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420.01 Summary of Requirements for Geology and Soils

The National Environmental Policy Act (NEPA) requires that all actions sponsored, funded, permitted, or approved by federal agencies undergo planning to ensure that environmental considerations are given due weight in project decision making. The State Environmental Policy Act (SEPA) mandates a similar procedure for state and local actions.

This chapter and its associated web links include information and requirements for:

1. Describing geologic and soil conditions (including hazard areas) in the vicinity of the project area.
2. Identifying potential significant adverse impacts of project alternative on these conditions.
3. Identifying potential impacts of geology and soil conditions on project construction and operation.

At a minimum the general topographic and geologic setting, significant features and landforms, soil types and their properties, and known geologic hazards within the project area should be identified. Geologic hazards include such things as highly erodible soils, landslides, debris flows, seismic hazards (e.g. faults and areas subject to liquefaction), volcanic hazards, subsidence, rockfall and other critical/sensitive areas. Existing and potential material source areas for borrow, aggregate and topsoil should also be identified.

The analysis evaluates the potential for direct construction and operations impacts on identified geologic and soil conditions for all project alternatives, including the “no-build” option. Potential impacts to mineral resources should also be evaluated. The analysis should also describe the potential for identified geologic hazards to impact project alternatives. Mitigation measures, commitments, and monitoring procedures associated with geologic hazards should be described. If no geologic hazards or potential impacts are anticipated, the conclusion should be stated in the environmental documents.

The results of the analysis should be written directly into the project’s environmental document (EIS, EA or DCE) with supporting information included in the appendices if needed. In rare cases when warranted by the nature of the project, the analysis can be documented in a separate discipline report which supplements the environmental document. Guidance for completing the Geologic and Soils discipline report can be found on the WSDOT NEPA SEPA Support Web Page.

Information and requirements for describing groundwater resources and identifying potential project impacts on these resources are presented in [Chapter 433](#).

420.02 Resources for Analyzing Geology and Soils Impacts

Information for identifying and locating geologic hazards, soil types and critical/sensitive areas can be found in many locations. Several commonly used resources are listed below.

- WSDOT's GIS Workbench is an internal data system available for use by WSDOT staff. The Workbench has data layers that identify soil types, geologic hazards, critical/sensitive areas, and designated mineral resources.
- Washington Department of Natural Resources Geology and Natural Resource Division publish geologic maps of the state.
- The [National Resource Conservation Service County Soil Survey](#)
- Department of Ecology [Coastal Zone Atlas](#) of Washington
- Tribes may have geotechnical information for tribal lands. Contact the appropriate WSDOT [Tribal Liaison](#) for contact information.
- Contact the WSDOT [Geotechnical Services](#) for subject matter experts, published reports, studies and boring logs from past WSDOT projects.
- WSDOT [Geotechnical Design Manual](#) M 46-03 provides detailed guidance on geotechnical design, construction and maintenance issues.
- The [Municipal Research and Services Center \(MRSC\) of Washington](#) website provides convenient links to critical area ordinances for many local agencies.

420.03 Applicable Statutes and Regulations

This section lists the primary statutes and regulations applicable to geology and soils issues.

(1) Federal

- National Environmental Policy Act – See Chapter 400 Environmental Review Process Overview for more information.

(2) State and Local

- State Environmental Policy Act – [RCW 43.21C](#), [WAC 197-11](#) and [WAC 468-12](#).
- State Growth Management Act – [RCW 36.70A](#).
- Local Critical Area Ordinances – these ordinances are intended to protect locally designated critical or sensitive areas, which may include geologically hazardous areas identified as being susceptible to erosion, mass wasting (land sliding), earthquake, or other geological events which pose a threat to health and safety when incompatible development is sited in areas of significant hazard. Contact local planning departments to determine the location or descriptive criteria of geologically hazardous areas. See the WSDOT [Local Environmental Permits and Approvals](#) web page.
- Other Local Ordinances – Local ordinances also regulate building and clearing/grading. For non-highway project outside the right of way, including development and operation of borrow pits, WSDOT must comply with these ordinances. See the WSDOT [Local Environmental Permits and Approvals](#) web page.
- Tribes may also designate critical areas and have their own ordinance and regulations. See the WSDOT [Local Environmental Permits and Approvals](#) web page for contact information.