

CHAPTER 5 EFFECTS OF THE PROJECT

This chapter presents an analysis of the potential effects the project could have on people and the environment. To determine these effects, WSDOT initiated 15 different studies. The project team documented its detailed analyses in discipline reports and technical memoranda that illustrate how the project might affect the area.

WSDOT evaluated the following environmental topics:

- Air Quality
- Environmental Justice
- Geology and Soils
- Hazardous Materials
- Cultural Resources
- Ecosystems
- Energy
- Land Use, Economics, and Relocations
- Noise
- Social Elements
- Transportation
- Visual Quality and Aesthetics
- Water Resources
- Section 4(f) Resources
- Indirect and Cumulative Effects

The key findings of these evaluations are summarized in this chapter. The discipline reports and technical memoranda that describe these evaluations are provided in Appendices G through U.

What federal, state, and local environmental laws and regulations apply to the project?

Federal, state, and local laws and regulations provide the legal framework for the analyses described in this EA. In many cases, these interrelated laws and regulations set thresholds

The project will not affect the following environmental elements:

- Farmland
- Wild and scenic rivers
- Coastal barriers

As a result, these elements are not addressed in this EA.

that provide a basis for evaluating how the project will affect a particular resource, such as air quality or water quality, and whether the effect will be significant. A summary of applicable laws, regulations, and ordinances is provided in Appendix D, Regulatory Framework.

How did WSDOT evaluate the effects of the project on the environment?

After modifying the design to minimize or avoid known potential effects, WSDOT compared the Build Alternative, and the No Build Alternative, to the existing conditions. This comparison enabled WSDOT to determine environmental, social, and economic changes that could result from constructing and operating the project.

WSDOT's analysis of project effects took into consideration standard construction practices that have been developed to avoid adverse effects; for example, exposure of bare ground during construction can increase erosion and wash soil into local streams. Because of this potential for adverse effects, WSDOT will use best management practices (BMPs) to control erosion and maintain water quality. These standard practices will reduce adverse effects and will be considered part of the project.

How did WSDOT use environmental information to improve the project?

After collecting the existing conditions data, the project team met with the roadway design engineers to identify where the project's effects on the environment could be avoided or reduced. For example, to reduce effects on wetlands, WSDOT overlaid wetland locations on the preliminary design plans and adjusted the roadway alignment, reduced the number of roadside slopes by adding retaining walls, and adjusted the location of stormwater facilities.

What are best management practices?

Best management practices, commonly referred to as BMPs, are methods used to minimize or avoid environmental effects. The term "BMP" is widely used to refer to a variety of common management techniques. These practices represent the most practical methods available and are continually being improved. Examples of BMPs are (1) using silt fences during construction to minimize erosion, (2) using biofiltration swales and other facilities to control and treat stormwater, and (3) limiting work periods to when the fewest fish are expected to be present to protect fish and streams during in-water work.

Did the analysis of some environmental elements show that the project will have a negligible effect?

Many of the project studies found that the project will not cause any appreciable effects. The studies that found negligible effects are summarized below for the following environmental elements:

- **Air Quality:** The project is not expected to cause or contribute to any new violation of the National Ambient Air Quality Standards (NAAQS). The project is expected to have a low overall potential for mobile source air toxic (MSAT) emissions. The project meets conformity requirements in 40 CFR Parts 51 and 93. Any air quality effects related to project construction will be temporary. For more information, see Appendix G, Air Quality Technical Memorandum.
- **Environmental Justice:** Low-income and minority populations live in the project vicinity, but the project team does not anticipate that project construction or operation will have disproportionately adverse effects on low-income or minority populations.

The “usual and accustomed” fishing areas of the Muckleshoot Indian Tribe are located in the project vicinity. However, WSDOT will work with the staff of the Muckleshoot Indian Tribe to avoid or minimize adverse effects.

Under the Build Alternative, project construction will temporarily increase congestion and noise and change access for the businesses and residents in the area, including low-income or minority populations. During operation of the project, no negative effects are anticipated due to improved transit service. For more information, see Appendix H, Environmental Justice Technical Memorandum.

- **Geology and Soils:** The proposed project will have a minimal effect on the geology and soils in the project vicinity. While there are geologic hazards in the area, including unstable slopes, liquefaction, and landslides,

Liquefaction is a phenomenon in which the strength and stiffness of a soil is reduced by earthquake shaking or other rapid loading. Liquefaction occurs in saturated soils, that is, soils in which the space between individual particles is completely filled with water.

these hazards will be taken into account during design and construction of the project to minimize the effects.

The project will result in changes in soil layers as materials are removed to accommodate project elements (for example, retaining walls) or as soils are removed or placed to improve performance of project elements. Construction activities on steep slopes and through areas with known or suspected past landslides will use modern engineering and construction techniques developed to minimize landslide hazards. For more information, see Appendix I, Geology and Soils Technical Memorandum.

- **Hazardous Materials:** No unavoidable negative effects relating to hazardous materials and no unavoidable negative effects on the environment or human health due to contamination are expected as a result of construction or operation of the project. There is potential for hazardous materials spills (for example, fuel from construction equipment) to occur during construction. Appropriate BMPs will be implemented to prevent or address any hazardous materials releases that could occur during construction of the project.

The most likely effects associated with hazardous materials include encountering contaminated soils and groundwater, generating hazardous building materials through demolition, encountering underground storage tanks (USTs) or leaking underground storage tanks (LUSTs), creating accidental spills, and addressing worker safety and public health issues.

The project team identified 13 low to moderate risk hazardous materials sites in the project vicinity (within one mile of the centerline of the portion of roadway where construction will occur). Based on available site information, out of the 13 low to moderate risk sites, 3 hazardous material sites have the potential to affect project construction. These sites include a service station, a maintenance facility, and an identified LUST/UST property. No high risk hazardous materials sites were identified. For more information and maps showing the locations of potential hazardous materials sites, see Appendix J, Hazardous Materials Technical Memorandum.