

Chapter 433 Groundwater

- 433.01 [Summary of Requirements for Groundwater](#)
- 433.02 [Groundwater Policy Guidance](#)
- 433.03 [Groundwater Related Interagency Agreements](#)
- 433.04 [Applicable Statutes and Regulations](#)
- 433.05 [Abbreviations and Acronyms](#)
- 433.06 [Glossary](#)

433.01 Summary of Requirements for Groundwater

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 (including impacts to groundwater) are given due weight in project decision making. The State Environmental Policy Act (SEPA) mandates a similar procedure for state and local actions.

In general, transportation projects must be designed to avoid significant adverse environmental impacts to groundwater resources, and mitigate any unavoidable adverse impacts (e.g., through use of Best Management Practices or BMPs). Impacts to groundwater are considered in the context of overall water quality, and as a drinking water source. Protection of groundwater quality is provided for by the [Federal Clean Water Act](#) and related [state statutes and regulations](#). Protection of groundwater and groundwater sources (aquifers) used for drinking is provided for by the federal Safe Drinking Water Act and related state statutes and regulations, as well as the state Growth Management Act and associated local Critical Areas ordinances.

This chapter and its associate web links include information and requirements for describing groundwater resources in the vicinity of the project area, and identifying potential significant adverse environmental impacts of project alternatives on these resources. Other information relevant to this chapter may be found in [Chapter 420](#) and [Chapter 430](#).

A full [Discipline Report](#) is required when one or more project alternatives may introduce enough stormwater or wastewater into an aquifer or its recharge zone to create a significant adverse environmental impact. The Groundwater Discipline Report should include information on regional and local aquifers underlying and/or proximally down gradient from the project area, and determine whether stormwater or wastewater discharges produced by any project alternatives are likely to enter [Sole Source Aquifers \(SSA\)](#), [Critical Aquifer Recharge Areas \(CARA\)](#), or [Wellhead Protection Areas \(WPA\)](#) in quantities sufficient to produce a significant adverse environmental impact. It should also identify other significant adverse environmental impacts to groundwater, and mitigation options for identified impacts.

433.02 Groundwater Policy Guidance

433.02(1) **State Source Water Assessment and Protection Programs Guidance**

State Source Water Assessment and Protection (SWAP) Program guidance is required under the Safe Drinking Water Act amendments of 1996 to ensure better quality drinking water. Water assessments will generate information on significant potential contamination sources and will also generate information regarding the susceptibility of systems to contamination. The USEPA is responsible for the review and approval of state SWAPs. The Washington State Department of Health administers [Washington's SWAP](#).

433.03 Groundwater Related Interagency Agreements

433.03(1) **Sole Source Aquifers**

A [2014 Memorandum of Understanding between FHWA Washington Division, USEPA Region 10 and WSDOT](#) was developed to assure that each highway project that is to receive FHWA financial assistance is designed and constructed in a manner that will prevent the introduction of contaminants into a [sole source aquifer \(SSA\)](#) in quantities that may create a significant hazard to public health.

The MOU includes:

- A list of SSAs as of 2014 (Attachment A) – go to [current map](#)
- Excluded projects
- Projects that should be submitted to USEPA (Attachment C)

To comply with the Sole Source Aquifer MOU:

- Provide USEPA an early opportunity to participate in development and review of environmental documents by completing and submitting a sole source aquifer checklist. USEPA should be contacted before the first draft document is circulated outside WSDOT for general review.
- Immediately transmit to USEPA any agency comments received indicating adverse impacts on the aquifer.
- Respond to USEPA direction.

433.03(2) **Drinking Water Well Sanitary Control Areas – Screening Criteria**

The purpose of this [2006 agreement](#) between WSDOT and DOH is to clarify expectations, establish project screening criteria, and facilitate communication among WSDOT, DOH, and water purveyors when a proposed highway project intersects with the sanitary control area of a public water supply.

433.04 Applicable Statutes and Regulations

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

433.04(1) *Federal*

National Environmental Policy Act – See [Chapter 400](#) Environmental Review Process Overview for more information.

Safe Drinking Water Act – The [Safe Drinking Water Act \(SDWA\)](#) sets national primary drinking water standards, regulates underground injection of fluids, and allows for designation of Sole Source Aquifers. Implementation of the SDWA is delegated to individual states.

Clean Water Act – See [Chapter 430](#) Surface Water for more information on the Clean Water Act.

433.04(2) *State and Local*

State Environmental Policy Act – See [Chapter 400](#) Environmental Review Process Overview for more information.

State Water Quality Laws and Administrative Rules – State water quality regulations are mandated by the federal Clean Water Act (CWA). [RCW 90.48](#) Water Pollution Control Act is the primary water pollution law for the state of Washington. The law mandates that all underground water be protected; however, water in the vadose zone (unsaturated zone) is not specifically protected. See [Chapter 430](#) Surface Water for more information on the state Water Pollution Control Act.

[WAC 173-200](#) identifies and mandates groundwater quality standards to maintain the highest quality of the state's groundwater and to protect existing and future beneficial uses of the groundwater through the reduction or elimination of contaminant discharge. Because many people drink groundwater and use it in their homes, the state of Washington currently classifies all of its groundwater as a potential source of drinking water. It is not necessary for ground water to be defined as an aquifer (i.e., a saturated permeable geologic formation that can produce a significant quantity of water) in order to be protected. Likewise the standards do not distinguish ground water which is perched, seasonal or artificial.

Drinking Water – Source Water Protection – Protection of drinking water sources (surface and groundwater) is mandated by the federal Safe Drinking Water Act.

In Washington, [RCW 43.20.050](#) designates the State Department of Health (DOH) as lead agency for assuring safe and reliable public drinking water supplies, in cooperation with local health departments and water purveyors. State regulations ([WAC 246-290-135](#) for Group A systems; [WAC 246-291](#) for Group B systems) provide for two types of area based controls for source protection of wells and springs serving as sources of public water supplies:

Underground Injection Control – The [Underground Injection Control \(UIC\) Program](#), authorized by the federal [Safe Drinking Water Act](#), is designed to prevent contamination of underground sources of drinking water from the use of [injection wells](#).

The national UIC Program is administered by EPA under [40 CFR 144](#). The Washington State Department of Ecology was delegated authority by USEPA to administer the program in Washington State, and operates under [RCW 43.21A.445](#) and [RCW 90.48](#) and [WAC 173-218](#). All new underground control activities must treat the “waste” fluid before injection.

Growth Management Act – This statute ([RCW 36.70A](#)), combined with Article 11 of the Washington State Constitution, mandates development and adoption by local jurisdictions of ordinances that classify, designate, and regulate land use in order to protect critical areas. [Aquifer recharge areas](#) are one type of critical area, and are regulated through local Critical Aquifer Recharge Area (CARA) ordinances. Under the GMA, state agencies must comply with local comprehensive plans and development regulations; likewise, local agencies should coordinate with WSDOT. See the section of Local Critical areas Ordinances below for more information and links.

Local Critical Areas Ordinances – The purpose of [Critical Aquifer Recharge Area](#) (CARA) ordinances is to provide cities and counties with a mechanism to classify, designate, and regulate areas deemed necessary to provide adequate recharge and protection to aquifers used as sources of potable (drinking) water. Unless the local laws conflict with state law, WSDOT must meet the requirements of local regulations. Local planning departments should be contacted to determine the location or descriptive criteria of geologically hazardous areas that may impact the project.

Additional information on local implementation of CARAs may be available at websites for the appropriate local jurisdictions (search for “critical areas” or “growth management”).

433.05 Abbreviations and Acronyms

AKART	All known, available, and reasonable methods of prevention, control, and treatment
BMPs	Best Management Practices
CARA	Critical Aquifer Recharge Area
DOH	Washington State Department of Health
GIS	Geographical Information System
GMA	Growth Management Act
NPDES	National Pollutant Discharge Elimination System
OSS	On site Sewer
SCA	Sanitary Control Area
SDWA	Safe Drinking Water Act
SSA	Sole Source Aquifer
SWAP	Source Water Assessment and Protection
SWDP	State Waste Discharge Permit
UIC	Underground Injection Control
WPA	Wellhead Protection Area

433.06 Glossary

Critical Aquifer Recharge Area (CARA) – An area designated by a city or county for protection under the Growth Management Act that has a critical recharging effect on aquifers used for potable water.

Groundwater – Water that occurs below the surface of the earth, contained in pore spaces. It is either passing through or standing in the soil and underlying strata and is free to move under the influence of gravity.

Group A water systems regularly serve 15 or more residential connections or 25 or more people/day for 60 or more days per year. All remaining systems are designated **Group B**. Wells serving a single residential connection are not considered public water supplies, but are generally regulated by local ordinances

Injection Well – Any disposal system designed to place fluids, including highway runoff and treated wastewater from on site sewage disposal systems, into the subsurface. Such systems include bored, drilled, or dug holes; for example dry wells, French drains, and drain fields.

Sanitary Control Area (SCA) – An area (minimum radius 100 ft) maintained around a public water source (surface or well) for the purpose of protecting that source from existing and potential sources of contamination. No sources of contamination may be constructed within the sanitary control area without the permission of the Washington Department of Health (DOH) and the water purveyor. DOH guidance identifies stormwater runoff and spills resulting from vehicular accidents on roadways as potential sources of contamination.

Sanitary Control Area (SCA) – An area established and maintained around a well or spring for the purpose of protecting it from existing and potential sources of contamination. The minimum SCA is a 100 ft radius about the source for wells, and 200 ft for springs, unless “engineering justification” supports a smaller area. The well or spring owner is required to have fee simple ownership of the SCA, and must prohibit or exercise direct control over the construction, storage, disposal, or application of existing or potential sources of contamination.

Sole Source Aquifer (SSA) – An aquifer designated by USEPA that (1) supplies 50 percent or more of the drinking water to the population living over the aquifer, (2) has distinct hydrogeological boundaries, and (3) for which there is no economically feasible alternative source of drinking water if it should become contaminated.

Source Water Protection Area – Area protected for drinking water supplies; these include Wellhead Protection Areas and Sanitary Control Areas.

Wellhead Protection Area – Area managed by a community to protect groundwater drinking water supplies.

Wellhead Protection Areas (WPA) – A portion of the zone of contribution for a Group A well or spring, as determined by delineation criteria based on the estimated time of travel for a particle of water from the zone boundary to its eventual arrival at the well. Water purveyors are required to inventory all known and potential groundwater contamination sources within the WHPA and complete a susceptibility assessment every five years. Additional information is available in DOH’s *Wellhead Protection Guidance Document*.

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