Chapter 3. Affected Environment, Impacts, and Mitigation

3.0 INTRODUCTION

This chapter describes, by resource, the affected environment; environmental consequences (direct impacts, indirect impacts, and construction impacts) for the No Build Alternative, Preferred Alternative and Phase 1 of the Preferred Alternative (Phase 1); cumulative impacts for the Preferred Alternative; and mitigation and conservation measures for the Preferred Alternative and Phase 1.

In addition, this section includes a description of the direct and indirect impacts of the Tier 2 DEIS Build Alternative for each resource section. The Build Alternative section is identical to the one included in the Tier 2 DEIS except for updated table and figure numbers. References to other sections refer to the Tier 2 DEIS. The Tier 2 DEIS Build Alternative, which includes all of the design and local circulation options, is no longer under consideration, but is included here for informational purposes only and as a comparison to the Preferred Alternative.

The following resource areas are addressed for the project:

- Transportation
- Land Use
- Right-of-Way
- Socioeconomics
- Environmental Justice
- Parks and Recreation
- Cultural Resources
  - Historic Resources
  - Archaeological Resources
- Utilities
- Air Quality
- Noise and Vibration
- Visual Resources
- Water Quality and Hydrology
- Wetlands
- Biological Resources
  - Noxious Weeds
  - Wildlife and Botanical Resources
  - Fish Resources
- Geotechnical
- Hazardous Materials
- Energy
- Climate Change
The following discussion provides additional detail on what information is included for each resource area.

**Affected Environment**

The Affected Environment section provides descriptions of the existing social, economic, or environmental setting (depending upon the resource discussed) for the project area.

**Environmental Consequences**

The Environmental Consequences section provides an analysis of the direct and indirect environmental impacts and construction impacts. All impacts are discussed by resource for the area. Impact types are defined as follows:

**Direct Impacts**: Impacts caused by the action, occurring at the same time and place as the action. Direct impacts can be positive or negative.

**Indirect Impacts**: Impacts caused by the action, occurring later in time or farther removed in distance, but which are still reasonably foreseeable. Indirect impacts may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density, or growth rates and related effects on air, water, and other natural systems, including ecosystems. Indirect impacts can be positive or negative.

**Construction Impacts**: Impacts that are short-term and adverse and are associated with construction of the project.

**Cumulative Impacts**

A cumulative impact results when one or more impacts from the Preferred Alternative are added to other impacts of past, present, and/or reasonably foreseeable future actions in the project area. Actions are considered in the cumulative impact analysis whether they are carried out by a public agency (federal or non-federal) or a private entity.

Cumulative impacts can be positive or negative. Some resources could be negatively impacted by a combination of past, present, or future projects with the project, while other resources are positively impacted by the same types of projects. For example, a project might add a small amount of contamination to a stream, but when added to contamination from other nearby projects, this small amount might raise the overall contamination level in the stream to a critical level. The same project might also be required to mitigate for its impacts to water quality by contributing to a mitigation bank at another location, leading to an overall positive impact on fish habitat.

The year that past projects are first considered varies for each resource. Future projects are those that are foreseeable, such as those included in master plans approved by local jurisdictions or projects included in local capital improvement programs (CIPs) and the 2010–2013 Final State Transportation Improvement Program (STIP).

For the cumulative impact analysis, the area of potential cumulative impact for the Preferred Alternative includes the project area and the area within approximately 1 mile of Oregon 99W including:

- The area east of the project area extending to the Sherwood urban growth boundary (UGB).
- The area west of the project area extending to the McMinnville UGB.
- Areas within approximately 1 mile to the north of the project area.
- Areas to the south of the project area and to the north of the Willamette River.
There is some variation in the API depending upon the resource analyzed. These variations are noted in the resource discussion.

Past and present actions that contribute to cumulative impacts for the Preferred Alternative include:

- The development of Newberg, Dundee, Dayton, and McMinville.
- The development and expansion of the Portland-Vancouver metropolitan area.
- The historic development of transportation routes in the project area (road and rail).
- Activities of regional importance that contribute to trips and economic development along Oregon 99W. These include the wine industry, timber harvesting, agriculture, Spirit Mountain Casino, and coast-oriented tourism.

The following present and future transportation, infrastructure, and land development actions and approved land use plans were considered in the cumulative impacts analysis.

- Development codes and Interchange Area Management Plans (IAMPs) for Newberg, Dundee, Dayton, and Yamhill County.
- Future traffic signals along Oregon 99W in Dundee in the Dundee TSP.
- Improvement of intersections at Oregon 219 and Springbrook, Wynooski, and Wilsonville Roads in Newberg.
- Intersection improvements on Oregon 99W in the project study area.
- The proposed Northern Arterial in Newberg.
- Future reclassification of Oregon 99W as a District Highway.
- Expansion of the water and wastewater treatment facility in Newberg (Newberg Sewerage Master Plan Update, Capital Improvement Plan, 2007).
- New school sites in Newberg, Dundee, and Dayton.
- Newberg Riverfront Master Plan (2001).
- Sportsman Airpark Master Plan in Newberg (June 2006).
- Providence Newberg Medical Center Master Plan relocation/expansion.
- Chehalem Glenn Golf Course Master Plan in Newberg.
- Springbrook Properties, a proposed 433-acre development project in northwest Newberg.
- Spirit Mountain Casino.
Mitigation

Mitigation measures have been considered throughout the National Environmental Policy Act (NEPA) process for the project. Avoiding and minimizing impacts were considered during Tier 1 and have continued in Tier 2. For example, in Context Sensitive and Sustainable Solutions workshops the public and stakeholders identified areas that are environmentally sensitive or important to the local community and should be avoided. They also suggested mitigation measures to offset impacts from the project.

Mitigation for the Preferred Alternative and Phase 1 are described in each resource’s section of this chapter. Specific laws govern right-of-way acquisitions, which include relocations that adversely impact residential and business properties. Appendix E provides additional information on the right-of-way acquisition process.