.** The City of Tillamook would need to approve a floodplain development permit for construction activities within the floodplain and floodway, and two Conditional Use Permits for construction activities within Hoquarten Interpretive Trail Park and Sue H. Elmore Park (both within the Open Space District).

- **Hoquarten Interpretive Trail Park Site Plan.** The City of Tillamook would need to amend the Hoquarten Interpretive Trail Park site plan to incorporate the changes to the park as a result of the Build Alternative.

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6 “Recommended Capacity Improvements on State Facilities” Project #5 and “Recommended Safety Improvements on State Facilities” Project #6. The Tillamook TSP was adopted on December 10, 2003, and amended on April 17, 2006, to include the TTRP.

7 OAR 734-051 defines approach as “a legally constructed, approach road or private road crossing, recognized by the Department as grandfathered or existing under a valid Permit to Operate.”
In addition, the Oregon Transportation Commission would be asked to approve alternate mobility targets at two study area intersections (Main Avenue at 3rd and 4th Streets) as an amendment to the OHP to reflect the traffic results for the Build Alternative summarized in Section 3.1.

### 3.3 Right-of-Way and Utilities

This section summarizes the affected environment for right-of-way and utilities and the potential right-of-way and utility effects of the No-Build Alternative and the Build Alternative. Section 3.14 summarizes the right-of-way and utilities cumulative effects of the Build Alternative. Section 3.15 summarizes the right-of-way and utility construction effects of the Build Alternative. For more information on right-of-way, see the *Tillamook US 101/OR 6 Project Right-of-Way Technical Memorandum* (ODOT, 2012l). For more information on utilities, see the *Tillamook US 101/OR 6 Project Construction Activities Technical Memorandum* (ODOT, 2012d).

Table 3-9 summarizes the full and partial tax lot acquisitions for new right-of-way that would occur under the No-Build Alternative and the Build Alternative. More detailed information is provided in Section 3.3.2 (Environmental Consequences).

<table>
<thead>
<tr>
<th>TABLE 3-9</th>
<th>Summary of Full and Partial Tax Lot Acquisitions for New Right-of-Way</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of Effect</td>
<td>No-Build Alternative</td>
</tr>
<tr>
<td><em><em>Area of Potential Purchase: Fee Simple</em>/Permanent Easement (in acres)</em>*</td>
<td></td>
</tr>
<tr>
<td>Residential</td>
<td>0.0/0.0</td>
</tr>
<tr>
<td>Commercial</td>
<td>0.0/0.0</td>
</tr>
<tr>
<td>Government/Institutional</td>
<td>0.0/0.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>0.0/0.0</strong></td>
</tr>
<tr>
<td><strong>Parcels Affected by Acquisition (Full/Partial)</strong></td>
<td></td>
</tr>
<tr>
<td>Residential</td>
<td>0/0</td>
</tr>
<tr>
<td>Commercial</td>
<td>0/0</td>
</tr>
<tr>
<td>Government/Institutional</td>
<td>0/0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>0/0</strong></td>
</tr>
<tr>
<td><strong>Potential Displacements</strong></td>
<td></td>
</tr>
<tr>
<td>Residential</td>
<td>0</td>
</tr>
<tr>
<td>Commercial</td>
<td>0</td>
</tr>
<tr>
<td>Government/Institutional</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>0</strong></td>
</tr>
</tbody>
</table>

*a* Generally purchase of all property rights, except those easements, etc. that exist prior to acquisition.

*b* Purchase of permanent maintenance easements. Additional permanent easements may be acquired, based on property acquisition negotiations and final design of the Build Alternative.

*c* Does not include the Port of Tillamook Bay right-of-way or Hoquarten Slough because neither are Tillamook County tax lots.

Note: Because the City of Tillamook has jurisdiction over the sidewalks on Main Avenue and Pacific Avenue in the project study area, the Build Alternative would also require the transfer of jurisdiction of 2 feet of sidewalks on both sides of Main Avenue and Pacific Avenue between 1st Street and 4th Street from the City of Tillamook to ODOT.

3.3.1 Affected Environment

The project study area is characterized by a mix of commercial and open space (public parks) land uses, as described in Section 1.2.1 (Project Study Area).

In cooperation with the FHWA, the ODOT Right-of-Way Section implements Public Law 91-646, the Uniform Act. The Uniform Act ensures the fair and equitable relocation and reestablishment of persons, businesses, farms, and nonprofit organizations displaced as a direct result of federal or federally-assisted programs.

The objective of the Uniform Act is to ensure that persons displaced as a direct result of federal or federally-assisted projects are treated fairly, consistently, and equitably so that such displaced persons will not suffer disproportionate injuries because of projects designed for the benefit of the public as a whole. ODOT’s Region Right-of-Way offices, through ODOT’s Relocation Assistance Program, ensure compliance with the Uniform Act and federal rules and regulations.

The existing utilities in the project study area include sanitary sewer lines, stormwater lines, water services, electric utilities, and communications utilities. Existing sanitary sewer lines are buried under the center of 1st, 2nd, 3rd, 4th, and Front Streets, crossing US 101. Longitudinal stormwater lines exist on both sides of US 101 north of Hoquarten Slough. In downtown Tillamook, existing stormwater lines are generally buried under the center of Main Avenue, 3rd Street, and 4th Street. The Tillamook US 101/OR 6 Project Construction Activities Technical Memorandum and OR6 @ US101 Basement Survey Report (GPR Data, 2012) generally illustrates the location of all existing known utilities in the project study area.

3.3.2 Environmental Consequences

This subsection summarizes the right-of-way and utility environmental consequences for the No-Build Alternative and the Build Alternative.

3.3.2.1 No-Build Alternative

The No-Build Alternative would not require acquisition of right-of-way or affect existing utilities because no transportation improvements would be made.

3.3.2.2 Build Alternative

The determination of right-of-way, relocation, and utility effects is preliminary because the assessment was conducted using preliminary design information. Acquisition needs, cost estimates, and utility effects would need to be revised during the final design process. During that process, ODOT would continue to avoid and minimize property acquisitions.

New Right-of-Way

Table 3-9 summarizes the full and partial tax lot acquisitions for new right-of-way that would occur under the Build Alternative. Figure 3-2, and Figure F-1 and Table F-1 in Appendix F show the estimated areas of land that would be needed for new right-of-way under the Build Alternative. All right-of-way acquisitions for the Build Alternative would occur north of 1st Street; all Build Alternative improvements south of 1st Street would occur within the existing right-of-way. North of 1st Street, the Build Alternative would require approximately:
Note: The Build Alternative would also require the transfer of jurisdiction of 2 feet of sidewalks on Main Avenue and Pacific Avenue between 1st Street and 4th Street from the City of Tillamook to ODOT.
• 1.25 acres of fee simple acquisition and 0.21 acre of permanent easement acquisition from 11 parcels designated for commercial land uses in the Tillamook Zoning Ordinance (one of the 11 parcels would be fully acquired)

• 0.47 acre of fee simple acquisition and 0.07 acre of permanent easement acquisition from government-owned land (Hoquarten Slough [owned by Oregon DSL], Hoquarten Interpretive Trail Park [owned by the City of Tillamook], Port of Tillamook Bay, and United States Postal Service (USPS) office – see Figure F-1 in Appendix F)

All property owners affected by right-of-way acquisitions would be offered just compensation according to state and federal guidelines. There would be no acquisition of land for right-of-way from residential parcels. Any remnant parcels not required by ODOT after construction may be sold.

ODOT has coordinated with the City of Tillamook regarding the fee simple acquisition of approximately 95 square feet from Hoquarten Interpretive Trail Park (for more information, see Section 3.5, Parks and Recreational Resources). As the owner of the park, the City of Tillamook has agreed to enter into negotiations with ODOT to sell ODOT the land needed to construct the Build Alternative and maintain roadway infrastructure.

ODOT has also coordinated with the Port of Tillamook Bay regarding acquisition of portion of Port right-of-way south of Hoquarten Interpretive Trail Park. The Port of Tillamook Bay has agreed to enter into negotiations to sell ODOT the land needed to construct the Build Alternative. ODOT would acquire approximately 0.43 acre fee simple from the Port of Tillamook Bay. A portion of the acquired property would be used for the replaced parking lot for Hoquarten Interpretive Trail Park (see Figure 2-2). After construction, ODOT would transfer this replaced parking lot and additional surrounding land to the City of Tillamook to incorporate into Hoquarten Interpretive Trail Park (see Section 3.5, Parks and Recreational Resources).

For the new public street from the Pacific Avenue extension that would provide access to Hoquarten Interpretive Trail Park, ODOT would acquire the land necessary to construct this street from the Port of Tillamook Bay (currently Port right-of-way) and the privately-owned parcel south of the Port of Tillamook Bay right-of-way (currently with a motel and restaurant). After construction, the new local street would be transferred from ODOT to the City of Tillamook as a public street.

**Downtown Jurisdiction Transfer and Basements**

Because the City of Tillamook has jurisdiction over the sidewalks on Main Avenue and Pacific Avenue in the project study area, the Build Alternative would require the transfer of jurisdiction of 2 feet of sidewalks on Main Avenue and Pacific Avenue between 1st Street and 4th Street from the City of Tillamook to ODOT through an inter-governmental agreement.

Using ground penetrating radar, ODOT preliminarily determined that one building on Main Avenue and one building on 3rd Street have open basements that encroach into the roadway under the sidewalk into within approximately three feet of the existing curb. For more information, see the OR6 @ US101 Basement Survey Report. Narrowing the sidewalks at the location of these open basements could require private property acquisition and modifications to the basements. The need to modify or reconstruct these basements, and
potentially acquisition of property rights, would be determined during the final design process. During the design process, additional investigation may indicate the presence of additional basements.

**Business Displacements**

The Build Alternative would result in the displacement of businesses on three Tillamook County tax lots. The structures on these three tax lots would be removed, which would displace six businesses. Table 3-10 identifies the business names, addresses and type. Figure 3-2 illustrates the location of these businesses. The owners of the displaced businesses would be offered relocation benefits and assistance according to state and federal guidelines.

<table>
<thead>
<tr>
<th>Business Name</th>
<th>Business Type</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Star Appliance</td>
<td>Appliance repair</td>
<td>2006 1st Street</td>
</tr>
<tr>
<td>Bay Breeze Tanning</td>
<td>Tanning salon</td>
<td>2010 1st Street</td>
</tr>
<tr>
<td>Chez Belle Nails</td>
<td>Nail salon</td>
<td>2010 1st Street</td>
</tr>
<tr>
<td>Fei Ying Restaurant</td>
<td>Restaurant</td>
<td>2106 1st Street</td>
</tr>
<tr>
<td>Mar Clair Inn</td>
<td>Motel</td>
<td>11 Main Avenue</td>
</tr>
<tr>
<td>Pacific House Restaurant</td>
<td>Restaurant</td>
<td>2102 1st Street</td>
</tr>
</tbody>
</table>

* See Section 3.4.2.2 for the approximate number of displaced employees for each of the displaced businesses.


For displaced businesses, ODOT would provide relocation assistance through its Relocation Assistance Program. The federal Uniform Act ensures the fair and equitable relocation and reestablishment of persons, businesses, farms, and nonprofit organizations displaced as a direct result of federal or federally-assisted programs.

Similar vacant properties and vacant commercial buildings exist within downtown Tillamook that could allow for successful relocation of five of the six businesses. A replacement site for the Mar Clair Inn in downtown Tillamook might be difficult to locate.

**Access**

ORS Chapter 374 (Control of Access to Public Highways) and OAR Chapter 734, Division 51 (Highway Approaches, Access Control, Spacing Standards and Medians) define ODOT standards and procedures to manage access to state highway facilities to the degree necessary to maintain functional use, highway safety, and the preservation of public investment consistent with the OHP and adopted local comprehensive plans. OAR 734-051 defines approach as “a legally constructed, approach road or private road crossing, recognized by the Department as grandfathered or existing under a valid Permit to Operate.”
All property access decisions (for example, size, number, location of approaches, and turning-movement restrictions) for the Build Alternative would be determined during the design process through implementation of ODOT’s access management program. ODOT would assess existing property access points (generally illustrated in Figure 2-2) and determine if any changes in property access would be required. Through that process, some existing approaches could be changed. Although property access decisions would be deferred to this subsequent phase, ODOT does not expect at this time that the Build Alternative would displace any business or residence by removing access to it.

**Right-of-Way Cost**

The preliminary estimated right-of-way cost for the Build Alternative is approximately $6.2 million in 2014 dollars and includes all fee simple, permanent easement, and temporary easement acquisitions. Costs associated with utilities, demolition, access management, or any potential need for contamination clean up are not considered in this estimate. This cost estimate is based on preliminary project design information, which may change as project design and mitigation are refined.

**Indirect Effects**

After construction, two parcels (the parcels currently with the Mar Clair Inn and Fei Ying Restaurant [Figure 3-2]) would likely have economic remainders of approximately 1.30 acres combined. These parcels could be sold by ODOT as surplus right-of-way and redeveloped consistent with existing Tillamook Zoning Ordinance regulations.

**Utilities**

ODOT met with the Tillamook People’s Utility District (TPUD) regarding the effects the Build Alternative could have on utilities. The location of the surveyed utilities would be confirmed during the final design of the Build Alternative. ODOT would coordinate the replacement, relocation, or realignment of each utility with the affected utility service providers. The following summarizes potential utility effects:

- Reconstructing US 101 and constructing a bridge would require replacing, reconstructing, or realigning overhead electric lines and utility poles, stormwater lines, and water lines parallel to US 101 north and south of Hoquarten Slough.
- Replacing the existing bridge over Hoquarten Slough would require replacing, reconstructing, or realigning an east-west communications line attached to the bridge near the south bank of the slough.
- Reducing the width of sidewalks on Main and Pacific Avenues would require replacing, reconstructing, or realigning overhead electric and communication lines and utility poles.
- Modifying the sidewalk and improving intersections at 1st Street and reconstructing Main and Pacific Avenues would require replacing, reconstructing, or realigning water lines.
- Reconstructing the 1st Street intersection at Main and Pacific Avenues would require replacing, reconstructing, or realigning the buried stormwater line.
3.4 Socioeconomics

This section summarizes the affected environment for socioeconomics and the potential socioeconomic effects of the No-Build Alternative and the Build Alternative including ODOT’s preliminary assessment of environmental justice compliance for the Build Alternative. Socioeconomic effects include potential displacements; changes to access, parking and mobility; and effects on community resources and cohesion, bicycle and pedestrian facilities, and transit and emergency services. Section 3.14 summarizes the socioeconomic cumulative effects of the Build Alternative. Section 3.15 summarizes the socioeconomic construction effects of the Build Alternative. For more information on the socioeconomic analysis, see the Tillamook US 101/OR 6 Project Socioeconomics Technical Memorandum (ODOT, 2012m).

Table 3-11 summarizes the socioeconomic effects of the No-Build Alternative and the Build Alternative. More detailed information is provided in Section 3.4.2 (Environmental Consequences).

3.4.1 Affected Environment

The project study area is entirely within Tillamook city limits. Land uses in the project study area are primarily commercial (Figure 3-3). Highway commercial land uses are located north of Hoquarten Slough. South of the slough is downtown Tillamook, which has a concentration of various types of businesses (such as restaurants, retailers, and service-oriented), emergency services (Tillamook Fire District fire station and the City of Tillamook Police Department), religious institutions, City and County government offices (Tillamook County Courthouse and Tillamook City Hall), and other regional community resources (such as Tillamook County Pioneer Museum, USPS office, and Tillamook Transit Center). Two public parks (Hoquarten Interpretive Trail Park Phases One and Two and Sue H. Elmore Park) are located south of Hoquarten Slough, which are described in Section 3.5 (Parks and Recreational Resources). The Tillamook County Transportation District (TCTD) operates transit routes that service the Tillamook Transit Center. TCTD also provides fixed-route and dial-a-ride transit service within the City of Tillamook and to neighboring cities. The Tillamook County General Hospital is located on 3rd Street approximately 0.5 mile west of the Main Avenue/3rd Street intersection.

Access to convenient parking is important for maintaining business vitality. In 2005, a parking study was conducted during the Tillamook Transportation Refinement Plan. The parking utilization survey did not demonstrate a parking utilization problem. On average, 29 percent of available stalls were occupied. This average changed when the weekday was differentiated from the weekend (that is, the average weekday utilization was 38 percent, while the weekend utilization was 20 percent). However, such utilization rates are far from a 90-percent utilization, which is typically considered “at capacity.” At a 90-percent threshold, drivers begin to circulate to find parking. Downtown Tillamook has not substantially changed since 2005, when the study was conducted, and therefore, the study’s findings are relevant to existing conditions (2012).
## TABLE 3-11  
Summary of Socioeconomic Effects

<table>
<thead>
<tr>
<th>Effect</th>
<th>No-Build Alternative</th>
<th>Build Alternative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Displacements</td>
<td>No businesses displaced; no property-tax-base effects.</td>
<td>Six businesses displaced (approximately 55 employees affected).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Approximately $22,000 reduction annually in the City of Tillamook property-tax base.</td>
</tr>
<tr>
<td>Access</td>
<td>Access maintained to parcels with existing access.</td>
<td>Parcels with existing access would continue to have access, but approach locations could be modified.</td>
</tr>
<tr>
<td>On-street Parking</td>
<td>No effects.</td>
<td>Approximately 30 to 35 on-street parking spaces removed, of which approximately 10 to 15 would be in areas with limited off-street parking. Approximately 305 to 310 on-street parking spaces would be retained.</td>
</tr>
<tr>
<td>Mobility</td>
<td>Would not improve the existing transportation system.</td>
<td>Improved mobility compared to the No-Build Alternative at four study area signalized intersections in 2036.</td>
</tr>
<tr>
<td>Community Resources(d)</td>
<td>No effects.</td>
<td>Construction activities within Sue H. Elmore Park and Hoquarten Interpretive Trail Park.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Conversion of approximately 95 square feet of Hoquarten Interpretive Trail Park to transportation use; net increase in park size (approximately 0.24 acre to 0.40 acre).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Acquisition of approximately 0.04 acre from the USPS parcel; USPS concluded that acquisition would not adversely affect operations or customer access.</td>
</tr>
<tr>
<td>Community Cohesion</td>
<td>No effects.</td>
<td>New and improved multi-modal facilities (see bicycle and pedestrian facility effects under the Build Alternative, below) would improve the connection between areas north and south of Hoquarten Slough.</td>
</tr>
<tr>
<td>Bicycle and Pedestrian Facilities</td>
<td>No effects.</td>
<td>Reconstructed sidewalks on Main and Pacific Avenues between 1st and 4th Streets (approximately 2 feet narrower).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Two new crosswalks (east and north sides of the Main Avenue/1st Street intersection) in an area of pedestrian use.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>New or reconstructed sidewalks between 1st Street and Hoquarten Slough.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reconstructed sidewalks north of Hoquarten Slough.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Curb extensions would lengthen the sidewalks at some intersections.</td>
</tr>
<tr>
<td>Environmental Justice Compliance</td>
<td>No effects.</td>
<td>No disproportionately high or adverse impacts on minority or low-income populations.</td>
</tr>
</tbody>
</table>

\(a\) For more information, see Section 3.3.2.2.  
\(b\) Between 1st Street and 4th Street (north-south) and Ivy Avenue and Madrona Avenue (east-west).  
\(c\) Mobility is defined as the volume-to-capacity (v/c) ratio at study intersections. The four intersections are Main Avenue/1st Street, Pacific Avenue/1st Street, Main Avenue/3rd Street, and Pacific Avenue/4th Street. For more information, see Section 3.1 (Transportation).  
\(d\) Includes parks, community and public buildings, religious institutions, schools, and museums.  
\(e\) ODOT would acquire property from the Port of Tillamook Bay right-of-way and from a privately-owned parcel south of the Port of Tillamook Bay right-of-way, and would transfer some of that land to the City of Tillamook to incorporate into Hoquarten Interpretive Trail Park. For more information, see Section 3.5 (Parks and Recreational Resources).  
\(f\) More detailed engineering design and coordination with the City of Tillamook and local businesses during final design would determine where curb extensions could be constructed.  

Source: Tillamook US 101/OR 6 Project Socioeconomics Technical Memorandum (ODOT, 2012m)
3.4.2 Environmental Consequences

This section summarizes the socioeconomic effects that would result from the No-Build Alternative and the Build Alternative.

3.4.2.1 No-Build Alternative

The No-Build Alternative would maintain existing conditions. Access would be maintained to parcels with existing access. No changes to on-street parking would be made.

The No-Build Alternative would not make changes to improve mobility (defined as the volume-to-capacity ratio at study intersections). Existing congestion in downtown Tillamook on US 101 and OR 6 would continue to worsen, which could adversely affect economic and social activity generally. The Tillamook community relies, in part, on tourism. Increased congestion could become inconvenient to tourists.

The No-Build Alternative would maintain the existing travel-lane widths and, therefore, would not make modifications that could improve safety. The No-Build Alternative would not construct or reconstruct any bicycle or pedestrian facilities.

3.4.2.2 Build Alternative

This subsection summarizes the economic direct effects, the social resource direct effects, and the indirect socioeconomic effects of the Build Alternative. This subsection also provides information on a future environmental justice finding.

Economic Direct Effects

The direct economic effects of the Build Alternative are summarized in the following subsections—business displacements, access, on-street parking, and mobility.

Business Displacements

The Build Alternative would require property acquisition that would displace the following six businesses. (Figure 3-2 in Section 3.3 [Right-of-Way and Utilities] shows the locations of these businesses.)

- All Star Appliance (2006 1st Street) – Approximately 10 employees
- Bay Breeze Tanning (2010 1st Street) – Approximately 5 employees
- Chez Belle Nails (2010 1st Street) – Approximately 5 employees
- Fei Ying Restaurant (2106 1st Street) – Approximately 10 employees
- Mar Clair Inn (11 Main Avenue) – Approximately 10 employees
- Pacific House Restaurant (2102 1st Street) – Approximately 15 employees

Based on interviews of businesses and project outreach, approximately 55 employees would be affected by the displacement of all six businesses. These jobs would be lost if the businesses did not relocate. The City of Tillamook property-tax effect of the six displaced businesses would be approximately $22,000 annually.

The Mar Clair Inn and its approximately 47 rooms would be displaced. Tillamook has four other motels or hotels; one is located south of downtown Tillamook on Main Avenue (US 101) and the other three are located north of the project study area on US 101. The
closest motel or hotel to the Mar Clair Inn is the Red Apple Inn at 815 Main Avenue, approximately 0.4 mile south of the Mar Clair Inn.

Access
All access decisions for the Build Alternative (including driveway approach locations) would be determined during the next project phase (see Section 3.3.2 [Right-of-Way and Utilities Environmental Consequences] for more information). ODOT would identify opportunities to reduce the number of approaches onto the state highway and design approach locations to comply with ODOT access management standards and procedures, as referenced in Section 3.3. Although access decisions would be deferred, ODOT does not expect that the Build Alternative would displace any business by relocating or closing an approach.

Parking
The following discussion of effects of the Build Alternative on parking is based on current preliminary design and is subject to change during the final design process. See Section 3.5 for the parking effects at Hoquarten Interpretive Trail Park and Sue H. Elmore Park.

Approximately 20 on-street parking spaces on 1st Street between Madrona Avenue and Pacific Avenue would be removed (Figure 3-4). Land uses adjacent to these on-street parking spaces include the U.S. Postal Service, the Tillamook County Pioneer Museum, the Tillamook County Courthouse, and a vacant residential structure. The USPS has separate off-street parking lots for visitors and employees. The Tillamook County Courthouse has a parking lot on Madrona Avenue and on the north side of 1st Street at Madrona Avenue. The Tillamook County Pioneer Museum does not have an off-street parking lot.
Between approximately 10 and 15 on-street parking spaces on 3rd Street between Pacific Avenue and Ivy Avenue would be removed (Figure 3-4). The actual number of spaces removed would be determined during final design. The businesses on 3rd Street are most dependent on the on-street parking because off-street parking is currently limited. Small retail and service-oriented businesses are adjacent to the parking spaces. A small off-street parking lot is located on the north side of 3rd Street between Ivy and Main Avenues. The loss of on-street parking spaces could reduce patronage at businesses on 3rd Street between Pacific and Ivy Avenues. While other on-street parking spaces on the adjacent blocks would remain (such as on Ivy, Main, and Pacific Avenues and 2nd and 4th Streets), they would not be as conveniently located.

With the Build Alternative, approximately 305 to 310 on-street parking spaces would be available between 1st and 4th Streets (north-south) and Ivy and Madrona Avenues (east-west) compared to the currently approximately 340 on-street parking spaces within this same area. Removing up to 35 on-street parking spaces would reduce the number of on-street parking spaces by less than 10 percent within this area. As summarized in Section 3.4.1, a parking utilization survey demonstrated utilization (average of 29 percent of on-street parking spaces occupied) substantially below capacity (90 percent of on-street parking spaces occupied).

**Mobility**

Mobility is measured through v/c ratios at intersections. As described in Section 3.1 (Transportation), the Build Alternative would result in improved (reduced) v/c ratios in 2036 during the p.m. peak hour at four signalized intersections in downtown Tillamook, compared to the No-Build Alternative (the v/c ratio at two signalized intersections in downtown would remain unchanged). The Build Alternative would also improve mobility on Main and Pacific Avenues (between 1st and 4th Streets) through wider travel lanes that can better accommodate large trucks and recreational vehicles. Finally, the extension of Pacific Avenue north of 1st Street would improve mobility on US 101 and OR 6 by making travel through the intersection of those two highways less confusing. Together, these improvements in mobility within the project study area would benefit access to community facilities and general economic activity in the downtown area.

**Social Resource Direct Effects**

The direct effects of the Build Alternative on social resources are summarized in the following subsections – community resources, community cohesion, and bicycle and pedestrian facilities.

**Community Resources**

No residences, community buildings, public buildings, religious institutions, schools, or museums would be displaced. Construction activities would occur within Hoquarten Interpretive Trail Park. Approximately 95 square feet of Hoquarten Interpretive Trail Park would be permanently converted to transportation use. However, ODOT would mitigate the effects, as described in Section 3.5 (Parks and Recreational Resources), by acquiring property to incorporate into the park. The net size of the park would increase under the Build Alternative by approximately 0.24 acre to 0.40 acre. Construction activities would also
occur within Sue H. Elmore Park. No land would be permanently acquired from Sue H. Elmore Park. For more information on park and recreational resources, see Section 3.5.

ODOT would acquire approximately 0.04 acre of land from the USPS parcel on 1st Street (Figure 3-3). This area is currently a portion of the USPS parking lot. ODOT coordinated with USPS and confirmed that there would be no adverse effects to postal service or customer access from this right-of-way acquisition (see Figure F-1 in Appendix F).

**Community Cohesion**

The Build Alternative would tend to improve community cohesion north and south of Hoquarten Slough by providing new and improved bicycle and pedestrian facilities across the slough. The Build Alternative would generally improve mobility in downtown Tillamook.

**Bicycle and Pedestrian Facilities**

Figure 2-2 illustrates proposed improvements to the bicycle and pedestrian facilities under the Build Alternative. Between 1st Street and Hoquarten Slough, the Build Alternative would construct new sidewalks on the Pacific Avenue extension, a new public street from the Pacific Avenue extension, and the new bridge, and would reconstruct sidewalks on 1st Street, Main Avenue, and Front Street. The addition of new and wider sidewalks and combined shoulder/bicycle lanes on the Pacific Avenue extension, a new public street from the Pacific Avenue extension, and the new bridge would benefit the community by providing new multi-modal facilities to connect areas north and south of Hoquarten Slough.

A pedestrian island would be constructed on Front Street at Main Avenue that would provide a refuge for pedestrians crossing the west side of the intersection. The design of the Pacific Avenue/1st Street intersection would allow for public art or a landscaping opportunity in the southeast quadrant of the intersection. These details, including coordination with the City of Tillamook and nearby businesses, would be finalized during final design.

Between 1st Street and 4th Street on Main and Pacific Avenues (the US 101 couplet), the sidewalks on both sides would be narrowed from approximately 12 feet to approximately 10 feet in most locations to widen the travel lanes from approximately 10 feet to 12 feet and maintain on-street parking. The sidewalk width (10 feet) would meet the standard sidewalk widths for STAs (10 feet) and the City of Tillamook (6 feet for arterials), and would be American with Disabilities Act (ADA) compliant. Buildings within this area are immediately adjacent to the sidewalk. However, through public involvement and business outreach, business owners in general indicated that they preferred a cross-section with on-street parking rather than no on-street parking and wider sidewalks. Because on-street parking would be maintained, and business outreach did not identify adverse business effects from narrowing sidewalks, the effect on businesses would be limited to 2-foot narrower sidewalks for business customer access. There are no outdoor business uses, such as outdoor eating spaces, where sidewalks would be narrowed on Main and Pacific Avenues.

Under the Build Alternative, curb extensions would lengthen the sidewalks at some intersections to minimize the street-crossing distance and improve the pedestrian environment. More detailed engineering design and coordination with the City of Tillamook
and local businesses in the future would determine where curb extensions could be constructed. Constraints include the ability of trucks to turn (truck-turning radii), right-of-way, and drainage.

All 21 existing crosswalks at study area signalized intersections would be maintained and two new crosswalks would be added. New crosswalks would be provided on the north side of the Main Avenue/1st Street intersection across Main Street and on the east side of the intersection across 1st Street. These new crosswalks would improve pedestrian connectivity because crosswalks would be located on all four sides of the Main Street/1st Street intersection.

Wider sidewalks and a combined shoulder/bicycle lane on US 101 would be provided in both directions for approximately 700 feet north of Hoquarten Slough.

**Indirect Effects**

The Build Alternative would make improvements to the transportation system that would generally benefit economic activity for the Tillamook community. The Build Alternative transportation improvements could induce new businesses to open in existing buildings or to develop new properties.

Emergency-service-response times and transit-travel times through downtown Tillamook on Main and Pacific Avenues could become shorter with improved mobility, which would improve the reliability of emergency-service responses and transit services.

**Environmental Justice Compliance**

Executive Order #12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations) (Clinton, 1994) requires that impacts to low-income and minority population be evaluated to determine if such populations bear an undue burden of the high and adverse impacts caused by a federal action.

U.S. Census data from 2000 indicates that the census block groups within the project study area had a higher proportion of minority and low-income populations (approximately 16.1 and 18.9 percent, respectively) compared to Tillamook County (approximately 9.0 and 11.1 percent, respectively). However, considering the totality of significant individual and cumulative human health and environmental effects as summarized in this AA Report, ODOT anticipates that FHWA will find that the Build Alternative would not have a disproportionately high and adverse impact on minority or low-income populations.

For example, the Build Alternative would not displace any residential units. Residential units immediately adjacent to the Build Alternative footprint are limited to the apartment units at the Tillamook Hotel (214-218 Pacific Avenue). Tillamook Hotel residents would experience modified building access during construction. However, after construction, residents would benefit from improved mobility and community cohesion and the new multi-modal infrastructure in downtown Tillamook. Hotel residents would not experience adverse visual, noise, vibration, air quality or water quality effects. While the Build

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8 Block group data from the 2010 US Census are not available for Tillamook. While 2010 census tract data are available for the Tillamook area, the tracts are geographically too large to provide meaningful data for this analysis. Therefore, this AA Report uses the available 2000 block group data. The 2000 census block group data used for this analysis may be found in the Tillamook US 101/OR 6 Project Socioeconomics Technical Memorandum.
Alternative would displace six business units, none of those six businesses (i.e. appliance repair, tanning salon, nail salon, motel, and two restaurants) serve a critical function to minority or low-income populations. Further, all area residents would benefit from the Build Alternative through improved access to community facilities and mobility on state highways within the project study area.

Consistent with the project’s public involvement goals (see Section 5.1.1), ODOT has taken specific measures to elicit public input from low-income and minority populations within the vicinity of the project. Examples of those measures include:

- The Stakeholders Advisory Committee (SAC), described in Section 5.1.2, has and will continue to provide recommendations to the Project Management Team and ODOT at project milestones, such as narrowing the range of alternatives, refining the conceptual design of the Build Alternative and selection of the Preferred Alternative. Many members of the SAC are local residents and business owners, and the SAC provides opportunities for public comment at each of its meetings. The SAC meetings, which are conducted relatively informally and whose recommendations are consensus based, are intended to help solicit participation from people that might tend to avoid more formal meetings and settings.

- The project has used relatively informal open houses to provide two-way communications between interested residents/business owners and project staff. The format of these open houses are also intended to help solicit participation from people that might tend to avoid more formal meetings and settings.

- The project’s public outreach plan for the publication, distribution and public review of this AA Report includes environmental justice and Title VI-focused outreach elements. In particular, ODOT will translate project materials into Spanish as requested. ODOT will also publish notice of availability in the local newspaper. Local social service providers will receive notice of the availability of the AA Report via the project newsletter. The project newsletter will include a section translated into Spanish with information about how to receive additional information in Spanish.

FHWA would make the final determination of compliance with Executive Order 12898 during the NEPA phase if ODOT selects the Build Alternative as the Preferred Alternative.

### 3.5 Parks and Recreational Resources

This section describes the affected environment for parks and recreational resources and summarizes the potential direct and indirect effects that the No-Build Alternative and the Build Alternative would have on parks and recreational resources. Section 3.14 summarizes cumulative effects of the Build Alternative on parks and recreational resources. Section 3.15 summarizes the construction effects of the Build Alternative on parks and recreational resources.

This section also makes a determination on the eligibility of the parks in the project study area for Section 4(f) and Section 6(f) protection and ODOT’s and FHWA’s proposed Section 4(f) *de minimis* Impact Finding. For more information on Section 6(f) compliance, see Appendix E.
Table 3-12 summarizes the parks and recreational resources direct effects of the No-Build Alternative and the Build Alternative. More detailed information is provided in Section 3.5.3 (Environmental Consequences).

**TABLE 3-12**

<table>
<thead>
<tr>
<th>Effect</th>
<th>No-Build Alternative</th>
<th>Build Alternative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area of Hoquarten Interpretive Trail Park permanently acquired (fee simple/permanent easement)</td>
<td>0.00/0.00 acre</td>
<td>95 square feet/0.02 acre</td>
</tr>
<tr>
<td>Area of Sue H. Elmore permanently acquired (fee simple/permanent easement)</td>
<td>0.00/0.00 acre</td>
<td>0.00/0.00 acre</td>
</tr>
<tr>
<td>Net increase in Hoquarten Interpretive Trail Park parkland&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.00 acre</td>
<td>At least 0.24 acre&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

<sup>a</sup>Because ODOT would acquire property from the Port of Tillamook Bay right-of-way and from a privately-owned parcel south of the Port of Tillamook Bay right-of-way and would transfer some of that land to the City of Tillamook to incorporate into Hoquarten Interpretive Trail Park.

<sup>b</sup>Between 0.24 acre and 0.40 acre. See Section 3.5.3.2 for details.


### 3.5.1 Regulatory Setting

**Section 4(f)**

Section 4(f) of the Department of Transportation Act of 1966, codified in federal law at 49 U.S.C. 303, declares that “it is the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites.”

Section 4(f) specifies that the Secretary [of Transportation] may approve a transportation program or project requiring the use of publicly owned land of a public park, recreation area, or wildlife or waterfowl refuge of national, State, or local significance, or land of an historic site of national, State, or local significance (as determined by the federal, state, or local officials having jurisdiction over the park, area, refuge, or site) only if:

- There is no prudent and feasible alternative to using that land; and
- The program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.
- The use will have no more than a de minimis impact on the resource. De minimis impacts for parks are defined as those that do not “adversely affect the features, attributes, or activities qualifying the property for protection under Section 4(f).”

**Section 6(f)**

The Land and Water Conservation Fund Act (LWCF) State Assistance Program was established by the LWCF Act of 1965 (Section 6, Land and Water Conservation Fund Act of 1965, as amended; Public Law 88-578; 16 U.S.C. 4601-4 et seq.) to stimulate a nationwide action program to assist in preserving, developing, and assuring all citizens of the United States of present and future generations such quality and quantity of outdoor recreation resources as may be available and are necessary and desirable for individual active participation. The program provides matching grants to States and through States to local...
units of government, for the acquisition and development of public outdoor recreation sites and facilities.

Property acquired or developed with LWCF assistance shall be retained and used for public outdoor recreation. Any property so acquired and/or developed shall not be wholly or partly converted to other than public outdoor recreation uses without the approval of the National Park Service (NPS) pursuant to Section 6(f)(3) of the LWCF Act and these regulations. The conversion provisions of Section 6(f)(3), 36 CFR Part 59, and these guidelines apply to each area or facility for which LWCF assistance is obtained, regardless of the extent of participation of the program in the assisted area or facility and consistent with the contractual agreement between NPS and the State. NPS approval is also required for temporary non-conforming uses of a Section 6(f) property. The recipient of LWCF funds coordinates with the State and the State coordinates with NPS for proposed conversions of or non-conforming uses within Section 6(f)-encumbered properties.

Local Government Grant Program

Local government agencies that are obligated by state law to provide public recreation facilities are eligible for grants through the Oregon Parks and Recreation Department (OPRD) Local Government Grant Program (LGGP). OPRD gives more than $4 million annually to Oregon communities for outdoor recreation projects.

Eligibility is limited to public outdoor park and recreation areas and facilities. These areas and facilities must be open and accessible to the public-at-large. Eligible projects involve land acquisition, development, and major rehabilitation projects that are consistent with the outdoor recreation goals and objectives contained in the Statewide Comprehensive Outdoor Recreation Plan (OPRD, 2008).

3.5.2 Affected Environment

Two parks are located within the project study area – Hoquarten Interpretive Trail Park and Sue H. Elmore Park. The project study area does not contain any wildlife or waterfowl refuges. Figure 3-3 in Section 3.4 (Socioeconomics) illustrates the general location and boundaries of the parks.

3.5.2.1 Hoquarten Interpretive Trail Park

The City of Tillamook owns and maintains Hoquarten Interpretive Trail Park, which includes two areas (see Figure 3-3):

- **Phase One Area.** The Phase One area of Hoquarten Interpretative Trail Park is approximately 2.20 acres. It is located north of OR 6 (1st Street) and east of US 101 and south of Hoquarten Slough (Figure 3-3). The Phase One area includes a paved parking lot with five designated parking spaces, an approximately 900-foot paved multi-use trail, benches, picnic tables, and scenic views. The multi-use trail includes an informational kiosk and sculpture that serve as a gateway to the park. The Phase One area of Hoquarten Interpretative Trail Park is currently accessible from US 101 northbound. Two access points on US 101 provide vehicular access to the park; they are approximately 50 feet and 125 feet south of the Hoquarten Slough Bridge on the east side of US 101 (Main Avenue). Bicyclists and pedestrians access the park from US 101. City of
Tillamook staff estimate that approximately 42 people per week use the park, primarily to use the trail system, and the available parking spaces sufficiently accommodates parking demand.

- **Phase Two Area.** The Phase Two area is approximately 19.48 acres and located north of Hoquarten Slough. Since the City of Tillamook acquired this parcel in 2003, no improvements have been made. There is no access to Phase Two, but the City has a long-term plan to extend the trail system within Phase One across the slough to access Phase Two. Local Government Grant Program funds from the State of Oregon were used to help purchase the Phase Two area of the park.

Hoquarten Interpretive Trail Park is publicly owned and publicly accessible. It is considered by the City of Tillamook, the owner of the park, to be a significant recreational resource and FHWA considers it a Section 4(f) property. No federal Section 6(f) Land Water and Conservation funds were expended on this park.

### 3.5.2.2 Sue H. Elmore Park

Sue H. Elmore Park (formerly Marine Park) is a 0.90-acre open space area located immediately west of US 101 between Front Street and Hoquarten Slough. The City of Tillamook owns and maintains the park. The park contains a boat launch, a landscaped grass area, and picnic tables. Vehicle parking is located in 10 angle spots adjacent to Front Street and on the west end of the park. Sue H. Elmore Park is currently accessible by vehicle, bicycle, and foot from Front Street immediately west of US 101 (Main Avenue). City of Tillamook staff estimates that approximately 21 people per week use the park, primarily for the grass area and boat launch, and that the available parking spaces sufficiently accommodates parking demand. The parking spaces are not signed for park use. Adjacent businesses use the parking spaces for non-park-related parking.

The Sue H. Elmore Park is publicly owned, publicly accessible, and it is considered by the City of Tillamook, the owner of the park, to be a significant recreational resource. Therefore, FHWA considers it to be a Section 4(f) property. Federal Section 6(f) Land and Water Conservation Funds were used to help make improvements to the park. The National Park Service and Oregon Parks and Recreation Department have determined that the entire current park boundary is provided with Section 6(f) protection (see Appendix E).

### 3.5.3 Environmental Consequences

This section summarizes long-term direct and indirect impacts to parks and recreational resources that would result from the No-Build Alternative and the Build Alternative.

#### 3.5.3.1 No-Build Alternative

With the No-Build Alternative, neither Hoquarten Interpretive Trail Park nor Sue H. Elmore Park would be affected because no actions would be undertaken.

#### 3.5.3.2 Build Alternative

This subsection summarizes the long-term direct effects of the Build Alternative on Hoquarten Interpretive Trail Park and Sue H. Elmore Park. (See Section 3.15.2.5 for the construction effects on these parks.)
Hoquarten Interpretive Trail Park

With the Build Alternative, the existing Hoquarten Interpretive Trail Park vehicular access and parking lot would be closed. The existing park access would be replaced with a driveway from a new public street on the west side of the new Pacific Avenue extension, and a new parking lot would be constructed at a new location currently outside of the park (see Figure 2-2 for the location of this new public street and the park access driveway and parking lot). No loss in parking spaces or functionality of the park would occur with this change in access. Motor vehicles would continue to access the parking lot via US 101 northbound.

Under the Build Alternative, ODOT would permanently acquire (fee simple) approximately 95 square feet from the existing southwestern corner of Phase One of Hoquarten Interpretive Trail Park (Figure 3-5) to construct the proposed one-block extension of Pacific Avenue. The parkland that would be acquired, which is currently an undeveloped area with no landscaping, would be converted to transportation use (i.e., the sidewalk on the east side of the proposed Pacific Avenue extension).

The Build Alternative would require a permanent maintenance easement, approximately 950 square feet in area in the southwestern corner of Phase One (Figure 3-5), to allow ODOT to maintain the retaining wall that would provide support for Pacific Avenue (US 101 northbound). The area currently consists of a paved portion (part of the existing parking lot that would be removed) and an unvegeted/undeveloped portion of land. The permanent maintenance easement agreement between the City of Tillamook and ODOT would

Note: Temporary easements are discussed in Section 3.15.2.5
stipulate what actions and amenities would be allowed within the easement area. In general, the easement area would be relatively flat and free of permanent features and obstructions (including trees and shrubs).

ODOT coordinated with the City of Tillamook regarding the site plan for Hoquarten Interpretive Trail Park. The City of Tillamook concluded that the site plan would need to be amended during the design phase to incorporate the changes to the park as a result of the Build Alternative.

The bridge abutment for the new US 101 bridge (outside of Hoquarten Interpretive Trail Park) would be designed to provide an opportunity for the City of Tillamook to establish a pathway underneath the new bridge to connect Hoquarten Interpretive Trail Park with Sue H. Elmore Park. The City could construct the connecting pathway between the new bridge abutment and Hoquarten Slough. This potential pathway is not part of an adopted plan.

Because the footprint of the new bridge and the bridge approaches would be closer to Hoquarten Interpretive Trail Park:

- Views from the park would change, as simulated in Figure 3-10. However, the visual quality would not adversely change from the current views and the introduction of newly-constructed infrastructure would tend to improve the visual environment. For more information, see Section 3.7 (Visual Resources).

- Noise levels at the west end of Hoquarten Interpretive Trail Park (Phase One) would increase up to 4 decibels on the A-weighted scale (dBA) in 2036. For more information, see Section 3.11 (Noise).

The Build Alternative would not affect planned park facilities in either phase of the park (Phase One or Two).

**Sue H. Elmore Park**

There would be no permanent adverse effects on Sue H. Elmore Park caused by the Build Alternative. No parkland would be permanently acquired by ODOT and there would be no change in access to the park; Front Street would continue to provide access to the park as it does today. Approximately 0.08 acre of the park (Figure 3-6) would be reconstructed to increase the elevation of Front Street by up to approximately 2.5 feet to match the proposed grade changes to Main Avenue between Hoquarten Slough and 1st Street. All existing facilities in the park would be restored to existing conditions or better. Views from Sue H. Elmore Park would change because the new bridge would be between approximately 2.5 and 3.5 feet higher than existing conditions at Sue H. Elmore Park, but the visual quality would not adversely change from the current views. Noise levels within Sue H. Elmore Park would increase up to 1 dBA in 2036 over existing conditions. This increase would not be detectable to a human ear. For more information, see Section 3.11 (Noise). The Build Alternative would not affect planned park facilities.
Mitigation

The Build Alternative would not permanently affect Sue H. Elmore Park and, therefore, no mitigation is planned for that park.

The Build Alternative would include the following mitigation actions at Hoquarten Interpretive Trail Park to help mitigate the permanent use of 95 square feet of the park by the project:

- A new public street would be constructed on the east side of the Pacific Avenue extension (US 101 northbound) that would provide access to Hoquarten Interpretive Trail Park, a new park parking lot and other adjacent parcels (see Figure 2-2). The new park parking lot would provide six parking spaces – one more parking space than the existing parking lot. Three additional on-street parking spaces would be provided on the new public street immediately adjacent to the newly relocated parking lot, for a net increase of four parking spaces. The existing parking lot would be converted to recreational use – the impervious parking lot surface would be replaced with a landscaped pervious surface. ODOT would construct a new trail to reconnect the existing trail system with the new parking lot.

- The net size of the park would increase between 0.24 acre and 0.40 acre (Figure 3-7) because ODOT would perform the following actions:
  - Acquire property from the Port of Tillamook Bay south of the existing boundary of Hoquarten Interpretive Trail Park. The Port of Tillamook Bay has agreed to enter into negotiations to sell ODOT the land needed to construct the Build Alternative. After construction, ODOT would transfer between approximately 0.15 acre and
0.21 acre of land to the City of Tillamook to incorporate into Hoquarten Interpretive Trail Park.

- Acquire property from a privately-owned parcel south of the Port of Tillamook Bay (the property currently contains a motel and a restaurant) to construct the Pacific Avenue extension (US 101 northbound). After construction, ODOT would transfer between approximately 0.09 acre and 0.19 acre of land to the City of Tillamook to incorporate into Hoquarten Interpretive Trail Park.

In summary, the 11 to 18 percent increase in Phase One park area and increased parking capacity (four new spaces) would provide an increased benefit to public recreation use. The exact increase in park area would depend on the area ODOT would retain for maintenance, which would determine the western park boundary of the park as illustrated in Figure 3-7. Therefore, the area transferred to the City of Tillamook to incorporate into Hoquarten Interpretive Trail Park would be determined during the final design process.

**3.5.4 Properties Evaluated Relative to the Requirements of Section 4(f)**

The Build Alternative has been evaluated to determine if any use of Section 4(f) park and recreational resources would occur. For a description of potential impacts on Section 4(f) historic properties, see Section 3.6.4.

The Build Alternative would require the temporary occupancy of Hoquarten Interpretive Trail Park (as shown on Figure 3-5) and Sue H. Elmore Park (as shown on Figure 3-6). Based on the temporary occupancy findings provided in Appendix C, ODOT, FHWA, and the City of Tillamook concluded that the Build Alternative’s temporary uses of Hoquarten Interpretive Trail Park and Sue H. Elmore Park would not constitute a “use” as defined under Section 4(f).

The Build Alternative would also result in the permanent acquisition (fee simple) and change of use of approximately 95 square feet of Hoquarten Interpretive Trail Park (as shown on Figure 3-7), converting that area from parkland to roadway right-of-way. The Build Alternative would also require ODOT to purchase a 950 square foot permanent
maintenance easement from within the park. Based on the findings in Appendix D, ODOT and FHWA preliminarily conclude that the Build Alternative would result in a *de minimis* impact to Hoquarten Interpretive Trail Park and, therefore, would not constitute a “use” as defined under Section 4(f). See Appendix D for the proposed *de minimis* Impact Finding documentation.

3.5.5 Properties Evaluated Relative to the Requirements of Section 6(f)

The Build Alternative has been evaluated to determine if any conversion of Section 6(f)-encumbered properties would occur. This evaluation has determined that Sue H. Elmore Park is a Section 6(f)-encumbered property. However, because no land would be permanently converted to non-recreational uses, no Section 6(f)-encumbered properties would be converted by the Build Alternative. The Oregon Parks and Recreation Department and the National Park Service have determined that the proposed Build Alternative construction activities within an area of Sue H. Elmore Park (approximately 0.08 acre; see Figure 3-6) would not be a non-conforming use of a Section 6(f) property. For more information, see Appendix E.

3.5.6 Properties Evaluated Relative to the Local Government Grant Program

The Build Alternative was evaluated to determine if any conversion of LGGP properties would occur. This evaluation has determined that Hoquarten Interpretive Trail Park is an LGGP-encumbered property. The City of Tillamook submitted documentation to OPRD in December 2011 and concluded that the proposed Hoquarten Interpretive Trail Park acquisition and mitigation under the Build Alternative (see Section 3.5.3) would meet the requirements of an exception to conversion of use in the Local Government Grant Program Manual (OPRD, 2011). For more information, see the Tillamook US 101/OR 6 Project Local Government Grant Program Exception from Conversion of Use Proposal (City of Tillamook, 2012). OPRD review of this finding is pending.

3.6 Cultural Resources


Cultural resources include archaeological sites and isolates, and the historic built environment. The historic built environment includes aboveground historic properties (buildings and structures), while archaeological resources consist of prehistoric or historic

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9 The Oregon State Historic Preservation Office defines an isolate as nine (9) or less artifacts in a location that appears to reasonably reflect a single event, loci, or activity.
resources. Some archaeological resources may lack a subsurface component and consist only of surface artifacts or the demolished or ruined remains of former standing structures.

3.6.1 Regulatory Setting

The National Historic Preservation Act of 1966 (NHPA), as amended, sets forth national policy and procedures regarding historic properties, defined as districts, sites, buildings, structures, and objects included in, or eligible for, the National Register of Historic Places (NRHP). Section 106 of NHPA requires federal agencies to take into account the effects of their undertakings on such properties and to allow the Advisory Council on Historic Preservation (ACHP) the opportunity to comment on those undertakings, following regulations issued by the Advisory Council on Historic Preservation.

In 2001, a Section 106 Programmatic Agreement (PA) between the ACHP, FHWA, the Oregon State Historic Preservation Officer (SHPO), and ODOT went into effect for minor transportation projects, with FHWA involvement. The PA defines the 106 process that ODOT uses and delegates some review responsibilities from SHPO to ODOT.

Section 4(f) of the Department of Transportation Act of 1966 codified in federal law at 49 U.S.C. 303, declares that “it is the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites.”

Section 4(f) specifies that the Secretary of Transportation may approve a transportation program or project requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, State, or local significance, or land of an historic site of national, State, or local significance (as determined by the federal, state, or local officials having jurisdiction over the park, area, refuge, or site) only if:

- There is no prudent and feasible alternative to using that land; and
- The program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.
- The use will have no more than a Section 4(f) de minimis impact on the resource. De minimis impacts for parks are defined as those that do not “adversely affect the features, attributes, or activities qualifying the property for protection under Section 4(f).”

Section 4(f) further requires consultation with the Department of the Interior and, as appropriate, the involved offices of the Departments of Agriculture and Housing and Urban Development in developing transportation projects and programs that use lands protected by Section 4(f). If NRHP-listed or eligible sites are involved, then coordination with the State Historic Preservation Officer or Tribal Historic Preservation Officer is also needed.

3.6.2 Affected Environment

Cultural resource professionals collected information and conducted an archaeological cultural resources field survey (June 2010) within an archeological resources area of potential effect (APE) (Figure 3-8). The information review did not identify previously recorded archaeological sites in or near the APE. One archaeological resource, the historic-
era remnant bridge piers east of the existing US 101 bridge over Hoquarten Slough, was identified and recorded. ODOT determined these bridge piers lack significance as an archaeological resource and, therefore, are not eligible for listing in the NRHP. ODOT has engaged the Confederated Tribes of the Grand Ronde Community of Oregon and the Confederated Tribes of Siletz Indians by initiating consultation on July 17, 2009. ODOT consultation with these tribes since that time has been ongoing. See Appendix F for a summary of the tribal coordination.
Cultural resource professionals: a) conducted an inventory of existing resources within the project’s architectural resources APE (i.e., the project’s construction footprint – see Figure 3-8); b) identified and evaluated architectural resources literature and data; and c) analyzed these data to assess the eligibility of properties within the architectural resources APE for listing in the NRHP. Within the architectural resources APE, the inventory and analyses identified one property listed in the NRHP and four properties that are eligible for listing in the NRHP (Table 3-13 and Figure 3-8). While the existing US 101 bridge over Hoquarten Slough is over 50 years old and has retained its architectural integrity, it lacks significance as an historical resource; therefore ODOT and SHPO determined that the existing bridge is not eligible for listing in the NRHP (see the Tillamook US 101/OR 6 Project Cultural Resources Technical Memorandum for additional detail). SHPO concurred with ODOT’s findings of eligibility of resources within the architectural resources APE (for more information, see the Tillamook US 101/OR 6 Project Cultural Resources Technical Memorandum).

3.6.3 Environmental Consequences

The following subsections summarize the direct and indirect effects on archaeological and architectural resources with the No-Build Alternative and the Build Alternative.

3.6.3.1 No-Build Alternative

Because no actions would be undertaken, the No-Build Alternative would have no direct or indirect effect on NRHP-eligible or NRHP-listed properties. No NRHP-eligible or NRHP-listed properties would be damaged, destroyed, removed, or altered because of the No-Build Alternative.

3.6.3.2 Build Alternative

This section summarizes the effects that the Build Alternative would have on archaeological and architectural resources, including direct and indirect effects. On May 23, 2012, Oregon SHPO determined that the Build Alternative would not have an adverse effect under Section 106 of the NHPA on NHRP-eligible or NHRP-listed properties. For more information, see Appendix F.

Archaeological Resources

Because there are no known NRHP-eligible or NRHP-listed archaeological resources in the APE, the Build Alternative would have no direct or indirect effect on known NRHP-eligible or NRHP-listed archaeological resource properties. The remnant bridge piers east of the existing bridge would be removed during construction, as described in Section 2.3.2 and Section 3.15.1. Currently unidentified archaeological or cultural materials or sites could be encountered during construction ground-disturbing activities (see Section 3.15.2.6 for additional information).

Architectural Resources

The following summarizes the direct and indirect effects to architectural resources.
### TABLE 3-13
Historic Properties Listed In, or Eligible for Listing in, the National Register of Historic Places

<table>
<thead>
<tr>
<th>Property Address</th>
<th>Description</th>
<th>Dates</th>
<th>NRHP Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>210 Laurel Avenue</td>
<td>Tillamook City Hall (former U.S. Post Office)</td>
<td>Dates from 1941</td>
<td>Listed in the NRHP March 1, 1985</td>
</tr>
<tr>
<td>2210 1st Street</td>
<td>Hoquarton House (private residence)</td>
<td>Dates from circa 1890</td>
<td>Eligible for listing in the NRHP</td>
</tr>
<tr>
<td>2303 1st Street</td>
<td>Private residence</td>
<td>Dates from circa 1900</td>
<td>Eligible for listing in the NRHP</td>
</tr>
<tr>
<td>201 Laurel Avenue</td>
<td>Third Tillamook County Courthouse</td>
<td>Dates from 1932</td>
<td>Eligible for listing in the NRHP</td>
</tr>
<tr>
<td>310 Main Avenue</td>
<td>Beals Building, Coliseum</td>
<td>Dates from 1923</td>
<td>Eligible for listing in the NRHP</td>
</tr>
</tbody>
</table>

Source: Tillamook US 101/OR 6 Project Cultural Resources Technical Memorandum (ODOT, 2012e)
Direct Effects
The Build Alternative would have no adverse direct effect on the NRHP-eligible or NRHP-listed properties identified in Table 3-13, because Build Alternative actions would not damage, destroy, remove, or alter any NRHP-eligible or NRHP-listed properties in the APE. In summary:

- 210 Laurel Avenue (Tillamook City Hall, former U.S. Post Office) and 2303 1st Street (private residence) – Build Alternative actions would not occur on or adjacent to these properties.

- 2210 1st Street (Hoquarton House, private residence) and 201 Laurel Avenue (Third Tillamook County Courthouse) – Build Alternative actions on 1st Street between Laurel Avenue and Madrona Avenue would occur within existing right-of-way. Therefore, these actions would not directly affect either 2210 1st Street or 201 Laurel Avenue because the Build Alternative would not physically damage, remove, alter, or destroy them.

- 310 Main Avenue (Beals Building, Coliseum) – The travel lanes on Main Avenue south of 1st Street would be widened from 10 to 12 feet by narrowing the sidewalks from 12 feet to 10 feet within existing right-of-way. This would have a direct effect on the setting of 310 Main Avenue but it would be minor, and the Build Alternative would not physically damage, alter, or destroy the property.

Indirect Effects
The Build Alternative would not have any indirect effects on NRHP-eligible or NRHP-listed properties in the APE. No new visual, atmospheric, or audible elements would be introduced that might impact the integrity of significant historic features of any NRHP-eligible or NRHP-listed properties.

Because the Build Alternative would not directly or indirectly alter any characteristics of the NRHP-eligible or NRHP-listed properties that qualify the properties for inclusion in the NRHP, there would be no adverse effect to these properties under Section 106 of the NHPA.

Mitigation
Because the Build Alternative would not result in any adverse long-term direct or indirect effects on either archaeological or historic cultural resources, no mitigation measures are warranted.

3.6.4 Historic Resources Evaluated Relative to the Requirements of Section 4(f)
The Build Alternative has been evaluated to determine if any use of Section 4(f) historic resources would occur. This evaluation has determined that the following historic resources are Section 4(f) properties:

- Tillamook City Hall (210 Laurel Avenue, Tillamook); listed in the NRHP
- Hoquarton House (2210 1st Street, Tillamook); eligible for listing in the NRHP
- 2303 1st Street, Tillamook (residence); eligible for listing in the NRHP
• Third Tillamook County Courthouse (201 Laurel Avenue, Tillamook); eligible for listing in the NRHP
• Beals Building/Coliseum (310 Main Avenue, Tillamook); eligible for listing in the NRHP

However, because no land would be incorporated from any of the above properties, no Section 4(f) historic resources would be used by the Build Alternative.

### 3.7 Visual Resources

This section summarizes the affected environment for visual resources and summarizes the potential visual resource effects of the No-Build Alternative and the Build Alternative. Section 3.14 summarizes the visual resource cumulative effects of the Build Alternative. Section 3.15 summarizes the visual resource construction effects of the Build Alternative. For more information on the visual resource assessment, see the *Tillamook US 101/OR 6 Project Visual Resources Technical Memorandum* (ODOT, 2012q).

#### 3.7.1 Affected Environment

The visual environment includes the visual features of the natural and built environments, and the visual relationships among them. Hoquarten Slough is the main source of visual quality in the project study area. Two recreational facilities that contribute to the visual environment—Sue H. Elmore Park and Hoquarten Interpretive Trail Park—flank both sides of the US 101 bridge on the south side of the slough. The commercial areas north and south of Hoquarten Slough along US 101 generally lack valuable visual resources.

#### 3.7.2 Environmental Consequences

This subsection summarizes the visual resource environmental consequences of the No-Build Alternative and the Build Alternative. Pictures of existing conditions (generally representing the No-Build Alternative) and simulations\(^\text{10}\) (generally representing the Build Alternative) are included within this section.

#### 3.7.2.1 No-Build Alternative

The No-Build Alternative would have no visual resource effect because it would maintain the existing visual resources and, therefore, would have no effect on the visual environment.

#### 3.7.2.2 Build Alternative

Figure 3-9 shows an existing view from the bridge over Hoquarten Slough looking south towards downtown Tillamook, and simulates the view from the same location with the Build Alternative. Figure 3-10 shows an existing view from the Port of Tillamook Bay right-of-way towards the western end of Hoquarten Interpretive Trail Park and the bridge over Hoquarten Slough, and generally simulates the view from the same location with the Build Alternative. (With the Build Alternative, this location would be within Hoquarten Interpretive Trail Park because the Build Alternative would incorporate land from the Port of Tillamook Bay right-of-way.)

\(^{10}\) These simulations of the Build Alternative are general in nature and attempt to represent changes in the visual environment. Because the design of the Build Alternative is conceptual (approximately 10-percent design), many design or visual elements of the Build Alternative are estimates or approximations.
FIGURE 3-9
View from the Hoquarten Slough Bridge (Looking South) – Existing View and View with the Build Alternative

Existing View

View with the Build Alternative

Note: Utility pole locations and lines (if applicable), bridge railing design, and luminaires (if applicable) would be determined during the final design process.
FIGURE 3-10
View Towards the Hoquarten Slough Bridge – Existing View and View with the Build Alternative

Existing View

View with the Build Alternative

Note: Utility pole locations and lines (if applicable), bridge railing design, and luminaires (if applicable) would be determined during the final design process.
The effect on the visual environment would be minimal because the Build Alternative would:

- Slightly change the existing views of Hoquarten Slough from the new bridge across Hoquarten Slough. The height of the new bridge (up to approximately 5 feet higher than the existing bridge) and location of the US 101 northbound lanes (approximately 20 feet east of the existing location) would place the viewer in a slightly different location and orientation.

- Slightly change the existing view of the bridge and bridge approaches from Hoquarten Interpretive Trail Park and Sue H. Elmore Park because the new bridge would be between approximately 2.5 and 3.5 feet higher than existing conditions at the parks (up to approximately 5 feet higher at the center of the bridge), and the footprint of the new bridge and its approaches would be closer to Hoquarten Interpretive Trail Park because the US 101 northbound lanes would be on the new Pacific Avenue extension (see Figure 2-2).

Overall, for viewers of the bridge and road, and from the bridge and road, the visual quality and aesthetics of the slough environment after construction of the Build Alternative would not adversely change from the current views. New infrastructure constructed with the Build Alternative, such as the new bridge, parking lot, and sidewalks, would tend to improve the visual environment by replacing old infrastructure with new infrastructure.

City of Tillamook staff anticipate that improved mobility with the project study, including improved access to and parking for the park, and the increased size of Hoquarten Interpretive Trail Park could increase public use of the park. Increased use of the park could induce the development of new facilities within the park and change the visual quality of the area. However, any new facilities would likely be consistent with the low-scale development identified in the site plan for the park and, therefore, would not adversely affect the visual quality of the area.

### 3.8 Water Resources

This section summarizes the affected environment for water resources and summarizes the potential water resource effects of the No-Build Alternative and the Build Alternative. Section 3.14 summarizes the water resources cumulative effects of the Build Alternative. This section also addresses compliance with 23 CFR 650 Subpart A and provides a preliminary floodplain management finding in accordance with Executive Order 11988, which relates to encroachments within a FEMA mapped floodplain. Section 3.15 summarizes the water resources construction best management practices (BMPs) and effects of the Build Alternative. For more information on the water resources analysis, see the Tillamook US 101/OR 6 Project Water Resources Technical Memorandum (ODOT, 2012r), the Tillamook US 101/OR 6 Project Stormwater Management Technical Memorandum (ODOT, 2012n), and the Tillamook US 101/OR 6 Preliminary Hydraulic Report – Hoquarten Slough: US 101 Bridge Replacement (ODOT, 2012k).

Table 3-14 summarizes the water resources direct effects of the No-Build Alternative and the Build Alternative. More detailed information is provided in Section 3.8.2 (Environmental Consequences).
### Table 3-14
Water Resources Direct Effects Summary

<table>
<thead>
<tr>
<th>Effect</th>
<th>No-Build Alternative</th>
<th>Build Alternative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change in impervious surfaces</td>
<td>0.0 acre</td>
<td>-1.0 acre</td>
</tr>
<tr>
<td>Change in 100-year water surface elevation from existing elevation</td>
<td>0.0 foot</td>
<td>-0.1 foot</td>
</tr>
<tr>
<td>Water quality design storm runoff volume&lt;sup&gt;a&lt;/sup&gt;</td>
<td>47,600 cubic feet&lt;sup&gt;b&lt;/sup&gt;</td>
<td>43,800 cubic feet&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td>Would improve Hoquarten Slough water quality from existing conditions?</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

<sup>a</sup> Fifty-percent of the cumulative rainfall from the 2-year, 24-hour storm for the project study area.

<sup>b</sup> Drainage would continue to discharge without treatment to Hoquarten Slough.

<sup>c</sup> Runoff would be collected and treated in water quality facilities, and then discharged into Hoquarten Slough.


### 3.8.1 Affected Environment

The project study area is part of the Tillamook Bay Watershed, within the North Coast Basin. Hoquarten Slough is the primary water resource within the project study area (Figure 3-11). Wetlands occur within the project study area and ODOT delineated wetlands within close proximity of the construction footprint of the Build Alternative. The slough runs along the northern edge of the City of Tillamook, beginning at farmlands to the northeast of the city and ending approximately two river miles east of the US 101 bridge, at the confluence with Dougherty Slough. Hoquarten Slough is a tidal waterbody with velocities of less than one foot per second, including during extreme flow events.

To assess ambient water quality in Hoquarten Slough, monitoring data were obtained from the Oregon Department of Environmental Quality (DEQ). Hoquarten Slough is on the DEQ’s federal Clean Water Act (CWA) Section 303(d) list of impaired waters for dissolved oxygen.

The existing drainage in the project study area is a series of catch basins and pipe conveyance systems. Stormwater is collected from the roadways through a series of catch basins and piped to Hoquarten Slough, where it is discharged without water quality treatment. DEQ testing revealed high concentrations of bacteria, likely caused by sewage from sanitary sewer pipes cross-connected to the stormwater system. The City of Tillamook is developing a remediation plan for DEQ review and approval, and construction to remedy the problem could begin as soon as mid to late 2012.

The Federal Emergency Management Agency (FEMA) publishes Flood Insurance Rate Maps (FIRMs) that delineate the 100-year floodplains and floodways. For the FIRM maps within the project study area, see the Tillamook US 101/OR 6 Project Water Resources Technical Memorandum. Within the project study area, large areas of land adjacent to Hoquarten Slough, particularly on the north bank, are FEMA-designated floodplains (Special Flood Hazard Area, “Zone AE”) with substantial commercial use. The majority of the 100-year floodplain to the north is also designated floodway. Tillamook Zoning Ordinance Section 20.5.B.4 requires that encroachments into the floodway do not result in a rise in the

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base flood elevation. Revisions to FIRM maps in the Tillamook area are currently being made. No FEMA approval date of these revisions has been identified.

The Oregon Solutions Project Exodus is developing and implementing a plan to reduce flooding and the adverse effects of flooding in the Wilson River floodplain. The project would focus on reducing the levels and durations of 2- to 10-year floods to decrease flood damages. Elements of the project could decrease the water surface elevation within the project study area. A construction date has not been identified.\textsuperscript{11}

### 3.8.2 Environmental Consequences

The following subsections summarize the water resources direct and indirect effects of the No-Build Alternative and the Build Alternative.

#### 3.8.2.1 No-Build Alternative

No direct hydrologic effects on Hoquarten Slough are anticipated as a result of the No-Build Alternative because no actions would be undertaken that would change the hydrology of the slough. If funded and implemented, the Project Exodus project could decrease the water surface elevation within the project study area.

\textsuperscript{11} For more information on Project Exodus, see [http://www.orsolutions.org/northwest/tillamook.htm](http://www.orsolutions.org/northwest/tillamook.htm).
The No-Build Alternative would maintain the existing amount of impervious surface area. Because no stormwater treatment is currently provided for the existing stormwater system, untreated stormwater would continue to discharge into the slough, further degrading water quality in the slough. However, implementation of a remediation plan by the City to remedy contaminated stormwater, as described in Section 3.8.1, would likely improve water quality within the slough compared to the existing condition.

3.8.2.2 Build Alternative

The following subsections summarize the direct and indirect effects of the Build Alternative; describe stormwater management and treatment; discuss mitigation; and address the type and extent of floodplain encroachments.

Direct Effects

No wetlands would be displaced or spanned under the Build Alternative.

The Build Alternative would collect stormwater runoff, treat it in facilities, and then discharge it into Hoquarten Slough. This collection and treatment process would improve water quality in the slough because stormwater currently discharges into the slough without treatment. The “Stormwater Management and Treatment” subsection provides more information on proposed stormwater management and treatment facilities. The Tillamook US 101/OR 6 Project Water Resources Technical Memorandum documents the estimated percent reduction in particulate and dissolved pollutants with the introduction of treatment facilities.

The Build Alternative would remove approximately one acre of existing impervious surfaces and change that area to a pervious surface (in the vicinity of the project between Hoquarten Slough and 1st Street). Because overall impervious area would decrease with the Build Alternative, the uncontrolled peak runoff rate from the new impervious surface area would decline by approximately 3.9 percent from the existing condition. Therefore, the Build Alternative is not forecast to result in adverse hydrologic effects to Hoquarten Slough. Because the peak discharge from the project study area would be reduced, flow control facilities would not be required.

The proposed new bridge across Hoquarten Slough would be approximately 30 feet longer than the existing bridge. The new bridge would have abutments located above the highest measured tide elevation and would increase the hydraulic opening for Hoquarten Slough. (See Appendix F for an engineering sheet that illustrates the proposed bridge plan and elevation.) A preliminary hydraulic analysis was conducted based on the preliminary project design. Because the analysis is based on conceptual plans rather than on construction documents, ODOT would prepare a final hydraulics report during final design as part of the project’s permitting process with the City. The preliminary hydraulic analysis indicates that under the Build Alternative there would be a 0.1-foot decrease in the 100-year water surface elevation from the current elevation. Therefore, the proposed structure as currently defined would meet the “no rise” criterion in the Tillamook Zoning Ordinance.
Indirect Effects
A new bridge would establish new channel hydraulics (the flow of water within Hoquarten Slough), but would generally improve channel hydraulics by reducing the number of piers in the regulated channel of Hoquarten Slough.

Stormwater Management and Treatment
As summarized in the Tillamook US 101/OR 6 Project Stormwater Management Technical Memorandum, numerous stormwater management and treatment methods were investigated to determine their viability for treating stormwater from the total contributing impervious area of the Build Alternative, which includes Build Alternative impervious surfaces and all surface runoff from impervious surfaces draining those impervious surfaces. The availability of sites for water quality treatment facilities (such as swales and detention ponds) within the project study area is limited because of commercial development, parks, and the 100-year floodplain. Compost filter inlets were identified as a reasonable water quality treatment option in all areas.

Compost filter inlets are typically used in dense urban environments to filter pollutants out of stormwater. Inlets along the curb of the roadway collect stormwater. The stormwater flows through a filter media mixture contained in a landscaped concrete container. The filter media use bioretention processes to filter out pollutants from the stormwater (see the Tillamook US 101/OR 6 Project Stormwater Management Technical Memorandum for performance and other specifications of compost filter inlets). After traveling through the filter media, an underdrain system at the bottom of the container collects the stormwater, which is then discharged to the stormwater system. The compost filter units would need to be connected with the existing stormwater system. The modifications needed to the existing stormwater system to connect to the units would be determined during the project’s design phase.

Two stormwater management options are being considered for the new public street from the Pacific Avenue extension: (1) a drainage pipe beneath Hoquarten Interpretive Trail Park that would connect to one or more compost filter inlets and that would outfall at Hoquarten Slough; or (2) an underground drainage pipe connecting one or more compost filter inlets to the existing stormwater system along US 101. The stormwater management option for this roadway would be identified during the final project design phase.

ODOT will monitor how the City of Tillamook and DEQ remedy contaminated stormwater within Hoquarten Slough.

Mitigation
Because the Build Alternative would not result in any adverse long-term direct or indirect effects on water resources, no water resource mitigation measures are warranted.

Type and Extent of Floodplain Encroachments
Executive Order 11988 (Floodplain Management) (Carter, 1977) directs all federal agencies to refrain from conducting, supporting, or allowing actions in floodplains unless it is the only practicable alternative. FHWA requirements for compliance are outlined in 23 CFR 650
Subpart A. For all federally-funded projects, Executive Order 11988 requires the consideration of alternatives that would avoid floodplain impacts.

The Build Alternative would encroach into the 100-year floodplain, causing minor changes in flood stage and flood limits. With the Build Alternative, a preliminary hydraulic analysis indicated a 0.1-foot drop in the 100-year water surface elevation from the current elevation. These changes would not adversely impact the natural and beneficial floodplain values. Because there is an established alternate emergency services route that bypasses the section of US 101 north of Hoquarten Slough, there would not be a substantial change in the potential for interruption or termination of emergency-service or emergency-evacuation routes.

“Significant encroachment,” as defined at 23 CFR 650.105, is a highway encroachment and any direct support of likely base floodplain development that would involve one or more of the following construction or flood-related impacts:

- A significant potential for interruption or termination of a transportation facility that is needed for emergency vehicles or provides a community’s only evacuation route,
- A significant risk (to life or property), or
- A significant adverse impact on natural and beneficial floodplain values

ODOT preliminarily concludes that the floodplain encroachments presented with the Build Alternative would not be significant as defined by 23 CFR 650.105. Therefore, construction of the Build Alternative would be a compatible floodplain development. Because the encroachments with the Build Alternative would not be significant, ODOT anticipates a formal finding that the Build Alternative is the only practicable alternative (as required by 23 CFR 650, Subpart A) would be unnecessary. FHWA would make the final determination during the NEPA phase if ODOT selects the Build Alternative as the Preferred Alternative.

3.9 Biological Resources

This section summarizes the affected environment for biological resources and the biological effects of the No-Build Alternative and the Build Alternative. Section 3.14 addresses the cumulative biological effects of the Build Alternative. Section 3.15 summarizes the construction effects of the Build Alternative on biological resources. For more information related to the biological resources analysis, see the *Tillamook US 101/OR 6 Project Aquatic Resources Technical Memorandum* (ODOT, 2012c), the *Tillamook US 101/OR 6 Project Vegetation and Terrestrial Wildlife Technical Memorandum* (ODOT, 2012p), the *Tillamook US 101/OR 6 Project Stormwater Management Technical Memorandum* (ODOT, 2012n), the *Tillamook US 101/OR 6 Project Water Resources Technical Memorandum* (ODOT, 2012r), and the *Tillamook US 101/OR 6 Project Biological Assessment* (ODOT, 2011b).

Table 3-15 summarizes the direct biological effects of the No-Build Alternative and the Build Alternative, including effects on aquatic species, and riparian and aquatic habitats.

Indirectly, the project might benefit wildlife through native species revegetation and efforts to control non-native and invasive weed species, but increased human activity might trample vegetation or spread weeds. Proposed stormwater management, reduced
impervious surfaces, and bridge replacement might indirectly improve water quality and improve aquatic resources.

More detailed information is provided in Section 3.9.2 (Environmental Consequences).

### TABLE 3-15
Summary of Direct Effects on Biological Resources

<table>
<thead>
<tr>
<th>Direct Effect</th>
<th>No-Build Alternative</th>
<th>Build Alternative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federally threatened or endangered terrestrial wildlife and plant species&lt;sup&gt;a&lt;/sup&gt;</td>
<td>No Effect</td>
<td>No Effect&lt;sup&gt;d&lt;/sup&gt;</td>
</tr>
<tr>
<td>Federally threatened or endangered aquatic species&lt;sup&gt;a&lt;/sup&gt;</td>
<td>No Effect</td>
<td>May affect, likely to adversely affect, coho salmon, Pacific eulachon, and green sturgeon;&lt;sup&gt;c&lt;/sup&gt; No effect on Steller sea lion&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Critical aquatic habitat&lt;sup&gt;d&lt;/sup&gt;</td>
<td>No Effect</td>
<td>May affect, but not likely to adversely affect, critical habitat for coho salmon and green sturgeon</td>
</tr>
<tr>
<td>Urban and mixed environs and wetlands habitat</td>
<td>No Effect</td>
<td>No Effect</td>
</tr>
<tr>
<td>Westside riparian habitat&lt;sup&gt;e&lt;/sup&gt;</td>
<td>0.00 acre</td>
<td>0.11 acre</td>
</tr>
<tr>
<td>Hoquarten Slough&lt;sup&gt;f&lt;/sup&gt;</td>
<td>0.00 acre</td>
<td>0.26 acre</td>
</tr>
</tbody>
</table>

<sup>a</sup> A species is considered endangered if it is in danger of extinction throughout all or a significant portion of its range. A species is considered threatened if it is likely to become endangered in the future.

<sup>b</sup> See the Tillamook US 101/OR 6 Project Vegetation and Terrestrial Wildlife Memorandum (ODOT, 2012p) for the No Effect documentation.

<sup>c</sup> See Tillamook US 101/OR 6 Project Biological Assessment (ODOT, 2011b).

<sup>d</sup> Habitat that is essential for conservation of threatened or endangered species.

<sup>e</sup> Oregon Department of Fish and Wildlife (ODFW) Conservation Strategy Habitat that provides support for a variety of terrestrial and aquatic species.

<sup>f</sup> Jurisdictional waters below highest measured tide (approximately 11.94 feet North American Vertical Datum of 1988 [NAVD88]).


### 3.9.1 Regulatory Setting
The Tillamook US 101/OR 6 Project is subject to federal, state, and local laws and regulations that protect biological resources. Many of these regulations require the avoidance or minimization of effects to resources, and compensatory mitigation for unavoidable effects. The following sections summarize federal and state regulations and permits applicable to biological resources in the project study area.

#### 3.9.1.1 Federal Regulations
- **Section 404, Clean Water Act (CWA); Section 10, Rivers and Harbors Act of 1899.**
  Permission is needed from the U.S. Army Corps of Engineers (USACE) for work in wetlands and other waters, including navigable waters. Permitting involves joint application to Oregon DSL for a Removal-Fill Permit. Section 401 of the CWA requires Water Quality Certification by DEQ.
• **Section 9, Rivers and Harbors Act of 1899; General Bridge Act of 1946.** U.S. Coast Guard (USCG) approves bridge location and plans. Their jurisdiction applies to all tidal waters. USCG consults with federal agencies with legal jurisdiction or special expertise concerning the environment and navigation.

• **Endangered Species Act (ESA) of 1973 (7 U.S.C. § 136, 16 U.S.C. § 1531 et seq.).** The ESA protects threatened and endangered species, and the ecosystems upon which they depend. Section 7 of the ESA requires that federal agencies must consult with the U.S. Fish and Wildlife Service (USFWS) and/or the National Marine Fisheries Service (NMFS) to ensure that the agency is not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroying or adversely modifying designated critical habitat. Compliance with the ESA is demonstrated through “No-Effect” documentation, or informal or formal consultation. The outcome of formal consultation is a Biological Opinion that may include an incidental take permit. Conservation measures are required to reduce “take” and contribute to recovery of listed species (for example, fish). Section 10(a)(1)(A) of the ESA requires NMFS to issue an ESA Incidental Take Permit (and the Oregon Department of Fish and Wildlife [ODFW] to issue an Oregon Scientific Take Permit) for physical removal of fish from isolated in-water work areas (that is, fish salvage/handling).

• **Fish and Wildlife Coordination Act.** Coordination occurs through the federal permitting agency. It provides direct input into the federal decision process by the federal and state fish and wildlife agencies.

• **Migratory Bird Treaty Act (MBTA).** The MBTA makes it unlawful to take, import, export, possess, sell, purchase, or barter any migratory bird, with the exception of the taking of game birds during established hunting seasons. The MBTA also applies to feathers, eggs, nests, and products made from migratory birds. The MBTA requires that clearing, demolition, and other construction operations avoid the taking of adult birds, their young, and eggs in occupied nests. This law is of particular concern when birds nest on bridges, buildings, signs, illumination, and structures.

• **Bald and Golden Eagle Protection Act.** This law protects bald and golden eagles by prohibiting the taking of, possession of, and commerce related to such birds. This act makes it unlawful to take, import, export, sell, purchase, or barter any bald or golden eagles, their parts, products, nests, or eggs. “Take” includes pursuing, shooting, poisoning, wounding, killing, capturing, trapping, collecting, molesting, or disturbing the eagles.

• **Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. §§ 1801-1884).** The Magnuson-Stevens Act emphasizes the sustainability of the nation’s fisheries through habitat conservation. This habitat is called essential fish habitat (EFH), which means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.

• **Marine Mammal Protection Act (MMPA) of 1972 (16 U.S.C. Chapter 31).** All marine mammals are protected under the MMPA, which prohibits, with certain exceptions, the “of marine mammals in U.S. waters. The Act defines “take” as “the act of hunting, killing, capture, and/or harassment of any marine mammal; or, the attempt at such.”
Harassment is “any act of pursuit, torment or annoyance which has the potential to either: (1) injure a marine mammal in the wild, or (2) disturb a marine mammal by causing disruption of behavioral patterns, which includes, but is not limited to, migration, breathing, nursing, breeding, feeding, or sheltering.”

3.9.1.2 State Regulations

- **Oregon Removal-Fill Permit.** Oregon’s Removal-Fill Law requires a permit for removal-and-fill activities in state waters, including waters designated as Essential Salmonid Habitat and wetlands. The regulation triggers reviews by DEQ, ODFW, Oregon Department of Land Conservation and Development, and others; and usually joint application to USACE for a Section 404/Section 10 permit.

- **National Pollutant Discharge Elimination System (NPDES) Construction Stormwater Discharge Permit (1200-C or 1200-CA).** DEQ requires this permit for construction activities (clearing, grading, and excavating) affecting 1 or more acres. It requires an erosion and sediment control plan to prevent water quality degradation in jurisdictional waters.

- **Endangered Species Act.** ODFW and/or the Oregon Department of Agriculture (ODA) must be consulted if the project might impact a state-listed threatened or endangered species. ODFW regulates state-listed fish and wildlife species, and ODA regulates state-listed plants. If ODOT determines that a proposed action on state-owned or -leased land, or for which it holds a recorded easement, has the potential to violate the guidelines of the state ESA rule, it shall notify the ODFW. ODFW shall recommend reasonable and prudent alternatives, if any, to the proposed action that are consistent with the ESA guidelines. Wildlife “take” is defined as to kill or obtain possession or control of wildlife. Plant “take” is defined as to collect, cut, damage, destroy, dig, kill, pick, remove, or otherwise disturb vegetation.

- **Fish Passage Law.** Fish passage requirements are triggered because: (1) native migratory fish are currently or were historically present, (2) the replacement bridge will be constructed at an existing bridge crossing, and (3) an element of the replacement bridge is within or below the channel. Fish passage requirements must be addressed prior to triggering events (for example, installation, major replacement, a fundamental change in permit status, or abandonment of the artificial obstruction). Compliance requires a fish-passable bridge structure—such as a “stream simulation” method (that is, “clear-span” of the active channel width), a “hydraulic design” method (based on known or assumed fish swimming abilities), or an approved design method. Otherwise, compliance might be possible under other designs (which may entail exceptions to criteria or guidelines, some combination of approved design options, or the use of another entity’s criteria or guidelines), waivers, exemptions, or deferrals for structural emergencies that may affect human safety.

3.9.2 Affected Environment

Three major vegetation types occur within the project study area—westside riparian, urban and mixed environs, and wetlands (see the Tillamook US 101/OR 6 Project Vegetation and Terrestrial Wildlife Technical Memorandum for additional information). Riparian habitat found
adjacent to the banks of Hoquarten Slough offers limited support functions due to past disturbances, sparse tree cover, and a large presence of non-native species. The habitat is mostly comprised of small red alder (Alnus rubra), Himalayan blackberry (Rubus armeniacus), and reed canarygrass (Phalaris arundinacea), with scattered big-leaf maple (Acer macrophyllum), Oregon ash (Fraxinus latifolia), and cottonwood (Populus trichocarpa) trees in the nearby park. Palustrine emergent and palustrine forested wetlands occur approximately 100 feet east of the project study area. The artificial emergent wetland is characterized by bare ground sparsely interspersed with common rush (Juncus effusus) and meadow foxtail (Alopecurus pratensis), and the forested wetland is characterized by red alder and willow (Salix sp.), with an understory of skunk cabbage (Lysichiton americanus). Urban and mixed environs habitat, which resulted from urban landscaping or urban development, includes vegetated roadsides, parking lots, and landscaped residences. Typical wildlife associated with these habitats include Canada geese, black-tailed deer, gulls, American robins, house sparrows, curlews, killdeer, American crows, swallows, bats, ducks, great blue herons, and various invertebrates. Non-native and noxious weeds occur throughout the study area. State-listed invasive species are widespread and include Himalayan blackberry, English ivy (Hedera helix), Scotch broom (Cytisus scoparius), poison hemlock (Conium maculatum), Canada thistle (Cirsium arvense), and yellow iris (Iris pseudacorus).

The waterway in the project study area, Hoquarten Slough, is a tributary to Dougherty Slough, which is a tributary to the Trask River (Figure 3-11 in Section 3.8 [Water Resources]). Hoquarten Slough is designated as critical habitat under the federal Endangered Species Act (ESA) for the Oregon Coast coho salmon and green sturgeon. In addition, the slough provides EFH (habitat upon which Pacific Coast salmon and coastal pelagic species depend for survival and reproduction), which is protected under the Magnuson-Stevens Act. In addition to these federal habitat designations, the Oregon DSL designated the lower portion of Hoquarten Slough (downstream of the project study area) as Essential Indigenous Anadromous Salmonid Habitat (habitat necessary to prevent the depletion of native salmon species during their life history stages of spawning and rearing). Aquatic habitat quality downstream of the bridge over Hoquarten Slough is considered good, with a relatively wide and intact riparian area. Upstream of the bridge, aquatic habitat quality has deteriorated because of historical land uses.

Pacific eulachon and Steller sea lion, also protected under the ESA, forage near shore and in pelagic waters. Steller sea lions breed at Three Arch Rocks (Oceanside), and may occur in Tillamook Bay seasonally and during feeding and rearing. Steller sea lion, Pacific harbor seal, and California sea lion, which are protected under the MMPA, may occur in the slough, but they are unlikely to be present in the project study area, particularly during construction.

Table 3-16 identifies the federal and state threatened, endangered, proposed, and special-status aquatic species that may occur at Hoquarten Slough. All of these species of concern may occur in the slough at some time of the year, but eulachon and Steller sea lion are unlikely to occur in the project study area during the winter in-water work period.

Presently, water quality in Hoquarten Slough is the primary limiting factor for aquatic resources. The Tillamook Bay Watershed, which surrounds Hoquarten Slough, has Total Maximum Daily Loads approved for bacteria and temperature (DEQ, 2001). Hoquarten
Slough is on DEQ’s Clean Water Act Section 303(d) list of impaired waters for dissolved oxygen. Hoquarten Slough is not listed as impaired for temperature.

### TABLE 3-16

Threatened, Endangered, Proposed, and Special-Status Aquatic Species that May Occur within the Project Study Area

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Federal Status</th>
<th>State Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oregon Coast coho salmon ESU</td>
<td>FT</td>
<td>SV</td>
</tr>
<tr>
<td>Southern DPS of North American green sturgeon</td>
<td>FT</td>
<td>--</td>
</tr>
<tr>
<td>Pacific Coast chum salmon ESU</td>
<td>--</td>
<td>SC</td>
</tr>
<tr>
<td>Oregon Coast Chinook salmon (spring-run) ESU</td>
<td>--</td>
<td>SC</td>
</tr>
<tr>
<td>Oregon Coast steelhead trout (winter-run) ESU</td>
<td>FSC</td>
<td>SV</td>
</tr>
<tr>
<td>Coastal cutthroat trout ESU</td>
<td>FSC</td>
<td>SV</td>
</tr>
<tr>
<td>Southern DPS of Pacific eulachon</td>
<td>FT</td>
<td>--</td>
</tr>
<tr>
<td>Pacific lamprey</td>
<td>FSC</td>
<td>SV</td>
</tr>
<tr>
<td>River lamprey</td>
<td>FSC</td>
<td>--</td>
</tr>
<tr>
<td>Steller sea lion</td>
<td>FT</td>
<td>--</td>
</tr>
</tbody>
</table>

*ESU – Evolutionarily Significant Unit—distinct population for the purposes of conservation
DPS – Distinct Population Segment—distinct population for the purposes of conservation
b Status Codes:
   FT – Threatened Species
   FSC – Species of Concern
   SC – Sensitive Critical
   SV – Sensitive Vulnerable

Source: Tillamook US 101/OR 6 Aquatic Resources Technical Memorandum (ODOT, 2012c)

### 3.9.3 Environmental Consequences

The following subsections summarize the direct and indirect effects of the No-Build Alternative and the Build Alternative on biological resources.

#### 3.9.3.1 No-Build Alternative

The No-Build Alternative would generally retain the existing conditions and, therefore, would not change the trends of terrestrial wildlife resources or vegetation communities in the project study area.

The existing bridge over Hoquarten Slough is a 114.5-foot-long, 46-foot-wide, three-span structure with four bents (sets of piers)—two in the slough and two end bents at the highest measured tide elevation. Each bent has three concrete columns sitting on pile caps, each column about 2 to 3 feet. This structure would remain in place, as well as the remnant concrete foundations from the pre-1930 Roosevelt Coast Highway Bridge, upstream.

Existing conditions and trends of aquatic resources would be unchanged. Riparian vegetation communities, invasive plant species, and in-stream habitat within the project study area would be unchanged, and threatened aquatic species would not be affected. Stormwater runoff from existing impervious areas would remain untreated. However, water temperature and levels of bacteria (fecal coliform) would continue to improve under the Tillamook Bay Watershed Total Maximum Daily Load (TMDL), repairs and upgrades to
the Tillamook sewage treatment facility, and the City of Tillamook’s remediation plan to remedy stormwater/sewer cross connections and overflows, as described in Section 3.8.1.

3.9.3.2 Build Alternative

The following summarizes the direct and indirect effects of the Build Alternative.

Direct Effects

The Build Alternative would have no effect on threatened or endangered terrestrial wildlife species, or species of concern, because neither these species nor their habitats have been identified within the project study area, and none has been documented as occurring within approximately 2 miles of the project study area (Oregon Natural Heritage Information Center [ORNHIC], 2008; ORNHIC, 2010).

The Build Alternative would have no effects on threatened or endangered plant species because none occurs within the project study area. Two species—bristly-stemmed sidalcea and queen-of-the-forest, which are federal species of concern and state candidates for protection—are documented as occurring within 2 miles of the project study area (ORNHIC, 2008; ORNHIC, 2010), but not in the project study area. For more information, see the ESA documentation in the Tillamook US 101/OR 6 Project Vegetation and Terrestrial Wildlife Memorandum or the Tillamook US 101/OR 6 Aquatic Resources Technical Memorandum.

The Build Alternative would have no adverse effect on urban and mixed environs, and would have no direct effects on wetlands. The Build Alternative would temporarily or permanently affect approximately 0.11 acre of previously-disturbed westside riparian habitat (from a wider replacement bridge, clearing for construction access, and tree removal for new stormwater outfalls) and approximately 0.26 acre of Hoquarten Slough (from in-water bridge construction and demolition and from stormwater outfall removal and construction). Wildlife movement would generally improve through the new bridge’s larger opening.

Based on the Tillamook US 101/OR 6 Project Biological Assessment, the Build Alternative:

• May affect, and would likely adversely affect, coho salmon, Pacific eulachon, and green sturgeon from pile driving, demolition, temporary increased turbidity, and stormwater discharges; despite proposed conservation measures

• May affect, but would not likely adversely affect, designated critical habitat for coho salmon and green sturgeon

Based on the Tillamook US 101/OR 6 Project ESA Determination of No Effect, the Build Alternative would have:

• No effect on the Eastern Distinct Population Segment (DPS) Steller sea lion because this population is unlikely to be present in the project study area during in-water construction, foraging opportunity is low, and monitoring and shut-down procedures will be implemented during periods of pile driving.

Like Steller sea lions, non-listed seals and sea lions would not occur in the project study area during in-water work when high noise events from pile driving might be generated. To ensure that marine mammals are not present in the project study area during in-water work,
a qualified observer would monitor their occurrence during impact or vibratory installation of steel pipe or sheet pile. If seals or sea lions are seen approaching the disturbance zone for impact or vibratory pile driving, driving would cease. In the event that seals or sea lions persisted in encroaching on the disturbance zone, a floating silt curtain or similar non-injurious netting would be used to establish a temporary exclusion zone until driving ceased.

Direct effects on aquatic resources from the Build Alternative could occur from the following:

- **Removing riparian vegetation.** The clearing of approximately 0.11 acre of riparian habitat would not have a substantial effect on habitat support functions because existing vegetation contains few trees and is intermixed with non-native and invasive species. Existing well-developed riparian vegetation upstream and downstream of the replacement bridge provides habitat support functions. Native riparian trees and shrubs would be re-established at suitable locations (see the Mitigation section), and the proposed bridge would replace or enhance riparian functions such as providing shade to the stream, modifying the water temperature, and moderating atmospheric humidity.

- **Removing the existing bridge.** The existing bridge over Hoquarten Slough would be removed, including two bents in the slough and two at the slough’s margins to a minimum of 3 feet below the mud line. Removal of the concrete bent columns would increase fish habitat by approximately 27 square feet. Removal of existing fill between the existing and proposed end bents would increase the hydraulic opening and increase fish habitat by approximately 565 square feet. Removing the existing bridge over Hoquarten Slough would positively affect the channel flow by reducing the number of piers in the slough and by increasing the hydraulic opening and fish habitat.

- **Constructing a replacement bridge.** The new, two-span bridge would have abutments located above the highest measured tide elevation and set back behind the existing bridge’s end bents. One bent in the channel would support the new bridge. The center bent would be a mid-channel row of steel piles that would decrease in-stream habitat by approximately 20 to 85 square feet, depending on the number and size of the piles. The replacement bridge would decrease available fish habitat, but not substantially. The decrease would be a small percentage of the total slough habitat. Fish primarily use the slough for rearing, and removing remnant piers (see below) would compensate by restoring additional areas of fish habitat.

- **Removing remnant highway bridge piers.** Removing the remnant concrete bridge piers needed to construct the replacement bridge would increase fish habitat in Hoquarten Slough by approximately 154 square feet. Remnant bridge pier removal would reduce obstructions, improve fluvial function, and increase in-stream fish habitat in Hoquarten Slough.

- **Changing the amount and treatment of impervious surface area.** The Build Alternative would decrease impervious surface area, which would decrease peak flows and pollutant loads to the slough. In addition, it would provide stormwater treatment for all contributing impervious surfaces where none currently exists. Stormwater outfalls may
need to be reconfigured. Fish would benefit from lower pollutant loads to Hoquarten Slough.

Indirect Effects
The Build Alternative would increase habitat quality and structural diversity through native species revegetation and non-native and invasive species control. These habitat improvements would benefit terrestrial wildlife and fisheries project study area.

The improved stormwater treatment and water quality of the slough is expected to increase aquatic resource survivability and fitness. The new highway infrastructure, with greater longevity and less frequent maintenance and inspection requirements, would reduce aquatic habitat disturbances over time.

Mitigation
Mitigation measures are proposed to compensate for adverse effects that could not be avoided or minimized through the successful implementation of the construction best management practices outlined in Section 3.15.

To enhance and restore existing low-quality habitats within the project study area, riparian areas temporarily cleared of vegetation during construction would be revegetated with native species to deter non-native species from spreading and to increase habitat quality and structural diversity. Planting would involve approximately 12 cottonwood trees and 12 Oregon ash trees along the shoreline and stormwater pipeline alignments. Non-native species would be controlled. Rehabilitated areas would be maintained to ensure the control of weedy plant species and desirable native plant communities. These activities would benefit wildlife.

NMFS has indicated that the project’s pending Biological Opinion will be based on the Tillamook US 101/OR 6 Project Biological Assessment, which recommended minimization measures, including in-water work timing restrictions; in-water work isolation and containment; debris containment; fish capture and removal by a qualified fish biologist; and streambank stabilization. In addition, NMFS has indicated that the project’s pending Biological Opinion will include conservation measures for protection of listed fish, including management assurances, pollution controls, turbidity controls, avoidance of attractant flows, and minimization of hydroacoustical impacts from pile driving. ODOT expects that NMFS will issue the Biological Opinion during the summer of 2012. Completion of the project’s NEPA process will occur subsequent to issuance of the Biological Opinion.

Oregon DSL, ODFW, USACE, or NMFS might propose additional resource replacement mitigation after further review of the proposed action. At that time, as part of the agency consultation, ODOT would develop more specific measures for inclusion in final plans and specifications.

3.10 Air Quality
This section addresses air quality for the Tillamook US 101/OR 6 Project. It includes a summary of the affected environment and anticipated environmental consequences. Section 3.14 addresses air quality cumulative effects of the Build Alternative. Section 3.15
summarizes the air quality construction effects of the Build Alternative. For additional
details related to the air quality analysis, see the Tillamook US 101/OR 6 Project Air Quality
Technical Memorandum (ODOT, 2012b).

3.10.1 Affected Environment

Because the city of Tillamook is located 6 miles inland from the northern Oregon coast, the
normal west-to-east air mass movement from the Pacific Ocean greatly affects the climate of
the region. As a result, winter minimum and summer maximum temperatures are generally
moderated. The prevailing winds from the northwest are sufficient most of the year to
disperse air pollutants released into the atmosphere.

The U.S. Environmental Protection Agency (EPA) and DEQ regulate air quality in Tillamook
County. Under the Clean Air Act, EPA has established National Ambient Air Quality
Standards (NAAQS) for the following air pollutants: carbon monoxide (CO), lead (Pb),
nitrogen dioxide (NO₂), particulate matter less than 2.5 microns in diameter (PM₂.₅) and less
than 10 microns in diameter (PM₁₀), ozone (O₃), and sulfur dioxide (SO₂). These pollutants
are commonly referred to as “criteria pollutants.” Mobile Source Air Toxics (MSATs), a
subset of the air toxics defined by the federal Clean Air Act, are compounds emitted from
highway vehicles and non-road equipment. However, unlike criteria pollutants, MSATs do
not have regulatory standards.

DEQ monitors air quality in Oregon to compare the levels of criteria pollutants found in the
atmosphere with the NAAQS. In addition to these standards, DEQ has adopted state
ambient air quality standards (SAAQS) that are equivalent to, or more stringent than, EPA’s
NAAQS.

Areas that do exceed NAAQS for a given pollutant are considered by DEQ to meet
attainment standards. DEQ does not maintain monitoring stations in Tillamook County
because there are no air quality concerns with criteria pollutants in this area. Tillamook
County has not been classified as non-attainment for any of the EPA criteria pollutants.

Nation-wide, emissions from transportation sources have been declining since federal
emissions controls were placed on automobiles in the 1970s. Together with the
implementation of other regulatory programs, both criteria pollutant emissions and MSAT
emissions will be reduced over time in Tillamook County and nationally.

3.10.2 Environmental Consequences

A qualitative assessment for the project design year (2036) indicates that neither the No-
Build Alternative nor Build Alternative would lead directly or indirectly to a violation of
ambient air quality standards. This assessment is based on transportation study area
(Figure 3-1) average daily traffic (ADT) volume estimates for 2036 under the No-Build
Alternative and Build Alternative, and assumptions regarding other air-emission-generating
activities in Tillamook County, such as wood-burning stoves and agriculture. For more
information, see the Tillamook US 101/OR 6 Project Air Quality Technical Memorandum, which
presents the following findings that resulted from the air quality analysis:

- The forecasted 2036 ADT volume of roadways in the transportation study area
  (Figure 3-1) under the Build Alternative (approximately 48,170-vehicle ADT) would be
within approximately 0.3 percent of the forecasted ADT volume of the No-Build Alternative (approximately 48,025-vehicle ADT), indicating that:

- Vehicle emissions would not increase substantially as a result of operation of the Build Alternative
- There would be no substantial vehicle-emission differences between the No-Build Alternative and the Build Alternative

- The Build Alternative would not cause or contribute to any new violation of the NAAQS because forecasted ADT in the transportation study area would be within 0.3 percent of the forecasted ADT volume of the No-Build Alternative.
- The Build Alternative would have a low potential for additional MSAT emissions because forecasted ADT in the transportation study area would be within 0.3 percent of the No-Build Alternative, and because EPA’s national control programs are projected to reduce annual MSAT emissions lower than present levels.
- Vehicle miles traveled (VMT) within the transportation study area would follow the same trend as ADT. Because the VMT for the No-Build Alternative and the Build Alternative would be approximately the same, there would be no measurable difference in the greenhouse gas emissions between the No-Build Alternative and Build Alternative.

Because the Build Alternative would not result in any adverse long-term direct or indirect effects on air quality, no air quality mitigation measures are warranted.

### 3.11 Noise

This section summarizes the affected environment for noise and the potential noise effects of the No-Build Alternative and the Build Alternative. Section 3.14 addresses the noise cumulative effects of the Build Alternative. Section 3.15 summarizes the noise construction effects of the Build Alternative. For more information on the noise analysis, see the *Tillamook US 101/OR 6 Project Noise Technical Memorandum* (ODOT, 2012).

Table 3-17 summarizes the direct noise effects of the No-Build Alternative and the Build Alternative. More detailed information is provided in Section 3.11.2 (Environmental Consequences).

The project is considered a Type I federal aid project, which includes the alteration or widening of existing roadways, as outlined in the ODOT *Noise Manual* (ODOT, 2011). As a result, a noise analysis was required to determine impacts and evaluate noise abatement.

ODOT evaluated the existing and future potential noise impacts to noise-sensitive locations using the FHWA Traffic Noise Model (TNM) Version 2.5 (FHWA, 2004). This assessment was based on existing (2010) and project-design-year (2036) estimates of peak-truck-hour volumes. All noise levels referred to in this section are stated as hourly equivalent sound pressure levels (Leq) in terms of decibels on the A-weighted scale (dBA). Noise levels stated in terms of dBA approximate the response of the human ear by filtering out some of the noise in the low and high frequency ranges that the ear does not detect well. The Leq is
defined as the average noise level, on an energy basis, for a stated period of time (in this case, hourly).

**TABLE 3-17**
Noise Direct Effects Summary

<table>
<thead>
<tr>
<th>Effect</th>
<th>No-Build Alternative</th>
<th>Build Alternative</th>
</tr>
</thead>
<tbody>
<tr>
<td>2036 noise levels in the project study area</td>
<td>60 to 71 dBA</td>
<td>64 to 71 dBA</td>
</tr>
<tr>
<td>2036 increase in noise levels from existing conditions</td>
<td>1 to 2 dBA</td>
<td>0 to 6 dBA</td>
</tr>
<tr>
<td>Number of representative locations(^a) where the 2036 noise levels</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>would meet or exceed the ODOT NAAC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Would 2036 noise levels substantially exceed existing noise levels?(^b)</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

\(^a\) Noise levels were modeled at 15 representative locations (see Figure 3-12).
\(^b\) Equal to or more than 10 dBA over existing conditions – see Table 3-18.

dBA = decibels on the A-weighted scale  
NAAC = noise abatement approach criteria


FHWA noise abatement criteria (NAC) and ODOT noise abatement approach criteria (NAAC) establish the basis for defining noise impacts. The ODOT *Noise Manual* (ODOT, 2011) specifies that traffic noise impacts occur when predicted traffic noise levels approach or exceed the FHWA NAC, or when a substantial increase above existing traffic noise levels occurs. ODOT defines “approach” as noise levels that are 2 dBA less than the FHWA NAC. ODOT considers a 10-dBA increase over existing noise levels to be a substantial increase noise impact.

At the representative locations studied, the applicable ODOT NAAC were 65 dBA for Category B and C receivers (such as outside areas at residences, parks, schools, churches, and cemeteries) and 70 dBA for Category E receivers (such as motels, offices, and restaurants). For more information on the activity categories, see the *Tillamook US 101/OR 6 Project Noise Technical Memorandum*.

### 3.11.1 Affected Environment

The dominant source of noise within the project study area is from traffic on US 101, OR 6, and adjacent local roads. Noise-sensitive land uses are generally defined as locations where people reside or where the presence of unwanted sound could adversely affect the designated use of the land. These locations are generally termed sensitive noise receptors. Noise-sensitive land uses within the project study area include residences, Sue H. Elmore Park, and Hoquarten Interpretive Trail Park.

Although second-floor multifamily apartments are located above ground-floor commercial establishments on the west side of Pacific Avenue between 2nd and 3rd Streets, they do not have any outdoor uses. The only other residence in the study area is a vacant single-family dwelling. The project study area does not have any vibration-sensitive receptors. A more detailed discussion of existing land uses in the study area can be found in Section 1.2 (Project Setting).
Noise monitoring was conducted at four representative locations:

- Sue H. Elmore Park (west of US 101 south of Hoquarten Slough)
- Hoquarten Interpretive Trail Park (east of US 101 south of Hoquarten Slough)
- Tillamook County Pioneer Museum
- A vacant house next to the Tillamook Post Office on 1st Street

Noise-level measurements varied from 62 to 66 dBA. The quietest areas were located at Hoquarten Interpretive Trail Park and Sue H. Elmore Park. The noisiest area was located at the vacant house along 1st Street (OR 6). The predominant source of noise in the area was traffic along the roadways. No other substantial sources of noise were heard during the measurements.

The primary purpose of the noise-level measurements was to verify the accuracy of the TNM in predicting traffic noise exposure within the study area by comparing noise levels obtained during the traffic noise measurements with the levels predicted by the noise model. All receptors were within 3 dBA of those measured. Such differences, which show good agreement between measured and calculated noise levels, indicate that the TNM may be used to accurately calculate noise exposure at these locations.

Existing peak-hour-traffic noise levels were modeled at 15 representative locations (Figure 3-12). The noise analysis indicated that existing noise levels in the noise project study area range from 58 to 69 dBA. Receptors at two representative locations exceed the ODOT NAAC. These locations are Sue H. Elmore Park (R4) and a vacant residence on 1st Street (R12). For more information on existing noise levels, see Table 3-18 in the Environmental Consequences section.

### 3.11.2 Environmental Consequences

The following subsections summarize the direct and indirect noise effects of the No-Build Alternative and the Build Alternative.

#### 3.11.2.1 No-Build Alternative

Peak-hour traffic noise levels for the No-Build Alternative were modeled at 15 noise-receptor locations (Figure 3-12). With the future No-Build Alternative (2036), noise levels would range from 60 to 71 dBA, with increases above existing and 2036 Build Alternative noise levels of up to 2 dBA. With the No-Build Alternative (2036), traffic-generated noise would exceed the ODOT NAAC at a vacant restaurant (receptor 1) on US 101 north of Hoquarten Slough, two receptors at Sue H. Elmore Park (receptors 3 and 4), and a vacant residence (receptor 12) on 1st Street (Table 3-18).

No indirect noise effects have been identified related to the No-Build Alternative.

#### 3.11.2.2 Build Alternative

Peak-hour traffic noise levels for the Build Alternative were modeled at 15 noise-receptor locations (Figure 3-12). With the future Build Alternative (2036), noise levels would range from 64 to 71 dBA, with increases above existing noise levels of up to 6 dBA, and 2036 No-Build Alternative noise levels of up to 4 dBA. With the Build Alternative (2036), traffic-generated noise would exceed the ODOT NAAC at Sue H. Elmore Park (receptor 4),
Hoquarten Interpretive Trail Park (receptor 5), and a vacant residence (receptor 12) on 1st Street (Table 3-18). Compared to existing conditions, none of the noise-receptor locations would experience a substantial increase in noise levels (10 dBA).

No indirect noise effects have been identified related to the Build Alternative.
## Mitigation

ODOT requires that noise abatement be considered at locations predicted to experience noise impacts. ODOT has established specific requirements (including feasibility and reasonableness criteria) for highway noise abatement. Abatement measures determined to be both feasible and reasonable would be recommended for inclusion in the project. The *Tillamook US 101/OR 6 Project Noise Technical Memorandum* outlines the performance criteria.
The Build Alternative would result in noise impacts at two parks (Hoquarten Interpretive Trail Park and Sue H. Elmore Park) and a vacant residence. Two noise barriers were evaluated for the Build Alternative – one at Hoquarten Interpretive Trail Park and one at Sue H. Elmore Park. (A barrier analysis was not performed for the isolated vacant residential property [R12] because Tillamook County currently owns that property and has no plans for future tenant occupancy.) Neither of the noise barriers would meet ODOT’s criteria for noise barriers, as documented in the Tillamook US 101/OR 6 Project Noise Technical Memorandum. Therefore, these noise barriers would not be incorporated into the Build Alternative, and no noise mitigation is proposed.

Information to Local Officials
This noise analysis documents predicted noise levels under the Build alternative at noise-sensitive locations representative of developed land within the study area. A copy of the Tillamook US 101/OR 6 Project Noise Technical Memorandum will be made available to local planning departments and government officials. Local officials can use this noise analysis information to aid in future land use planning to prevent future redevelopment from becoming incompatible with future noise levels.

3.12 Hazardous Materials
This section summarizes the hazardous materials affected environment and the hazardous materials effects of the No-Build Alternative and the Build Alternative. Section 3.14 summarizes the hazardous material cumulative effects of the Build Alternative. Section 3.15 summarizes the hazardous material construction effects of the Build Alternative. For more information on the hazardous material analysis, see the Tillamook US 101/OR 6 Project Hazardous Materials Technical Memorandum (ODOT, 2012h).

Hazardous materials, which are substances that are toxic or harmful to human health or the environment, are regulated under federal and state laws. These materials, some of which are referred to as contaminants of environmental concern, can be encountered through demolition, removing underground storage tanks (USTs), or building on contaminated properties that may have historically been used for large-scale commercial or industrial use. Construction activity in and around known contaminated properties could result in potential risks to the environment and human health. In addition, acquiring lands with hazardous materials could require costs for cleanup or disposal.

Table 3-19 summarizes the hazardous material effects of the No-Build Alternative and the Build Alternative. More detailed information is provided in Section 3.12.2.

<table>
<thead>
<tr>
<th>Effect</th>
<th>No-Build Alternative</th>
<th>Build Alternative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of parcels affected by right-of-way acquisition with features of potential environmental concern</td>
<td>0</td>
<td>8\textsuperscript{a}</td>
</tr>
<tr>
<td>Potential for the reduction in hazardous material contaminants?</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

\textsuperscript{a} The Port of Tillamook Bay right-of-way is not a parcel, but is categorized to be a parcel for this analysis.

3.12.1 Affected Environment

Federal, state, and local hazardous material database reviews of known or suspected contaminated sites, combined with site reconnaissance, were used to obtain a planning-level analysis of the current or historical sites with potential features of environmental concerns within the project study area. Based on this review, within the hazardous material project study area, 33 sites were identified as having features of potential hazardous materials environmental concern, as documented in the Tillamook US 101/OR 6 Project Hazardous Materials Technical Memorandum. Typical features of potential environmental concern within the project study area included USTs; reported spills or releases of hazardous substances; and industrial facilities.

3.12.2 Environmental Consequences

This section summarizes the direct and indirect effects of the No-Build Alternative and the Build Alternative on known or suspected features of potential hazardous materials environmental concern. The findings noted herein are preliminary and unverified through site testing or inspection.

3.12.2.1 No-Build Alternative

The No-Build Alternative would not directly encounter any identified features of potential environmental concern because no actions would be undertaken. However, there would be no opportunity to remediate identified features of potential environmental concern because no actions would be undertaken. Currently, the travel-lane widths on Main and Pacific Avenues (10 feet) are not as wide as the ODOT preferred standard (11 feet). These reduced-width lanes have the potential to decrease traffic safety, which could result in a greater potential for traffic accidents that could release hazardous materials to the environment. No ground disturbance would also not result in an opportunity for cleaning up hazardous material sites.

3.12.2.2 Build Alternative

The following subsections summarize the direct and indirect hazardous material effects of the Build Alternative.

Direct Effects

The Build Alternative would require partial acquisition for right-of-way from seven parcels with features of potential environmental concern, and full acquisition for right-of-way from one parcel with features of potential environmental concern (Table 3-20 and Figure 3-13). Figure F-1 in Appendix F illustrates the areas of proposed acquisition.

Additional features of potential environmental concern not identified in regulatory databases and site reconnaissance could also be encountered from items such as contaminated:

- Sediment in the Hoquarten Slough area from bridge removal and construction. Industrial and agricultural activities have occurred along the banks of Hoquarten Slough over a long period of time.
## TABLE 3-20
Acquisition from Parcels with Features of Potential Environmental Concern

<table>
<thead>
<tr>
<th>Site</th>
<th>Address</th>
<th>Existing Land Use</th>
<th>Contaminants of Potential Concern</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Full Acquisition</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>2050 1st Street b</td>
<td>All Star Appliance, Bay Breeze Tanning, Chez Belle Nails (former paint shop)</td>
<td>TPH, VOC, inorg</td>
</tr>
<tr>
<td><strong>Partial Acquisition</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>15 Main Avenue</td>
<td>Tillamook Shell &amp; Grocery (gas station and convenience store)</td>
<td>TPH, PAH, VOC, inorg</td>
</tr>
<tr>
<td>3</td>
<td>No address</td>
<td>Port of Tillamook Bay right-of-way (former saw mill) c</td>
<td>TPH, PAH, VOC, inorg, PCP</td>
</tr>
<tr>
<td>4</td>
<td>No address</td>
<td>Hoquarten Interpretive Trail Park (former saw mill)</td>
<td>TPH, PAH, VOC, inorg, PCP</td>
</tr>
<tr>
<td>5</td>
<td>1 Main Avenue</td>
<td>Hayward Chevrolet-Cadillac (automobile dealership and repair)</td>
<td>TPH, PAH, VOC, inorg</td>
</tr>
<tr>
<td>6</td>
<td>405 North Main Avenue</td>
<td>3M Diesel Repair (truck repair business)</td>
<td>TPH, PAH, VOC, inorg</td>
</tr>
<tr>
<td>7</td>
<td>380 North Main Avenue</td>
<td>Vacant building (former gas station)</td>
<td>TPH, PAH, VOC</td>
</tr>
<tr>
<td>8</td>
<td>460 North Main Avenue</td>
<td>Vacant building (former gas station)</td>
<td>TPH, PAH, VOC, inorg</td>
</tr>
</tbody>
</table>

a See Figure 3-13 for parcel location.
b The structure on the parcel would be demolished with the Build Alternative.
c The Port of Tillamook Bay right-of-way is categorized as a Tillamook County parcel for this analysis.

inorg = inorganic constituents (such as arsenic, barium, cadmium, cyanide, sulfur, chromium, lead, and mercury)
PAH = polycyclic aromatic hydrocarbon (by-product of incomplete combustion that may be related to oil or fuel use)
PCP = pentachlorophenol, which is commonly used at sawmills
TPH = total petroleum hydrocarbon (such as gasoline, diesel, heating oil, and motor oil)
VOC = volatile organic compounds (such as cleaning solvents, degreasers, paint thinners, or fuel components)


- Soil from upgrades or realignment of underground utilities (such as sewer and water supply lines).
- Materials in demolished structures. These materials could include lead-based paint, asbestos-containing material, and contaminated electrical equipment.

During operation, the main potential effect from hazardous materials would be the risk of a spill into Hoquarten Slough or on land. However, the risk of contamination would be reduced with the installation of stormwater facilities, as identified in Section 3.8 (Water Resources). Such facilities would collect polluted runoff (such as fuels, lubricants, and heavy-metal compounds). Incident responses by local emergency providers and ODOT would also lead to prompt cleanup, avoiding and minimizing effects to the larger environment.
Indirect Effects

Indirect effects could include construction activities that would change the groundwater level in areas where potential groundwater contamination may be present. Dewatering could affect the movement of groundwater in the area, potentially shifting contaminants that may exist in groundwater.

Indirect benefits of the Build Alternative would include a potential for the reduction of contaminants. If contamination were discovered during construction activities, it would be cleaned up. In addition, the travel-lane widths on Main and Pacific Avenues between 1st and 4th Streets would be widened from 10 feet to 12 feet, which would improve traffic.
safety. Compared to the No-Build Alternative, this could decrease the potential for traffic accidents that could release hazardous materials to the environment.

Avoidance and Minimization Measures
Further evaluation and contingency planning would be conducted during the project’s design phase to manage dewatering discharges and reduce the potential for unplanned project costs or delays from encountering hazardous materials. Best management practices would be incorporated during construction (see Section 3.15).

3.13 Geological Resources
This section summarizes the potential geological resources effects of the No-Build Alternative and the Build Alternative. Section 3.14 summarizes the cumulative geological resource effects of the Build Alternative. Section 3.15 summarizes the construction geological resources effects of the Build Alternative. For more information on the geological resources analysis, see the Tillamook US 101/OR 6 Project Geological Resources Technical Memorandum (ODOT, 2012g).

3.13.1 Affected Environment
Tillamook is located within the heart of the Tillamook alluvial valley. The following two seismic sources could cause earthquakes in the vicinity of the project:

- Earthquakes associated with the Cascadia Subduction Zone (CSZ)
- Shallow crustal sources resulting from built-up tectonic stresses within the North American Plate

Seismic hazards that may affect the project study area include ground shaking, seismic slope instability, soil liquefaction, tsunami, and seiche. Because the project study area is located in a low-lying area adjacent to Hoquarten Slough and near Tillamook Bay, it is anticipated that groundwater is relatively shallow, and would most likely be encountered within a depth of 10 to 15 feet (or less) below the ground surface. Erosion in the project study area is generally minimal and the area is properly drained. ODOT has not observed any scour within Hoquarten Slough related to the existing bridge structures.

3.13.2 Environmental Consequences
This section summarizes the direct and indirect geological resources effects of the No-Build Alternative and the Build Alternative.

3.13.2.1 No-Build Alternative
The No-Build Alternative would not change the existing topography and, therefore, there would be no changes to existing erosion or drainage patterns. Because of the steepness of the banks of Hoquarten Slough and the liquefaction hazard, with the No-Build Alternative, the bridge would likely fail during a design-level seismic event (a 500-year- or 1,000-year-
return-period event). A seismic event could lead to indirect effects including localized slope failures, lateral movement, and damage to bridge foundations and retaining walls. While the risk is low, large precipitation events could lead to scouring of walls, slope failures, and slope erosion.

3.13.2.2 Build Alternative

The Build Alternative would modify existing drainage patterns and topography from cut and fill slopes and retaining walls. For example, the Main Avenue/Front Street intersection would be approximately three feet higher than the existing condition. No adverse long-term erosion and drainage effects are anticipated because vegetation removed during construction would be replanted (see Section 3.9.3.2) and best management practices would be incorporated during construction (see Section 3.15). Stream bank surface treatments at Hoquarten Slough would be determined during final design.

The new bridge across Hoquarten Slough would be designed using deep foundations, such as driven piles, in conjunction with ground improvements to conform to existing ODOT seismic design requirements, as described in the Tillamook US 101/OR 6 Project Geological Resources Technical Memorandum.

A seismic event could lead to indirect effects including localized slope failures, lateral movement, and damage to bridge foundations and retaining walls. However, designing the bridge to seismic design requirements would protect the bridge and public. While the risk is low, large precipitation events could lead to scouring of walls, slope failures, and slope erosion.

3.14 Cumulative Effects

This section addresses the cumulative effects that could result from the Build Alternative. Actions that have been or are likely to be undertaken, when combined with the Build Alternative, could cumulatively affect the community and natural environment in the project study area. Therefore, cumulative effects result from the incremental effect of the proposed action when added to other past, present, and reasonably foreseeable future actions.

3.14.1 Past and Present Actions

To analyze cumulative effects, ODOT established a timeframe of reference for evaluating how past actions have shaped the community and natural environment, and how future actions might further change the conditions resulting from these past actions. The “past” generally runs from the 1840s (settlement of the Tillamook area) to the present (2012). Table 3-21 lists the past and present actions that were considered in the cumulative effects analysis.
### TABLE 3-21
Past and Present Actions

<table>
<thead>
<tr>
<th>Action</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Actions Common to All Topics</strong></td>
<td></td>
</tr>
<tr>
<td>Legislation created Tillamook County.</td>
<td>1853</td>
</tr>
<tr>
<td>Tillamook was voted the county seat of Tillamook County.</td>
<td>1873</td>
</tr>
<tr>
<td>Tillamook became an incorporated city.</td>
<td>1891</td>
</tr>
<tr>
<td>US 101 in Tillamook County was constructed and the Hoquarten Slough Bridge was opened.</td>
<td>1931</td>
</tr>
<tr>
<td>OR 6 in Tillamook County was constructed.</td>
<td>1956</td>
</tr>
<tr>
<td>Tillamook Comprehensive Plan was adopted.</td>
<td>1972</td>
</tr>
<tr>
<td>Tillamook Zoning Code was adopted.</td>
<td>1980</td>
</tr>
<tr>
<td>The City of Tillamook annexed a 2-mile stretch of US 101 north of Hoquarten Slough.</td>
<td>1983</td>
</tr>
<tr>
<td>Flooding caused large-scale damage north of Hoquarten Slough; the City and FEMA began the process of moving businesses and residences out of the floodplain north of Hoquarten Slough.</td>
<td>1996</td>
</tr>
<tr>
<td>Hoquarten Interpretive Trail Park was developed.</td>
<td>2005</td>
</tr>
<tr>
<td>US 101 Signal Improvements and Upgrades. This project involved various signal replacements in northwest Oregon, including signals on the southbound leg of the US 101 couplet in Tillamook.</td>
<td>2008</td>
</tr>
<tr>
<td>US 101 at Latimer Road Improvements. This project involved installation of a new signal, turn lanes, and crosswalks at the US 101/Latimer Road intersection.</td>
<td>2008</td>
</tr>
<tr>
<td>3rd Street Improvements – Pine Avenue to Wilson River Loop Road. This project installed curbs, sidewalks, storm drains, and streetlights on 3rd Street between Pine Avenue and Wilson River Loop Road.</td>
<td>2011</td>
</tr>
<tr>
<td>Various other recent development projects in the general project study area, including the City of Tillamook Police Department (3rd Street and Madrona Avenue); the Safeway Grocery Store (4th Street and Stillwater Avenue); the Blue Heron Restaurant expansion (US 101 at Werner Road); and the Tillamook Transit Center (2nd Street and Laurel Avenue).</td>
<td>2002 to Present</td>
</tr>
<tr>
<td><strong>Transportation – Additional Actions</strong></td>
<td></td>
</tr>
<tr>
<td>Tillamook TSP was adopted.</td>
<td>2003</td>
</tr>
<tr>
<td>ODOT HDM mobility standards were adopted.</td>
<td>2003</td>
</tr>
<tr>
<td>TTRP was adopted and included in the Tillamook TSP.</td>
<td>2006</td>
</tr>
<tr>
<td><strong>Land Use – Additional Actions</strong></td>
<td></td>
</tr>
<tr>
<td>Hoquarten Slough was a major commerce route for several decades.</td>
<td>Late 1800s</td>
</tr>
<tr>
<td>Tillamook linked by railroad to Portland via the Pacific Rail &amp; Navigation Company.</td>
<td>1912</td>
</tr>
<tr>
<td>The City of Tillamook expanded its wastewater treatment plant.</td>
<td>2006</td>
</tr>
<tr>
<td><strong>Water Resources – Additional Actions</strong></td>
<td></td>
</tr>
<tr>
<td>Dikes were constructed along portions of Hoquarten Slough.</td>
<td>1900-1901</td>
</tr>
<tr>
<td>Tillamook Bay Watershed received funding through the Rural Clean Water Program to help clean up agricultural wastes.</td>
<td>1981</td>
</tr>
<tr>
<td>EPA designated Tillamook Bay as an estuary of national significance and included it in the National Estuary Program.</td>
<td>1992</td>
</tr>
<tr>
<td>A Comprehensive Conservation and Management Plan was developed for the Tillamook Bay Watershed to address and solve environmental problems in the watershed.</td>
<td>1999</td>
</tr>
<tr>
<td>The Tillamook Bay Watershed Total Maximum Daily Load (TMDL) for temperature and bacteria was submitted to, and approved by, EPA.</td>
<td>2001</td>
</tr>
<tr>
<td>The North Coast Basin Agricultural Water Quality Management Area Plan (SB1010 Plan) was developed; it included requirements of landowners for the prevention and control of water pollution from agricultural activities and soil erosion.</td>
<td>2004</td>
</tr>
</tbody>
</table>
### TABLE 3-21
Past and Present Actions – Page 2

<table>
<thead>
<tr>
<th>Biological Resources – Additional Actions</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hoquarten Slough was a major commerce route for several decades.</td>
<td>Late 1800s</td>
</tr>
<tr>
<td>Deforestation and the creation of pasture and farmland occurred in the Tillamook Basin.</td>
<td>1863-Present</td>
</tr>
<tr>
<td>Large woody debris removal and dredging occurred in Hoquarten Slough.</td>
<td>1887-1919</td>
</tr>
<tr>
<td>USACE conducted dredging and disposal of dredge spoils operations along the banks of Hoquarten Slough and removed riparian vegetation.</td>
<td>1987-1919</td>
</tr>
<tr>
<td>Dikes were constructed along portions of Hoquarten Slough.</td>
<td>1900-1901</td>
</tr>
<tr>
<td>USACE dredged Hoquarten Slough for the last time because the railroad was completed.</td>
<td>1911</td>
</tr>
<tr>
<td>Reforestation of the Tillamook Basin began following fires.</td>
<td>1949</td>
</tr>
<tr>
<td>Commercial fishing closed in Tillamook Bay.</td>
<td>1961</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cultural Resources – Additional Actions</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>First of several fires occurred in downtown Tillamook.</td>
<td>1893</td>
</tr>
<tr>
<td>First County Courthouse burned down.</td>
<td>1903</td>
</tr>
<tr>
<td>Tillamook Post Office (currently Tillamook City Hall) was opened.</td>
<td>1925</td>
</tr>
<tr>
<td>Third Tillamook County Courthouse was constructed.</td>
<td>1932</td>
</tr>
<tr>
<td>Sawmill between 1st Street and Hoquarten Slough east of US 101 began operation in 1885, grew in size, then was closed and dismantled in 1950.</td>
<td>1885 to 1950</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hazardous Materials – Additional Actions</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Henry Ford mass-produced automobiles, making them affordable to the masses.</td>
<td>1908</td>
</tr>
<tr>
<td>Tetraethyl lead was used as an antiknock additive in gasoline.</td>
<td>1920s-1980s</td>
</tr>
<tr>
<td>The Tillamook Burn, a series of large forest fires, occurred, depositing polycyclic aromatic hydrocarbons (PAHs) in sediment and soil throughout Tillamook County.</td>
<td>1933-1951</td>
</tr>
</tbody>
</table>

Sources: Respective technical reports and memoranda

### 3.14.2 Reasonably Foreseeable Future Actions

ODOT identified the following foreseeable actions for the cumulative effects analysis:

- **Project Exodus.** This project, which is developing and implementing a plan to reduce flooding and the adverse impacts of flooding, incorporates environmental, social, and economic values in the development of short- and long-term goals. When implemented, the project would focus on reducing the levels and durations of 2- to 10-year floods, which would decrease flood damages in the Wilson River floodplain. Subject to landowner approval, only temporary construction easements would be needed to remove the fill on these lands (State of Oregon – Oregon Solutions project; a construction date has not been identified).

- **Wilson River Highway at Wilson River Loop Road Improvements.** This project would improve the intersection of the Wilson River Highway (OR 6) and Wilson River Loop Road, just east of Tillamook (ODOT project; construction scheduled to begin in 2012).

- **Trask Slough (Wyss Road) Bridge.** This project would replace the existing Trask Slough Bridge with a new, single-span one-lane bridge (Tillamook County project; construction scheduled to begin in 2014).
• **US 101: Nedonna Bridge to Wilson River Loop.** This project would resurface US 101 between Nedonna Bridge in Rockaway Beach and Wilson River Loop on the north end of Tillamook (ODOT project; construction scheduled to begin in 2015).

• **Tillamook Old Safeway Purchase.** If FEMA, Safeway, and Tillamook County can reach an agreement, FEMA and Safeway would provide Tillamook County the funds to purchase the former Safeway supermarket parcel on US 101 in north Tillamook and remove the structure.

• **Tillamook People’s Utility District.** TPUD is proposing a new 115-kilovolt overhead transmission line from the existing substation east of Tillamook to a new substation west of Oceanside (a construction date has not been identified).

### 3.14.3 Cumulative Effects

The following items summarize cumulative effects by topic in the order they were presented in this Alternatives Analysis Report. For additional discussion of cumulative effects, see the respective technical memoranda and reports (listed in Appendix G). Except where noted in a specific topic paragraph, the study area for the cumulative effects analysis was the project study area (Figure 1-1).

- **Transportation.** The study area for the transportation cumulative effects analysis is the transportation study area (Figure 3-1). The forecasted traffic volumes used to analyze traffic effects of the Build Alternative include traffic from all sources. Because of these inclusive analysis methodologies, the effects represent cumulative traffic effects.

- **Land Use.** The study area for the land use cumulative effects analysis is the City of Tillamook urban growth boundary (see Figure 3-11). The Build Alternative, in combination with other past, present, and reasonably foreseeable future actions, would:
  - Potentially increase the development of currently undeveloped or underdeveloped properties. This would attract more visitors and businesses by improving mobility (defined as an improved v/c ratio); improve multi-modal transportation; and provide new transportation infrastructure within Tillamook.
  - Convert private property designated for commercial uses in the Tillamook Zoning Ordinance to public property, which would decrease the amount of commercially-zoned land within the City of Tillamook. However, this effect would likely be minor because the commercially-zoned land converted to public use would be a small proportion of such land within the City of Tillamook and because transportation facilities are allowed uses within the commercial zones.

- **Right-of-Way.** The Build Alternative, in combination with other past, present, and reasonably foreseeable future actions, would cumulatively add land areas committed to public use.

- **Utilities.** Because all affected utilities would be replaced, reconstructed, or realigned, the long-term level of service from utility providers would not be comprised. Therefore, the Build Alternative would have no cumulative effect on utilities.
• **Socioeconomics.** The study area for the socioeconomics cumulative effects analysis is the City of Tillamook urban growth boundary (see Figure 3-11). The Build Alternative, in combination with other past, present, and reasonably foreseeable future actions, would provide new and improved bicycle and pedestrian facilities and improve connectivity within Tillamook. These improvements could increase multi-modal transportation within Tillamook. A potential increase in development could stress the parking supply in downtown Tillamook, which could increase pressure to develop public or private parking areas to serve the additional demand.

• **Parks and Recreational Resources.** Build Alternative improvements within Hoquarten Interpretive Trail Park (as described in Section 3.5), and subsequent phases of park improvements, could lead to increased recreational value and use of the park.

• **Cultural Resources.** Because the Build Alternative would not directly or indirectly adversely affect known NRHP-eligible or NRHP-listed properties, it would not contribute to cumulative effects on cultural resources. The Build Alternative, combined with other public and private investments in downtown Tillamook, could improve the general setting of the NRHP-eligible and NRHP-listed properties, which could improve the likelihood that these historic resources would be preserved.

• **Visual Resources.** It is not expected that the Build Alternative, in combination with other past, present, and reasonably foreseeable future actions, would cumulatively adversely affect visual resources. Adopted plans and regulations protect natural and scenic resources in the project study area. Therefore, it is unlikely that the Build Alternative and reasonably foreseeable changes to the landscape would substantially adversely affect the existing visual quality of the project study area.

• **Water Resources.** The study area for the water resources cumulative effects analysis is the Tillamook Bay Watershed. The Build Alternative would incrementally contribute to improved Hoquarten Slough water quality because stormwater treatment would be provided for Build Alternative-related impervious surface area where stormwater currently flows untreated into Hoquarten Slough. The Build Alternative, in combination with other past, present, and reasonably foreseeable future actions, would have a cumulative beneficial effect on the 100-year floodplain elevation in the project study area.

• **Biological Resources.** The study area for the biological resources cumulative effects analysis is the Tillamook Bay Watershed. Because aquatic-effect minimization measures have been incorporated in the project design, no aquatic resource cumulative effects of the Build Alternative have been identified. Regional activities (for example, bridges and roads; timber harvesting; dredging and disposal; and urban development) could fragment and reduce the quantity and quality of wildlife habitat, or restrict wildlife movement, which would cumulatively reduce the number and diversity of terrestrial wildlife.

• **Air Quality.** The study area for the air quality cumulative effects analysis is the transportation study area (Figure 3-1). The Build Alternative would not increase VMT and, for this reason, it would not have an air quality effect. All reasonably foreseeable projects that would affect VMT were included in the transportation analysis. Because of...
the inclusive analysis methodology, the findings represent the cumulative air quality effect.

- **Noise.** The study area for the noise cumulative effects analysis is the transportation study area (Figure 3-1). All reasonably foreseeable projects that would affect VMT, travel speeds, and roadway configurations are included in the Build Alternative noise analysis. Because of the inclusive analysis methodology, the findings represent the cumulative noise effect.

- **Hazardous Materials.** The study area for the hazardous materials cumulative effects analysis is the City of Tillamook urban growth boundary (see Figure 3-11). In general, contaminated sites within the project study area are being remediated and few new hazards are being created by new activities. Therefore, the long-term outlook is for a less-contaminated environment in the project study area. As in the past, hazardous material sites will continue to be identified. It is not expected that the Build Alternative, in combination with other projects, would increase the number of such sites or contribute to cumulative hazardous materials effects within the project study area.

- **Geological Resources.** The study area for the geological resources cumulative effects analysis is the City of Tillamook urban growth boundary (see Figure 3-11). Prior actions in the project study area (including dredging in Hoquarten Slough, a former sawmill, and flood protection infrastructure such as dikes) have substantially changed the surface geology of the project study area. The Build Alternative would represent a minor incremental contribution to the cumulative geological resource effects of these prior activities. The new infrastructure associated with the Build Alternative built to existing design standards, in combination with present and reasonably foreseeable future actions, could have beneficial geological resource cumulative effects in the project study area by minimizing such things as slope failures, lateral land movements, and infrastructure damage during natural events (such as floods and seismic events).

### 3.15 Construction Activities and Effects

This section first summarizes Build Alternative construction activities and then summarizes construction effects by topic.

#### 3.15.1 Construction Activities

The following summarizes the construction activities of the Build Alternative. ODOT estimates that the duration of these construction activities would be approximately 36 months. The Build Alternative would be constructed in one or more phases and how the project is phased could affect the duration and sequencing of construction activities. For more information about the construction activities, see Section 2.3.2 and the Tillamook US 101/OR 6 Project Construction Activities Technical Memorandum. Figure 2-2 illustrates the Build Alternative.

Examples of construction activities include mobilization, equipment delivery, clearing and grubbing, earthwork, heavy vehicle operation (such as excavators, supply trucks, tractors, backhoes, cranes, and pavers), equipment operation (such as pile driving, drilling, sawcutting, jackhammering, pavement grinding, and pavement pouring), grading, paving,
structure removal, temporary traffic control installation (such as striping and temporary barriers and signs), utility relocation, lights during night-time work, and planting/revegetation.

In general, during construction, the Build Alternative would:

- Remove the existing three-span bridge over Hoquarten Slough (US 101) and the remnant piers (from a prior span) immediately east of the existing bridge.

- Construct a new approximately 84-foot-wide and 146-foot-long bridge in two stages. The bridge would accommodate two lanes of traffic with a shared shoulder and bicycle lane and a sidewalk in each direction (Figures 2-1 and 2-2). The new bridge would be up to approximately 5 feet higher than the existing bridge.

- Conduct in-water construction activities during the ODFW in-water work window (currently November 1 to February 15 for listed species). In-water activities would include removing the existing bridge and remnant piers, constructing a temporary bridge for construction on each side of the new bridge, constructing the pier and abutments for the new bridge, and conducting soil improvements. Construction of the bridge would also incorporate various other best management practices and mitigation measures that NMFS has indicated will be specified in the project’s pending Biological Opinion (see Section 3.15.2.9 for additional detail).

- Require construction of new embankments, retaining walls, and pavement at the north and south bridge approaches.

- Generally maintain traffic across the slough during construction. Under the current construction plan, all traffic would stay in the existing configuration while the eastern half of the new bridge was constructed. In the second stage, traffic would be shifted to the eastern half of the new bridge with one lane in each direction, the existing bridge would be demolished, and the western half of the new bridge would be constructed.

- Construct street improvements along Main and Pacific Avenues (for example, reconstruct the intersections of Main and Pacific Avenues at 1st Street, widen travel lanes from 10 to 12 feet between 1st and 4th Streets, and reconstruct the intersection at Main Avenue and Front Street) (Figures 2-1 and 2-2). The primary improvements would include relocating curbs and stormwater facilities, replacing the existing roadway pavement and concrete sidewalks, restriping the intersection, and replacing the existing signals and signs. The US 101 intersection at Front Street (and a small portion of Sue H. Elmore Park) would be reconstructed to raise the grade of US 101 and to have Front Street match the grade of US 101.

- Extend Pacific Avenue north of 1st Street and construct a new public access road on the Pacific Avenue extension approximately 200 feet north of 1st Street connecting to a new parking lot for Hoquarten Interpretive Trail Park (Figure 2-2).

- Construct stormwater drainage system inlets at approximately 52 locations in the project study area to capture and treat stormwater (see Section 3.8 [Water Resources] for more information).
• Require the replacement, relocation, or realignment of existing utilities in the project study area (see Section 3.3 [Right-of-Way and Utilities] for more information). ODOT would coordinate the replacement, relocation, or realignment with the affected utility service providers.

• Temporarily increase truck traffic in the project study area. The number of trucks would depend on the contractor’s approach to staging the bridge and roadway construction and the proposed construction techniques.

• Require up to a 1-acre site near the proposed bridge construction activities for a field office and storage of construction materials and equipment. ODOT has identified two potential construction staging areas, both of which would be located between Main and Pacific Avenues, south of Hoquarten Slough and north of 1st Street. Use of those two sites as staging areas is accounted for in this analysis. However, the construction contractor would determine the ultimate location for staging construction materials related to the project and they may or may not decide to use one or both of those sites.

• Follow the construction practices outlined in ODOT’s *Oregon Standard Specifications for Construction* (2008). Amendments to these practices or new specifications would be identified during final project design and included in construction documents.

• Phase construction so that activities would be in smaller segments within the overall construction footprint; implement traffic-control plans to minimize traffic effects and protect public safety; and provide temporary walking surfaces to route pedestrians through the work area and maintain access to affected businesses.

### 3.15.2 Construction Effects

The following subsections summarize the construction effects by topic. Unless otherwise noted, construction impacts would occur for up to approximately 36 months, depending on how the project is phased (see Section 2.3.2 for more information on project phasing). For more information related to the effects from construction activities, see the respective technical memoranda and reports listed in Appendix G.

#### 3.15.2.1 Transportation

The primary traffic effect would be the temporary closing of travel lanes during construction and the resulting traffic delays. The traffic delays would occur during all or within portions of project construction. At least one lane of traffic in each direction would remain open on US 101 while the new bridge was being built. During some activities (such as bridge construction, pier removal, and soil improvements), US 101 might be narrowed to one lane of traffic, which flaggers would control. At least one lane of traffic would remain open on Main and Pacific Avenues and 1st and 3rd Streets while the streets were being improved and the intersections were being reconstructed.

During final design, project-specific work zone, construction sequencing, and traffic control specifications would be developed and added to construction plans and documents. Contractors would be required to comply with these specifications and ODOT standard specifications for work zone and traffic control. Section 3.15.2.4 summarizes construction effects to bicycle and pedestrian travel, transit, vehicular access, and parking.
3.15.2.2 Land Use
Temporary changes in land use from construction activities would occur on the following three Tillamook County tax lots:

- Hoquarten Interpretive Trail Park related to removing and revegetating the existing parking lot, relocating a small section of the existing concrete trail, constructing Pacific Avenue northbound, and constructing a pipe beneath the park that would outfall at Hoquarten Slough for stormwater management. (For more information, see Section 3.15.2.5.)

- Sue H. Elmore Park related to reconstructing Front Street to match the grade of US 101 and reconstructing on-street parking on the north side of Front Street. (For more information, see Section 3.15.2.5.)

- A towing and car repair business related to reconstructing Front Street to match the grade of US 101.

Table F-1 and Figure F-1 in Appendix F show the estimated temporary easement areas needed to construct the Build Alternative. These effects would occur on a small proportion of the total parcel areas (up to 8 percent). After construction, the land within these areas would revert to their existing land uses.

As summarized in Section 3.15.1, two areas north of 1st Street between Main and Pacific Avenues have been identified as potential construction staging areas. Use of this land would represent a temporary change in their land use. The contractor could lease additional land from landowners to accommodate construction staging or situate staging activities on land acquired for the Build Alternative.

3.15.2.3 Right-of-Way and Utilities
The Build Alternative would require temporary easements for construction activities from the three Tillamook County tax lots described in Section 3.15.2.2. Table F-1 in Appendix F shows the estimated temporary easement areas. After construction, the land areas within the temporary easements would revert to their existing uses.

Temporary utility effects would occur during construction from the relocation and rerouting of utilities. The location of the surveyed utilities would be confirmed during the final design of the Build Alternative. ODOT would coordinate the replacement, relocation, or realignment of each utility with the affected utility service providers.

3.15.2.4 Socioeconomics
This subsection addresses the economic and social-resource construction effects of the Build Alternative, and identifies measures to mitigate potential adverse effects during construction. See Section 3.4.2.2 for Environmental Justice compliance, which includes construction effects.

Economic Construction Effects
ODOT estimates that approximately 8.3 jobs are supported in Region 2 for every $1 million (in 2010 dollars) of construction-related transportation spending. Using this statistic and
adjusting to 2015 dollars, the Build Alternative could support approximately 100 construction-related jobs. This estimate includes the construction jobs themselves and other indirect employment (such as construction-company purchases of supplies, materials, and services, and construction-worker purchase of goods and services). These construction-related jobs would dissipate relatively quickly following the end of the construction period (approximately 36 months).

Short-run economic construction effects could also occur as a result of business effects from changes in access, on-street parking, and traffic control changes (such as detours, closures, or delays).

**Access**

Vehicular access (off-street parking) and pedestrian access (from a parking lot or sidewalks) would be maintained to all businesses within the project study area during construction. Appropriate signage would be installed to maintain adequate access to businesses. A potential decrease in the number of bicyclists and pedestrians on Main and Pacific Avenues due to construction activities (including sidewalk reconstruction) could temporarily reduce patronage at businesses on Main and Pacific Avenues between 1st and 4th Streets.

**On-Street Parking**

Construction would result in the temporary loss of on-street parking, due to reconstruction of on-street parking areas or to construction activities adjacent to on-street parking. Although on-street parking would likely be available elsewhere, it would not be as close to the businesses, which could affect patronage at those businesses during construction. For this reason, the loss of on-street parking during construction could temporarily reduce patronage at businesses in the project vicinity that depend on on-street parking.

**Traffic Control**

During construction, motor vehicle mobility within areas of downtown Tillamook would decrease at times because of traffic detours, lane closures, additional queue lengths, and delays. This disruption could temporarily discourage travel to and/or within downtown Tillamook. Businesses that rely on pass-by traffic (pass-by businesses) rely on their visibility and accessibility to passing drivers to maintain their customer bases. Traffic detours, lane closures, and delays would affect those pass-by businesses more than businesses that rely more on customers that purposely travel to the businesses (destination businesses) because traffic volumes might temporarily decrease if drivers use alternative routes. However, while alternate east-west local routes exist within the project study area, US 101 is the only north-south route that crosses Hoquarten Slough. For this reason, vehicles traveling through Tillamook on US 101 would still need to travel through downtown Tillamook.

**Social-Resource Construction Effects**

The temporary effects of construction activities on social resources would include those related to community cohesion; community resources; transit-service times and emergency-service response times; and bicycle and pedestrian travel.
Community Cohesion
Temporary traffic detours, lane closures, extended queues, and delays would affect mobility within the project study area, which could increase the likelihood of cut-through traffic into residential areas to avoid congestion on US 101 and OR 6 during construction activities.

Community Resources
Construction activities would occur within Sue H. Elmore Park and Hoquarten Interpretive Trail Park. For more information on the construction effects from these activities, see Section 3.15.2.5 and Appendix C.

Access to the USPS building for USPS customers and employees would be maintained during construction.

Because the sidewalks on Main and Pacific Avenues between 1st and 4th Streets would be narrowed by 2 feet to accommodate wider travel lanes, existing building accessories such as awnings and signs that extend more than 4 feet (2 feet for the wider travel lanes and a 2-foot buffer) from the existing curb may need to be removed or modified.

Transit-Service Times and Emergency-Service Response Time
All existing bus stops within the project study area would be maintained during construction. To accommodate construction activities, bus stops could be temporarily relocated within the general area of the existing bus stops. Appropriate signage would be installed, as needed, to inform transit riders of temporary bus stop locations.

Traffic detours, lane closures, extended queues, and delays could negatively affect transit-service times and emergency-service response times on routes through the project study area.

Bicycle and Pedestrian Travel
Similar to motorists, bicyclists and pedestrians would experience detours, closures, and delays during construction. Because of these effects, bicyclists and pedestrians might use alternate routes. Pedestrian access (from a parking lot or sidewalks) would be maintained to all businesses within the project study area during construction. At a minimum, one sidewalk on one side of the bridge over Hoquarten Slough would be open during construction to accommodate bicyclists and pedestrian travel across the bridge. Appropriate signage would be installed, as needed, to safely direct bicyclists and pedestrians through construction areas.

Environmental Justice
All of the impacts due to construction of the Build Alternative would be borne similarly by minority and low-income residents and by the general population (see Section 3.4.2.2 for background information on environmental justice compliance).

Mitigation
The following mitigation measures would avoid or mitigate potential adverse socioeconomic effects of the Build Alternative during construction.
• Phase construction so that construction activities would be in segments within the overall construction footprint.

• Develop and implement a traffic, bicycle, and pedestrian control plan to maintain access to businesses and parks in the project study area and to provide signage to direct vehicular and pedestrian traffic to businesses and parks with modified access during construction. This signage would include directions to alternate transportation routes, available parking, and so forth.

• Provide emergency-services personnel (including Tillamook Police and Fire and ambulance dispatching services) with information about disruptions to traffic in the project study area from construction activities.

• Provide outreach to the public in the form of newsletters, Web site postings, and press releases to inform them of construction activities, duration, phasing, and traffic control plans.

• Develop temporary transit stops and routes with the Tillamook County Transportation District to minimize disruptions to transit service.

3.15.2.5 Parks and Recreational Resources

Construction activities would occur within Hoquarten Interpretive Trail Park and Sue H. Elmore Park. The following summarizes the construction effects of the Build Alternative on those parks. Although the easements within Hoquarten Interpretive Trail Park and Sue H. Elmore Park described in this section would be for less than the Build Alternative’s construction period (approximately 36 months), ODOT would acquire these easements for the entire construction period to streamline the right-of-way acquisition process and allow flexibility in the timing of construction activities during the construction period. See Appendix C for additional detail (including figures illustrating the park and proposed temporary easement boundaries) and for the determination that the Build Alternative’s construction activities within the two parks would be temporary occupancies under Section 4(f) and would, therefore, not constitute a Section 4(f) use.

Hoquarten Interpretive Trail Park

All construction effects to Hoquarten Interpretive Trail Park would occur on the park parcel south of Hoquarten Slough and be related to two temporary construction easements.

Temporary Easement 1

ODOT might need to acquire a temporary construction easement for approximately 36 months to construct a stormwater pipe beneath the park. This stormwater pipe would be buried and would convey treated stormwater from the new park access road to Hoquarten Slough. During pipe installation, construction activities would affect an approximately 1,900-square-foot area of the park. This area includes an approximately 15-foot-long portion of a paved trail, grass, and natural vegetation near the slough. The approximate duration of construction activities would be less than 6 months. A permanent easement for maintenance would not be needed because the City of Tillamook would own the parkland and stormwater pipe.
Pedestrian access through Hoquarten Interpretive Trail Park, including the trail, would be maintained at all times during construction, although particular access points and facilities may change to accommodate construction activities and to ensure the safety of park visitors. All park facilities in the area of temporary occupancy, including the trail itself, would be reconstructed at the same location to a condition as good as, or better than, the existing conditions.

**Temporary Easement 2**

ODOT would need to acquire a second temporary construction easement for approximately 36 months to: (1) remove the park’s existing 5-space parking lot (which would be replaced with a new 6-space parking lot at a new location); (2) replace the existing parking lot area with landscaping; and (3) connect the existing trail to the new parking lot. This temporary construction easement area would be on the west end of the park and cover approximately 4,000 square feet. The duration of construction activities within this easement area would be less than 6 months.

**Sue H. Elmore Park**

Construction activities within Sue H. Elmore Park would include re-grading a small portion of the park that includes on-street parking, an approximately 80-foot-long segment of sidewalk, and a small area of grassed landscaping. These park features (and Front Street directly adjacent to the park) would need to be re-graded at its highest point by about 2.5 feet to match the raised grade of Main Avenue at Front Street. Re-grading would not change the horizontal positioning or functional value of these park features.

The section of the sidewalk and approximately four on-street parking spaces adjacent to the north side of Front Street (all of which are located within the park) would be closed during construction within the temporary easement area. The temporary easement (approximately 0.08 acre) would be acquired for approximately 36 months, but the duration of construction within that area would be no more than 180 consecutive days. A specification would be added to the construction plans and documents limiting construction activities to no more than 180 consecutive days. During the period of construction, vehicular, bicyclist, and pedestrian access to the park would be maintained via Front Street west of the construction activities. All facilities would be reconstructed at the same location to a condition as good as, or better than, the existing conditions.

**3.15.2.6 Cultural Resources**

In compliance with its standard practices, ODOT would prepare a *Plan and Procedures for the Unanticipated Discovery of Cultural Resources and Human Skeletal Remains* for the project. Archaeological monitoring would be conducted during construction of the new US 101 bridge footings and stormwater pipe within Hoquarten Interpretive Trail Park, where construction may intersect intact, native soils that might contain archaeological materials. If currently unidentified archaeological or cultural materials or sites were discovered during construction, activity in that area would be halted until a qualified archaeologist could examine and assess the findings. If human remains were discovered, all work within 500 feet of the find would be halted and Oregon SHPO and the county coroner would be contacted. Because the project study area has been the focus of construction and demolition
activities associated with the local lumber industry, it is unlikely that there are intact archaeological or historical resources.

Temporary construction effects on NRHP-listed and NRHP-eligible properties would be minor because construction activities would be short-term and occur within existing right-of-way. Types of construction effects include changes to the viewshed due to visible construction and construction noise audible from the properties. For more information, see the Tillamook US 101/OR 6 Project Cultural Resources Technical Memorandum for the Findings of Effect documentation.

A ground penetrating radar survey conducted in February of 2012 indicated there were no basements or vaults beneath the sidewalk in front of 310 Main Avenue that could be impacted during construction. For more information, see the OR6 @ US101 Basement Survey Report.

3.15.2.7 Visual Resources

Clearing, grubbing of vegetation, and grading during construction would cause temporary visual effects. Heavy construction equipment, cranes, materials, signage, and staging areas in the construction zone would reduce the visual quality of the immediate area during construction. Nearby businesses could be exposed to glare and increased ambient nighttime light levels from heavy equipment and temporary lighting.

3.15.2.8 Water Resources

The potential for water resource construction-related effects would be related to the following factors:

- The proximity of the receiving waters
- The topography of the project study area
- The area of ground that would be disturbed
- The types of construction activities

Anticipated potential water resource construction effects would include:

- Ground disturbance on slopes near the slough resulting in erosion
- In-water effects from pier removal and temporary false-work to construct the bridge (temporary disturbance of the bed and consequent turbidity)
- The potential for material spills during construction operations

ODOT holds an NPDES 1200-CA permit that covers all ODOT projects. This permit identifies, for construction activities disturbing in excess of one acre of land, activities during construction to assure an acceptable standard of water quality. In addition, both the Oregon Fill and Removal Law and Section 404 of the CWA require that water quality effects associated with construction be addressed. Erosion prevention, sediment control, and in-water work are potential areas of concern during construction. Contractors would be required to comply with ODOT standard specifications for erosion and sediment. Regulatory agencies would closely review these practices to minimize effects.
3.15.2.9 Biological Resources

Construction effects on terrestrial wildlife and vegetation would be limited by existing less-than-ideal urban and mixed environs habitat conditions. For this reason, the focus for biological impact avoidance and minimization during construction is the aquatic resources of Hoquarten Slough. In addition to effects described on water resources, construction effects on biological resources might include:

- Removing vegetation
- Destabilizing soil
- Elevating sound levels
- Entrapping fish
- Changing benthic communities (invertebrate communities inhabiting the bottom of the slough)
- Altering hydraulic conditions
- Redistributing sediments

The Build Alternative includes design elements and provisions for avoiding and minimizing adverse effects on biological resources, including listed species and their designated critical habitat. (See the Tillamook US 101/OR 6 Project Biological Assessment for additional information.) The Build Alternative would follow practices outlined in the Oregon Standard Specifications for Construction — Section 00280 Erosion and Sediment Control and Section 00290 Environmental Protection (ODOT, 2008b). Standard Specifications would be appended to the Special Provisions for the project to include additional measures, such as terms and conditions, which NMFS has indicated will be issued in the project’s pending Biological Opinion. For example, in-water work would be conducted during the November 1 to February 15 in-water work window when potential exposure to sensitive aquatic resources would be the lowest. Many measures address the primary limiting factor in Hoquarten Slough for aquatic resources—degraded water quality. Other measures address ecological risks such as turbidity, in-stream habitat alteration, and disturbance of riparian vegetation.

Most wildlife species within the project study area have adapted to human disturbances. However, noise and visual disturbances from heavy equipment and machinery; vibration effects; increased dust and debris; increased traffic; and the clearing of vegetation might cause wildlife to disperse or avoid the surrounding habitats. Disturbances might temporarily affect wildlife foraging along Hoquarten Slough and within nearby palustrine forested wetlands. Wildlife movement in the project study area might decline temporarily during construction activities.

The Migratory Bird Treaty Act requires that clearing and other construction operations avoid the taking of adult birds, their young, and eggs in occupied nests. The poor condition of the riparian community structure reduces opportunities for bird nesting in vegetation. During final design, ODOT would include specific provisions in final plans and specifications for to ensure compliance with the Migratory Bird Treaty Act. Those provisions would include all or some of the following: conducting an on-site pre-construction meeting to review construction activities that could harm nesting birds; requiring advance notification prior to starting construction activities that could harm nesting birds during nesting season; ensuring access as needed to prevent migratory bird nesting; installing,
inspecting, repairing, and maintaining exclusionary methods (e.g., netting) as necessary to
deter nesting; and preparing a Migratory Bird Protection Plan.

Construction activities would disturb herbaceous and shrub habitats that are dominated by
non-native species and urban landscaping. The implementation of construction BMPs
would avoid or minimize potential adverse effects on habitat.

Natural resources regulations require resource avoidance, impact minimization, and
appropriate mitigation. It is possible that Oregon DSL, ODFW, USACE, or NMFS might
propose mitigation activities or conservation measures after further review and discussion
of the Build Alternative. At that time, as part of the agency consultation, ODOT and FHWA
would develop more specific measures for inclusion in final plans and specifications.

3.15.2.10 Air Quality
Dust from excavation, construction of concrete structures, and earth-moving activities, and
emissions from diesel-fueled construction equipment could temporarily affect localized air
quality. Construction contractors would be required to comply with Division 208 of OAR
340, which addresses visible emissions and nuisance requirements. Contractors would also
be required to comply with ODOT standard specifications for air pollution control.

3.15.2.11 Noise
Noise from construction activities would add to the noise environment in the project study
area. Examples of construction noise generators include pile driving, equipment operation,
generators. The Tillamook US 101/OR 6 Project Noise Technical Memorandum documents
predicted equipment noise levels. The loudest equipment generally emits noise in the range
of 80 to 90 dBA at a distance of 50 feet. The closest and loudest equipment dominates noise
at any specific receptor. The types and numbers of construction equipment near any specific
receptor location would vary over time. However, the loudest construction activities (such
as pile driving) would be associated with construction of the bridge. Some construction
might occur at night. Contractors would be required to comply with ODOT standard
specifications for noise control. The City of Tillamook does not have a noise ordinance.

3.15.2.12 Hazardous Materials
Property would need to be acquired and buildings would need to be demolished to clear
land for the new bridge and roadway. Hazardous materials might be encountered in or on
these structures during such construction activities. All acquired property would be
investigated for potential contamination. Environmental concerns would be addressed
before or during construction to avoid the spread of hazardous materials and to manage
potential risks to workers and the public. Construction-phase monitoring would be
performed to identify and manage unanticipated contamination. Contractors would also be
required to comply with ODOT standard specifications for hazardous materials.

3.15.2.13 Geological Resources
Geological resources construction effects would relate to temporary soil and erosion
concerns and soil compaction. Implementing ODOT standard specifications for erosion
control and following the provisions of the NPDES permit would address geological
resource construction effects.