

3.4 Water Quality

3.4.1 Affected Environment

Current Plan Area

Surface water and groundwater quality in the current plan area is generally consistent with the conditions characteristic of developed urban and suburban areas, as well as water quality problems associated with more rural agricultural areas. Surface waters include local rivers, streams, and lakes. Groundwater is the water found underground within rock layers that lie beneath the surface layers and bedrock. An aquifer is a porous geologic layer that contains water in sufficient quantity for use. Groundwater contamination can occur when polluted surface water infiltrates the aquifer or when contaminants are discharged directly into groundwater sources. Surface water pollution is caused by direct discharge of harmful substances into local streams (point sources) or by contaminated runoff from streets, parking lots, and other impervious surfaces that drains to the stormwater system and eventually into nearby streams (non-point sources). Point-source pollutants are generated from a single location, such as a factory or a wastewater treatment plant. Non-point-source pollutants include a wide variety of dispersed contaminants, which originate from unregulated sources and enter local streams through surface water runoff. Generators of non-point-source pollution include erosion and sedimentation, agricultural contaminants, urban pollutants, onsite septic systems, accidental spills, and illegal discharges.

Groundwater

The City of Sumner (City) municipal water supply includes three spring fields and three wells (Figure 3.4-1). Sources of groundwater that feed the springs include precipitation on the upland area east of the springs and possibly Lake Tapps. In 1968, the Washington State Department of Natural Resources (DNR) identified the valleys between the foothills as a potential municipal groundwater resource area (Walters and Kimmel 1968). The DRASTIC model, developed by the National Water Well Association and the U.S. Environmental Protection Agency (EPA), provides rating information on groundwater recharge potential and susceptibility to contamination (EPA 1987). The hydraulic conductivity of the valley floor in Sumner is rated as one of the highest in Pierce County (City of Sumner 2005). Figure 3.4-1 shows groundwater recharge and wellhead protection areas in the current plan area.

No detailed assessment of groundwater quality has been conducted for the current plan area, although the City springs have been assessed. Surface runoff from upstream drainage areas can filter through the soil and migrate to groundwater sources. Filtering through the soil removes pathogenic organisms, particulates, and colloidal particles. However, potential sources of groundwater contamination include dissolved substances such as oils, solvents, fertilizers, pesticides, and other contaminants that can travel with surface water runoff and groundwater to the spring collection areas. The latest water supply water quality testing data are available on the City website (City of Sumner 2010a). These data indicate no water quality violations at the wells currently in use.

Protected Watersheds

The City owns and controls two protected watersheds. The northern watershed encompasses Sumner, Weber, and County Springs. The southern watershed encompasses Elhi Springs. Both watersheds are steeply sloped, heavily forested with fir, cedar, and deciduous trees, and are relatively undisturbed.

Wells

The City Water System is currently served by three wells. Both the South Well and West Well were installed in 1975. The South Well is used for domestic supply and the West Well for irrigation of the Sumner Cemetery and for fire flows. The West Well is used for domestic supply during low water supply times in the summer but is not used for regular supply. The West well is classified as a standby rather than an emergency supply and is considered a seasonal source. Water rights for the West Well are disputed, and no further improvements are planned at this location until the conclusion of a lawsuit before the Washington State Supreme Court regarding the Municipal Water Law. (Parametrix 2009)

The Dieringer Well was constructed in 1954, originally to serve the Dieringer School. The well and its associated water rights were acquired by the City in 1998, and improvements necessary to use the well were completed in 2004. (Parametrix 2009)

Surface Water

Streams

Chapter 16.56 of the Sumner Municipal Code (SMC) references the DNR stream typing system (Washington Administrative Code [WAC] 222-16-030). However, SMC 16.56 has not been revised to include the more recent DNR stream typing system. Table 3.4-1 summarizes the current DNR stream types and corresponding City designations. Streams in the city limits include the White (Stuck) River, Puyallup River, Eighth Street Creek, Milwaukee Creek, Salmon Creek, the Dieringer Canal, and several smaller Type 5 (Ns) streams.

Table 3.4-1. City and State Stream Typing System Summary

Sumner Stream Type (SMC 16.56)	WDNR Stream Type (WAC 222-16-030)	Description	Examples
	S	Shoreline of the State	Puyallup River, White (Stuck) River.
3	F	Fish bearing	Salmon Creek, Milwaukee Creek, Dieringer Canal, Stewart Road Creek (formerly 8th Street Creek)
4	Np	Non-fish bearing perennial	Upper Salmon Creek
5	Ns	Non-fish bearing seasonal	Various unnamed intermittent channels

SMC = Sumner Municipal Code; WAC = Washington Administrative Code

Figure 3.4-2 shows the location of rivers and streams in the current plan area vicinity.

Puyallup River and White (Stuck) River

The current plan area is located in the Puyallup-White Watershed, designated by the Washington State Department of Ecology (Ecology) as Water Resource Inventory Area (WRIA) 10. The headwaters of both of these rivers are on Mount Rainier. The White (Stuck) River is a tributary to the Puyallup River and flows south through Sumner before joining the Puyallup River, which forms the southwest border of the city limits. The Puyallup River flows to the west and eventually drains into Commencement Bay and Puget Sound at Tacoma. Fish species in the Puyallup-White Watershed include Chinook, coho, and chum salmon; bull trout; and steelhead (WDFW 2010).

Land uses along the Puyallup River include industrial/manufacturing, residential, parks, and open lands (ESA Adolfson 2010), as well as Sumner's municipal wastewater treatment plant. The Puyallup River through Sumner has been extensively altered through channelization and the loss of large woody debris and riparian and off-channel habitats throughout the system (Kerwin 1999). Summer low flows in the Puyallup River have declined continuously since at least 1980, despite the closure on new surface water withdrawals and the establishment of minimum flow requirements. The Puyallup River in Sumner is mapped by the Washington Department of Fish and Wildlife (2010) as migration and rearing habitat.

Land uses along the White (Stuck) River include agricultural, residential, commercial, industrial, recreational, and open lands. Flood-control practices along the river, such as removal of riparian vegetation and large woody debris, dikes, and revetments, have adversely affected habitat quality for salmonids (ESA Adolfson 2010). In the past, operation of the Lake Tapps Hydroelectric Project caused an attraction of adult salmonids to the flow from the powerplant outlet, delaying migration (ESA Adolfson 2010; Kerwin 1999). However, cessation of power generation at the system in 2004 is thought to have had beneficial effects on fisheries (Puget Sound Energy 2006).

The outfall of Sumner's municipal wastewater treatment plant is located on the White (Stuck) River, just upstream of its confluence with the Puyallup River. This facility treats mostly domestic wastewater, but also treats wastewater from some manufacturing, commercial, and industrial sources. The plant's outfall is regulated by the EPA and Ecology under the National Pollutant

Discharge Elimination Systems (NPDES) program (Ecology 2008). For details on wastewater treatment, see Section 3.19, "Wastewater."

Three private businesses in Sumner hold NPDES permits: SONOCO has a wastewater NPDES for its recycling business (Ecology 2007); and Western Wood Preserving (Ecology 2004a) and Manke Lumber Company (Ecology 2004b) have NPDES permits for stormwater discharge. Details on City stormwater drainage can be found in Section 3.20, "Storm Sewer."

Section 303(d) of the Federal Clean Water Act requires Washington State to prepare a list of all surface waters in the state for which beneficial uses of the water, such as drinking, recreation, aquatic habitat, and industrial use, are impaired by pollutants. Waters placed on the 303(d) list require the preparation of Total Maximum Daily Loads (TMDLs), or Water Cleanup Plans, by Ecology in partnership with local jurisdictions. TMDLs identify the maximum amount of a pollutant allowed to be released into a waterbody so as not to impair uses of the water.

The 2008 303(d) list (Ecology 2008) identifies three points on the White (Stuck) River in the city limits where water quality criteria are not met: 1) upstream of the powerhouse discharge canal upstream of 24th Street E, where temperatures and pH have exceeded criteria 2) from 32nd Street E to north of Puyallup Street, where temperature has exceeded criteria and 3) from 57th Street to the confluence of the White and Puyallup rivers where fecal coliform bacteria exceeded criteria.

No other surface waters are currently listed as impaired. Naturally occurring turbidity and sediment load are significant factors in both rivers, with mostly fine sediments being transported from the upper reaches of the rivers on the slopes of Mt. Rainier and deposited in the lower reaches. Sediment transport has been estimated to range from 440,000 to 1,400,000 tons annually in the White (Stuck) River. Mud Mountain Dam, operated by the U.S. Army Corps of Engineers upstream of the city limits at river mile 29.6, disrupts the natural delivery of sediments by impounding fine sediments during high-flow and/or high-load periods and discharging those sediments for prolonged periods during lower river flows. Sediment load and turbidity are anticipated to continue to be high for both the Puyallup and White (Stuck) rivers as these are naturally occurring conditions (Kerwin 1999).

Stewart Road Creek

This stream is the result of relocating the Eighth Street Creek (Adolfson Associates 2002) from the vicinity of the Lake Tapps Parkway Stormwater Treatment Pond, where it flowed east to west along Stewart Road and south through agricultural fields to the White (Stuck) River. The stream was moved approximately 700 feet to the east. Stewart Road Creek, as completed, is a new stream channel that meanders approximately 1,600 feet from Stewart Road to within 175 feet of the White (Stuck) River and then flows through an existing wetland and culvert. The streambed was graveled, large woody debris installed, and native vegetation planted to improve habitat function and complexity. The area will continue to be maintained and monitored over the next 5 to 10 years. The City is seeking grants to remove the culvert because it is a barrier to fish. (City of Sumner 2007.)

Dieringer Canal

The Dieringer Canal flows east-west in a straight, constructed channel from the powerhouse above East Valley Highway East to the White (Stuck) River in the vicinity of 20th Street East. The canal is approximately 60 to 70 feet wide with boulder/cobble substrate. Water levels and flow rates in the channel are controlled by Puget Sound Energy, which maintains the powerhouse and canal. There is

little large woody debris in the canal. Streamside vegetation is dominated by Himalayan blackberry with few deciduous trees. Migrating adult salmonids may enter the canal from the White (Stuck) River during high velocity flows in the summer and fall. Land bordering the canal is presently in agricultural use. Water quality problems in the canal in the past have included high temperatures due to lack of riparian cover, moderate sediment and turbidity levels, and chemical contamination from agricultural and commercial land uses in the surrounding areas (Adolfson Associates 2002); however, the canal was not listed as impaired in 2008 (Ecology 2008). Operation of the hydroelectric system was identified as an adverse attractor for migrating adult salmon (Kerwin 1999). Changes in flow management were planned to reduce this adverse effect (Puget Sound Energy 2006).

Milwaukee Creek

Milwaukee Creek (also known as Soatan Creek or Jovita Creek) is the longest stream in the current plan area, extending north from its mouth on the west bank of the White (Stuck) River near Puyallup Street, parallel with State Route 167 to the northern limits of the city at 16th Street East. The stream has been altered from its original conditions to a series of straight, channelized reaches by agricultural land use practices and construction of the railroad and State Route 167. The stream generally ranges from 3 to 4 feet wide in its northern reaches and from 8 to 10 feet wide near its mouth.

Milwaukee Creek historically contained coho salmon, chum salmon, and steelhead. Land uses adjacent to the creek include agricultural, commercial, residential, and open space. Water quality problems in the creek have included high temperatures due to lack of riparian cover, significant sediment levels, and chemical contamination from residential sewer system failures in the surrounding areas (Adolfson Associates 2002); however, the creek was not listed as impaired in 2008 (Ecology 2008). The North Sumner Interchange, completed in September 2004, crosses the creek in two places. A wetland was constructed in the area of 32nd Street to mitigate impacts on fish and wildlife resulting from the interchange project.

Salmon Creek

Salmon Creek originates in the Orton Junction area and is joined by at two smaller Type 4(Np) and Type 5 (Ns) tributary streams beyond the city limits to the east of 166th Avenue East. Salmon Creek then flows northwest to its mouth at the White (Stuck) River. Salmon Creek is the least altered stream in the current plan area. Riparian areas along the creek are a mix of open, emergent, and shrub-dominated areas and riparian forest including cottonwoods, red alder, and Pacific willow. The width of the stream ranges from 10 feet near its mouth to 3 to 4 feet in its upper reaches near the city limits. Steep slopes parallel the eastern banks throughout much of the stream corridor. Salmon Creek contains spawning and rearing habitat for coho salmon, chum salmon, steelhead, and cutthroat trout. Land uses adjacent to the creek include commercial, residential, light manufacturing, and agricultural. The lower portion of Salmon Creek (within Section 41 of Township 20 5 east) is also 303(d) listed for fecal coliform bacteria (Ecology 2008).

Type 5 (Ns) Streams

Several small Type 5 (Ns) streams are located in the eastern part of the current plan area, to the east of the Burlington Northern Railroad. Some of these streams drain into Salmon Creek; others in the northeastern are independent tributaries to the White River.

Orton Junction Expansion Area

The Orton Junction expansion area is crossed by one mapped Type 3 (F) stream channel (Salmon Creek) and contains three mapped wetlands. The southern portion of this area includes Riverside Park, which is located along the east bank of the Puyallup River. No 303(d)-listed waterbodies are located in this area (Figure 3.4-2).

The Orton Junction expansion area is located in the groundwater recharge areas for the Elhi Springs, Sumner Springs, and South Well water supplies (Figure 3.4-1).

East Hill Reduction Area

The East Hill reduction area includes a northwestern lobe of Lake Tapps, west of the Sumner–Lake Tapps Highway East, and two Type 5 (Ns) headwater streams that are tributaries to the White (Stuck) River. In addition, several wetlands are mapped in the northern portions of the reduction area (Sections 7 & 8, Township 20 N, Range 5 East). The invasive aquatic plant Eurasian milfoil (*Myriophyllum spicatum*) has been found in Lake Tapps; otherwise, no 303(d)-listed waterbodies are located in this area (Figure 3.4-2).

Most of the East Hill reduction area is within the wellhead protection areas of the three water supply springs (Figure 3.4-1).

3.4.2 Impacts

Impacts Common to All Alternatives

All alternatives could indirectly affect Sumner’s water resources. Increased population, development, and human activity would increase the potential for water quality degradation. Impacts of population growth on water supplies are analyzed in Section 3.18, “Water Supply.”

Surface water runoff from new development in aquifer recharge areas may contribute to groundwater contamination, if it reaches the City’s spring collection areas without the benefit of filtration. Chemicals and other contaminants can directly affect groundwater supplies. Potential sources of groundwater contamination include residential septic systems; automobile-related petroleum products; pesticides, fertilizers, and herbicides; and agricultural, commercial, and industrial activities.

Removal of vegetation and creation of impervious surfaces would reduce groundwater recharge rates and increase the quantity and rate of surface water runoff delivered to local streams. Without adequate stormwater detention, stream channel responses may include:

- increased scour of the streambed;
- decreased bank stability;
- loss of gravels and cobbles that would otherwise provide aquatic habitat in steeper or more confined reaches;
- deposition of fine sediment in the gravels and cobbles that may provide habitat in flatter or less confined reaches;
- loss of physical channel structure that would provide energy dissipation for streams and habitat for aquatic life; and

- degradation of water quality by sediments and other pollutants, such as heavy metals, nutrients, and petroleum products.

All of these development-related impacts would occur under all alternatives; however, any new development would be subject to applicable regulations governing building and stormwater management, described below under “Applicable Regulations and Commitments,” limiting the intensity of these impacts.

Impacts Specific to the UGA Expansion (Orton Junction) Alternative

The change from agricultural to residential and commercial land uses in the Orton Junction expansion area would result in the types of impacts described for all alternatives. An increase in impervious surface area would occur, potentially resulting in an increase in pollutant loading of vehicle related pollutants and peak stormwater runoff, as well as decreased infiltration to groundwater. However, there would also be a potential reduction in agricultural pollutant loading. These effects would apply to Salmon Creek, the Puyallup River and the South Well and Elhi Springs wellhead protection areas. The extent of these impacts would be greatest under this alternative since territory is added beyond the No Action Alternative and results in the greatest urban area of the studied alternatives.

Impacts Specific to the UGA Modification Alternative

The change from agricultural to commercial land uses in the Orton Junction expansion area would result in the types of impacts described for all alternatives. An increase in impervious surface area would occur, potentially resulting in an increase in pollutant loading and peak stormwater runoff, as well as decreased infiltration to groundwater. These effects would apply to the Puyallup River and the South Well and Elhi Springs wellhead protection areas. Potential impacts would be lower than for the UGA Expansion Alternative, because the added area is smaller: 124 acres of commercial land use compared to 188 acres of commercial and residential land uses.

Reducing the urban growth area (UGA) by removing the East Hill reduction area would reduce the potential for these impacts in the County, Weber, and Sumner Springs wellhead protection areas, and in the White River and its tributaries that drain from this area. The net reduction of the UGA by nearly 124 acres would result in less development and a lower potential for impervious surfaces of the studied alternatives.

Impacts Specific to the No Action Alternative

Impacts on water resources under the No Action Alternative would be the same as described under “Impacts Common to all Alternatives.” The territory in which urban development would occur, and potential for impervious surfaces, would be in the range of the action alternatives and would not extend into the Orton Junction expansion area.

3.4.3 Mitigation Measures

Incorporated Plan Features

The Washington State Growth Management Act requires that critical areas, natural resource lands, and the environment be protected. Goals and policies included in the Environment, Shoreline, and Parks and Open Space elements of the *City of Sumner Comprehensive Plan* are intended to satisfy the

statutory and regional policy directives GMA and to address the environmental impacts of the plan (City of Sumner 2009).

- The Environment Element contains goals and policies to protect surface water and groundwater quality from significant degradation. These policies include monitoring to provide sufficient data to determine if water quality is being maintained. All alternatives retain these goals and policies.
 - Low impact development (LID) is an innovative approach to stormwater quantity and quality control that mimics the predeveloped hydrology of a project site by using site design techniques that store, infiltrate, evaporate, and detain stormwater runoff. With an LID approach and best management practices, receiving surface water bodies may experience fewer negative impacts in the volume, frequency, and quality of runoff to maintain base flows and more closely approximate predevelopment runoff conditions. In 2009, the City adopted Comprehensive Plan policy amendments to encourage LID through incentives and evaluation of City code for opportunities to facilitate LID (City of Sumner 2009). All alternatives retain these goals and policies.
- The Shoreline Element contains goals and policies to “ensure that the overall design of land use patterns will locate activity and development in areas of the shoreline that will be compatible with adjacent uses and will be sensitive to existing shoreline environments, habitat, and ecological systems.” This element also includes a conservation element to “preserve, protect, and restore to the greatest extent feasible the physical, biological, and visual attributes of the shoreline environment.” This element is currently under review and expected to be amended by 2012. All alternatives would continue implementation of the current or amended Shoreline Element.

Applicable Regulations and Commitments

The City’s critical areas regulations include provisions for protecting wetlands (SMC 16.46), aquifer recharge areas (SMC 16.48), and riparian areas along local rivers and streams (SMC 16.56). Local requirements for protection and retention of critical areas reduce the potential for direct water quality impacts. Chapter 16.48 (Aquifer Recharge Area) regulates development and the use of land in aquifer recharge areas to ensure long-term protection of the Sumner ground water supply resources.

The Safe Drinking Water Act requires public water system wells to be protected from potential sources of contamination. The Washington State Department of Health has complied with this requirement by establishing a Wellhead Protection Program for all current sources, including South Well, Sumner, Weber/Crystal, and County springs. Wellhead protection areas are aquifer recharge areas within the 10-year time travel zone boundary of a public water system well, as delineated pursuant to the Federal Safe Drinking Water Act and WAC 246-290-135. The 10-year time travel zone boundary represents the maximum distance around a pumping well from which a contaminant hypothetically present in groundwater could travel to the well within a 10-year period. Federal and state regulations specify minimum water quality monitoring requirements for community water systems. The Washington State Department of Health has the responsibility of enforcing these regulations. The City is responsible for collecting water samples, submitting samples to laboratories, and notifying the public of any water quality violations.

The City has developed a Groundwater and Stream Low Flow Monitoring Plan to collect streamflow and groundwater data in the northern portion of the city. Data collected during stream and

groundwater monitoring will be used to evaluate the effect of development on groundwater flow patterns and local stream flow levels (City of Sumner 2010b).

Pursuant to Washington State requirements, the City adopted a revised Shoreline Master Program in 2004 and is updating it, with adoption anticipated by 2012. The City has developed a Water System Plan Update and recently published a Stormwater Management Program (City of Sumner 2010b). Additional measures to protect and/or restore surface water bodies are included in these documents.

The EPA signed final NPDES Phase II regulations for stormwater management into rule in 1999. Sumner is defined as a Phase II community by Ecology and will be required to comply with the NPDES Phase II Permit requirements. Sumner submitted a Phase II Stormwater Permit Application to Ecology in March 2003. The NPDES Phase II Permit was issued to the City on January 17, 2007, and went into effect on February 16, 2007 (City of Sumner 2010b). Sumner's Phase II stormwater permit includes the following minimum control measure requirements:

- public education and outreach on stormwater impacts;
- public involvement/participation;
- illicit discharge detection and elimination;
- construction site stormwater runoff control;
- post-construction stormwater management in new development and redevelopment; and
- pollution prevention/good housekeeping for municipal operations.

The City has also prepared a revised Water System Plan.

Monitoring

Surface water sampling will be the first step for the City in implementing a long-term stormwater management program. The City's monitoring plan proposes sampling surface water at ten separate locations around the city, including four locations along the White (Stuck) River, two along Salmon Creek, two along the Puyallup River, and two along Milwaukee Creek. These sampling locations will be used to measure baseline water quality trends and pollutant concentrations and to identify pollution sources within the city limits. The benefits of the sampling program include:

- Non-point water pollution problems are most easily solved at the source with implementation of best management practices that reduce contaminants in stormwater runoff before entering local pipes, ditches, and streams.
- Water quality monitoring programs can identify individual water quality problem areas and relate them to specific sources.
- Water quality inspection programs can ensure maintenance of public and private stormwater conveyance and detention systems.
- Development standards require all new commercial and residential development to detain stormwater on site before releasing it at predevelopment rates to a conveyance system.
- Public education efforts should include oil and household chemical recycling and disposal awareness, adopt-a-stream programs, newspaper articles and mailings related to capital

improvement projects, public workshops and open houses, and volunteer stewardship opportunities.

- Emergency spill response and household hazardous waste programs should include a 24-hour hotline to report accidental spills or illegal discharges.

Stormwater Regulations

In adopting the 2010 *City of Sumner Stormwater Management Plan* (City of Sumner 2010b), the City has committed to developing and implementing operations and maintenance standards for municipal facilities, including the stormwater system, that are at least as stringent as the current *Ecology Stormwater Management Manual for Western Washington* (Ecology 2005). This manual has been adopted to bolster water quality requirements in response to recent Endangered Species Act listings, to reduce adverse impacts to receiving waters, and to ensure compliance with the anticipated NPDES Phase II Permit requirements.

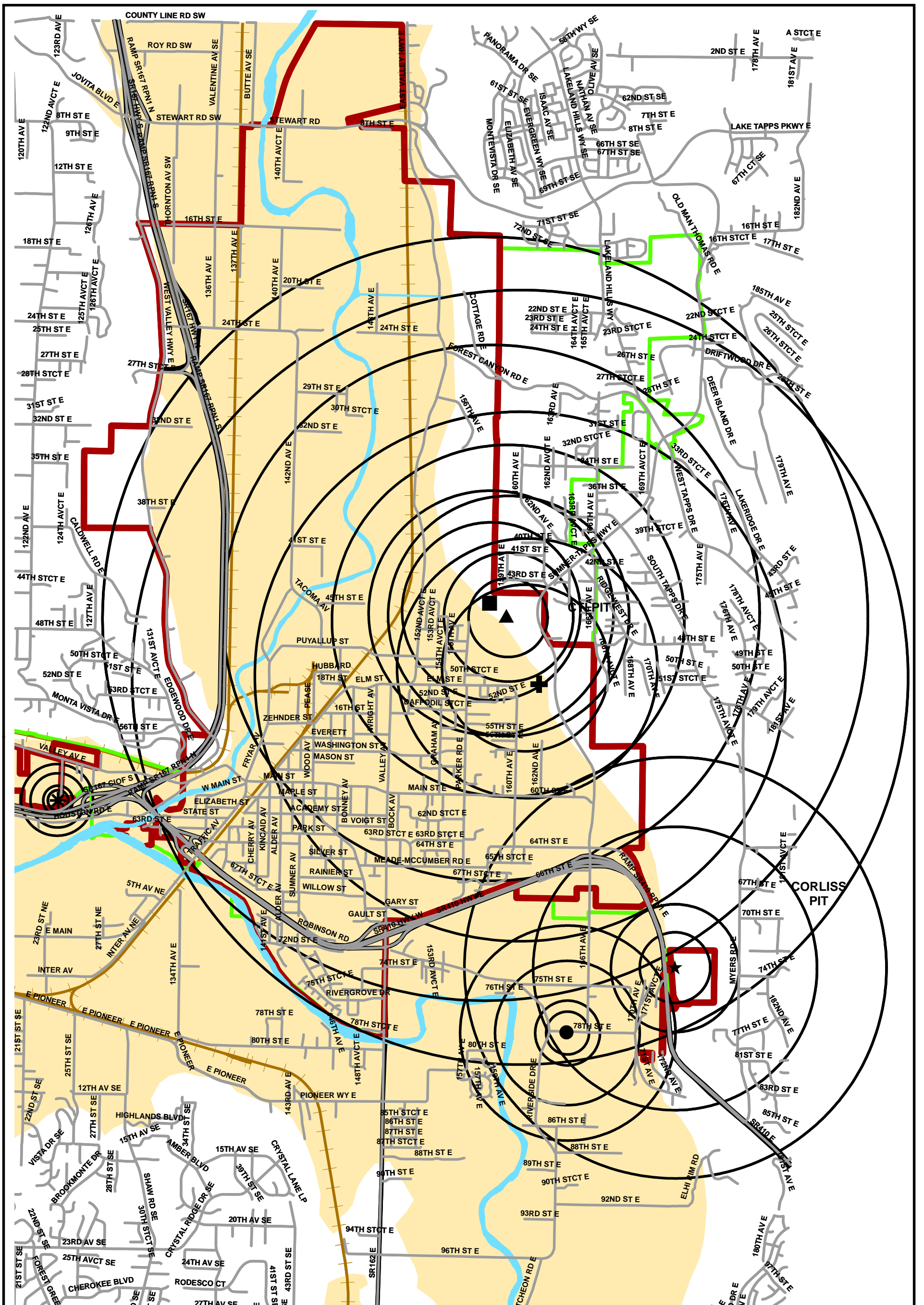
Through Chapter 13.48 SMC, the City applies 2005 Ecology stormwater standards to new development of public and private improvements. The City states that stormwater site plans shall be prepared with a requirement for LID practices over standard retention/detention facilities. The City requires documentation of LID practices in each project subject to stormwater requirements.

Other Potential Mitigation Measures

No other mitigation measures to maintain water quality are recommended at this programmatic level of analysis.

3.4.4 Significant Unavoidable Adverse Impacts

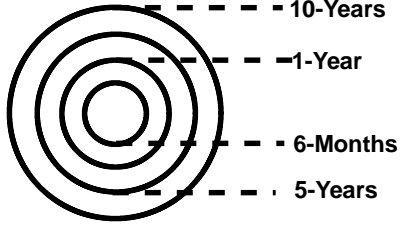
Direct impacts would be minimized to less than significant through the implementation of federal, state, and City regulations, including critical area and stormwater regulations.



**Comprehensive Plan Update and Amendments
Environmental Impact Statement**

Figure 3.4-1 Groundwater Recharge & Wellhead Protection Area

Source: City of Sumner Community Development Department



LEGEND:

- Sumner City Limits
- Sumner UGA Boundary (Pierce County Adopted)
- DRASTIC Zones Rated (180 and Greater)

Well/Water Service Sites:

- ✳ Cemetery Well
- + County Springs
- ★ Elhi Springs
- South Well
- Sumner Springs
- ▲ Weber Springs

DISCLAIMER:
This Map is Intended for Planning Purposes Only.

