

Chapter 3

Description and Comparison of Alternatives

Only sections or other elements of Chapter 3 revised for the Final EIS are included here. These changed sections combined with the unchanged sections of Chapter 3 in the Draft EIS constitute Chapter 3 of the Final EIS. Please see the introduction to the “Changes Made in the Draft EIS in Response to Comments” section for a full explanation.

The following changed elements of Chapter 3 are presented on the indicated pages. All other sections of Chapter 3 remain unchanged from the Draft EIS. Please consult the Draft EIS for those sections.

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3.1.1.3 Site Locations and Characteristics

City-Owned Site

The City-owned site is a 10-acre site located in the City of Carnation, west of the City's business district at the west end of Entwistle Street (Figure 3-3). This generally flat, rectangular area is largely vacant and undeveloped. There are two structures in the northeast corner of the site: a single-family residence and outbuilding. The site is zoned for light industrial and manufacturing use. The house is currently being leased by the Snoqualmie Tribe. King County's Tolt-MacDonald Park is on the west. To the south and east are mainly industrial properties, with an apartment complex to the south as well. To the north is an open field.

Weckwerth Site

The Weckwerth site is a privately-owned 5-acre parcel on the south edge of the city immediately east of the fire station (Figure 3-3). This flat, rectangular parcel has been graded and is mainly used for equipment and materials storage and vehicle parking. There is a house near the western edge of the parcel. The site is zoned for light industrial and manufacturing use. The site is bordered on the north by the Tolt Middle School, on the west by a fire station, on the east by a concrete fabrication facility and on the south by undeveloped private land. The middle school's closest buildings are a little over 60 feet from the site's northern boundary.

3.1.2.2 Wetland Discharge

Under the wetland discharge alternative, the highly treated water would be conveyed to the Washington State Department of Fish and Wildlife's Stillwater Wildlife Area. This approximately 450-acre area is located about 2 miles north of Carnation between the Snoqualmie Valley Trail on the north and east and the Snoqualmie River on the south and west. Harris Creek and a smaller unnamed stream cross the area, passing through several of the oxbows before discharging to the Snoqualmie River (Figure 3-5). This alternative is discussed here in two forms: the Basic Option and the Expanded Option. Both options are shown in Figure 3-5 and described below. The two options are conceptual; design changes may occur based on site-specific studies that would be conducted if this discharge alternative were selected. Factors that may influence where created or enhanced wetlands are used to discharge highly treated water include the proximity of the wetlands to fish bearing waters and hydrologic investigations to determine flood frequency of the Stillwater Wildlife Area. Construction could take 4 to 8 weeks depending on whether the basic or expanded option was chosen and on final design characteristics.

Table 3–2. Comparison of Impacts of Treatment Plant Site Alternatives

Impacts Common to All Action Alternatives	City-Owned Site	Weckwerth Site	No Action Alternative
<i>EARTH</i>			
<p><u>Construction:</u> Temporary erosion, sedimentation; possible contamination from leaks or spills; possible excavation of contaminated soil; possible settlement due to vibration. Up to 4,300 cy of excavation/backfill for either site.</p> <p><u>Operation:</u> Erosion, sedimentation from stormwater runoff; moderate to high seismic risk.</p>	<p><u>Construction:</u> See impacts common to all action alternatives.</p> <p><u>Operation:</u> See impacts common to all action alternatives.</p>	<p><u>Construction:</u> See impacts common to all action alternatives.</p> <p><u>Operation:</u> See impacts common to all action alternatives.</p>	<p>Wastewater would continue to be discharged to the soil through on-site septic systems, resulting in less treatment than would be provided by the treatment plant. Properly functioning on-site septic systems would treat wastewater through soil filtration. Failing on-site septic systems would discharge wastewater directly to the ground. Continued reliance on aging on-site septic systems could result in failures during seismic events.</p>
<i>AIR</i>			
<p><u>Construction:</u> Potential fugitive dust, construction vehicle exhaust emissions, and odors from paving.</p> <p><u>Operation:</u> Potential emission of odors and volatile organic compounds and aerosols.</p>	<p><u>Construction:</u> See impacts common to all action alternatives.</p> <p><u>Operation:</u> See impacts common to all action alternatives.</p>	<p><u>Construction:</u> See impacts common to all action alternatives.</p> <p><u>Operation:</u> See impacts common to all action alternatives.</p>	<p>As aging on-site septic systems fail, potential for odor impacts increases.</p>
<i>WATER</i>			
<p><u>Construction:</u> Local, short-term impacts to surface or groundwater could occur due to erosion, dewatering or leaks and spills from construction equipment.</p> <p>Sediment reaching surface waters could increase turbidity and levels of solids, nutrients and other pollutants in those waters.</p> <p>Dewatering could temporarily divert surface and ground water that feeds streams or wetlands.</p>	<p><u>Construction:</u> See impacts common to all action alternatives.</p>	<p><u>Construction:</u> See impacts common to all action alternatives.</p>	

Table 3-2. Comparison of Impacts of Treatment Plant Site Alternatives (contd.)

Impacts Common to All Action Alternatives	City-Owned Site	Weckwerth Site	No Action Alternative
<p><u>Operation:</u> Highly treated water meeting all regulatory requirements would be discharged to the environment.</p> <p>In the extremely rare cases of chemical spills or treatment plant overflows, chemicals or partially-treated wastewater could be discharged to the treatment plant stormwater system and flow to and temporarily pollute nearby surface waters.</p> <p>Wastewater that is currently discharged to on-site systems would be given a higher level of treatment.</p> <p>New impervious surfaces would increase local stormwater runoff, carrying some pollutants to surface and groundwater.</p>	<p><u>Operation:</u> See impacts common to all action alternatives.</p>	<p><u>Operation:</u> See impacts common to all action alternatives.</p>	<p>Wastewater would continue to be discharged to the soil through on-site septic systems, resulting in less treatment than would be provided by the treatment plant and potentially reducing water quality in the region. Properly functioning on-site septic systems would treat wastewater through soil filtration. Failing on-site septic systems would discharge wastewater directly to the ground.</p>
<i>BIOLOGICAL RESOURCES</i>			
<p><u>Construction:</u> If sediment from construction or leaked/spilled chemicals from construction equipment reached surface waters, aquatic organisms could be adversely affected.</p> <p>Dewatering could temporarily divert surface and ground water that feeds streams or wetlands and potentially adversely affect aquatic organisms.</p> <p>Construction noise, lighting and other human activity could adversely affect some wildlife.</p>	<p><u>Construction:</u> See impacts common to all action alternatives.</p>	<p><u>Construction:</u> See impacts common to all action alternatives.</p>	<p>Wastewater would continue to be discharged to the soil through on-site septic systems, resulting in less treatment than would be provided by the treatment plant and potentially reducing water quality and adversely affecting aquatic organisms in the region.</p>

Table 3-2. Comparison of Impacts of Treatment Plant Site Alternatives (contd.)

Impacts Common to All Action Alternatives	City-Owned Site	Weckwerth Site	No Action Alternative
Some low-quality wildlife habitat would be eliminated.			
<p><u>Operation:</u> In the extremely rare cases of chemical spills or treatment plant overflows, chemicals or partially-treated wastewater could be discharged to the treatment plant stormwater system and flow to and temporarily pollute nearby surface waters, potentially adversely affecting some aquatic organisms.</p>	<p><u>Operation:</u> See impacts common to all action alternatives. Loss of up to 3 acres of disturbed upland grassland habitat.</p>	<p><u>Operation:</u> See impacts common to all action alternatives. Loss of up to 3 acres of low quality developed habitat.</p>	
The improved treatment provided by the treatment facility would benefit biological resources.			
New impervious surfaces would increase local stormwater runoff, carrying some pollutants to surface and ground waters, possibly adversely affecting some aquatic organisms.			
Increased noise, light and human activity could adversely affect some wildlife.			

Table 3-2. Comparison of Impacts of Treatment Plant Site Alternatives (contd.)

Impacts Common to All Action Alternatives	City-Owned Site	Weckwerth Site	No Action Alternative
<i>ENERGY</i>			
<p><u>Construction:</u> Electrical energy and fossil fuels would be used during construction.</p> <p><u>Operation:</u> Electrical energy would be used for treatment plant operation. Fossil fuels would be used for the emergency generator and transport of materials to/from the site.</p> <p>Annual energy consumption of 150 MWh would increase electrical demand in the City of Carnation but would not exceed the current service capacity.</p>	<p><u>Construction:</u> See impacts common to all action alternatives.</p> <p><u>Operation:</u> See impacts common to all action alternatives.</p>	<p><u>Construction:</u> See impacts common to all action alternatives.</p> <p><u>Operation:</u> See impacts common to all action alternatives.</p>	<p>None of the project's potential impacts on energy resources would occur.</p>
<i>LAND AND SHORELINE USE</i>			
<p><u>Construction:</u> No significant land or shoreline use impacts are anticipated. Construction could occur in the 100-year floodplain.</p> <p><u>Operation:</u> No significant land or shoreline use impacts are anticipated.</p>	<p><u>Construction:</u> See impacts common to all action alternatives.</p> <p><u>Operation:</u> See impacts common to all action alternatives.</p> <p>Uses of house and outbuilding on northeast corner of site would be displaced.</p>	<p><u>Construction:</u> See impacts common to all action alternatives.</p> <p><u>Operation:</u> See impacts common to all action alternatives.</p>	<p>City of Carnation Comprehensive Plan Goals and Policies for growth management would not be met; there would be continued restriction on redevelopment and planned new development provided for in the comprehensive plan. The ability for the City to meet its density targets and provide urban levels of service would be severely hampered.</p>

Table 3-2. Comparison of Impacts of Treatment Plant Site Alternatives (contd.)

Impacts Common to All Action Alternatives	City-Owned Site	Weckwerth Site	No Action Alternative
<i>ENVIRONMENTAL HEALTH</i>			
<p><u>Construction:</u> Varying levels of noise would be generated by construction activities.</p> <p>Low to moderate potential for encountering contaminated soils</p> <p>Chemical spills or leaks from construction equipment could occur.</p> <p><u>Operation:</u> Treatment plant equipment would generate noise continuously.</p> <p>The treatment facility would discharge highly treated water meeting all regulatory requirements to the environment.</p> <p>In the extremely rare case of treatment plant overflow, wastewater or chemical spills could temporarily expose humans to health risks.</p>	<p><u>Construction:</u> Short-term construction noises could impact nearby residential properties.</p> <p><u>Operation:</u> See impacts common to all action alternatives.</p>	<p><u>Construction:</u> Short-term construction noises could impact nearby school.</p> <p><u>Operation:</u> See impacts common to all action alternatives.</p>	<p>Failing on-site septic systems could increase risks to public health. Properly functioning on-site septic systems would treat wastewater through soil filtration. Failing on-site septic systems would dispose of wastewater directly to the ground.</p>

Table 3-2. Comparison of Impacts of Treatment Plant Site Alternatives (contd.)

Impacts Common to All Action Alternatives	City-Owned Site	Weckwerth Site	No Action Alternative
RECREATION			
<u>Construction:</u> Construction activities could affect use of nearby recreational facilities.	<u>Construction:</u> Construction activities could affect use of nearby recreational facilities, specifically Tolt MacDonald Park.	<u>Construction:</u> Construction activities could affect use to recreational facilities, specifically Memorial Park, Mariner's Field, and athletic fields at Tolt Middle School.	Continued use of on-site septic systems and their effects on water quality could deter in-water recreation in the area.
<u>Operation:</u> See site-specific impacts.	<u>Operation:</u> Recreational use of nearby park facilities, specifically Tolt MacDonald Park, could be affected by minor visual, lighting, noise and potential odor impacts.	<u>Operation:</u> Recreational use of nearby park facilities, specifically the athletic fields at Tolt Middle School, could be affected by minor visual, lighting, noise and potential odor impacts.	
AESTHETICS			
<u>Construction:</u> Temporary impacts from presence of construction materials and equipment, resulting in a cluttered visual environment in immediate vicinity of site.	<u>Construction:</u> See impacts common to all action alternatives.	<u>Construction:</u> See impacts common to all action alternatives.	Surfacing of wastewater could be a consequence of failing on-site septic systems, which could result in visual impacts.
<u>Operation:</u> A relatively large building with landscaping, architectural treatments and night lighting would result in a more urban visual character.	<u>Operation:</u> See impacts common to all action alternatives.	<u>Operation:</u> See impacts common to all action alternatives.	
CULTURAL RESOURCES			
<u>Construction:</u> Unknown cultural resources could be disturbed by excavation.	<u>Construction:</u> See impacts common to all action alternatives.	<u>Construction:</u> See impacts common to all action alternatives.	No impacts to cultural resources would occur.

Table 3-2. Comparison of Impacts of Treatment Plant Site Alternatives (contd.)

Impacts Common to All Action Alternatives	City-Owned Site	Weckwerth Site	No Action Alternative
<p><u>Operation:</u> No cultural resource impacts are anticipated.</p>	<p><u>Operation:</u> See impacts common to all action alternatives.</p>	<p><u>Operation:</u> See impacts common to all action alternatives.</p>	
<i>TRANSPORTATION</i>			
<p><u>Construction:</u> About 3,500 one-way truck trips are anticipated during construction. Construction traffic could cause temporary traffic congestion on some streets</p> <p><u>Operation:</u> About six truck trips and fewer than ten employee auto trips to/from the plant per week are anticipated.</p>	<p><u>Construction:</u> See impacts common to all action alternatives.</p> <p><u>Operation:</u> See impacts common to all action alternatives.</p>	<p><u>Construction:</u> See impacts common to all action alternatives.</p> <p><u>Operation:</u> See impacts common to all action alternatives.</p>	<p>No significant adverse impacts on transportation would occur.</p>
<i>PUBLIC SERVICES AND UTILITIES</i>			
<p><u>Construction:</u> Construction-related traffic congestion could temporarily affect emergency response times.</p> <p>Utility relocation may be necessary, with possible short-term interruptions of water or electrical service.</p> <p><u>Operation:</u> Water, electrical and telephone service extensions would be needed.</p>	<p><u>Construction:</u> See impacts common to all action alternatives.</p> <p><u>Operation:</u> See impacts common to all action alternatives.</p>	<p><u>Construction:</u> See impacts common to all action alternatives; could affect neighboring fire station ingress and egress.</p> <p><u>Operation:</u> See impacts common to all action alternatives.</p>	<p>Some public services providers could have difficulty adding to their facilities due to Health Dept. regulations for expansion/new construction of on-site septic systems.</p>

Table 3–3. Comparison of Impacts of Discharge Alternatives

Impacts Common to All Action Alternatives	River Discharge	Wetland Discharge	Upland Discharge	No Action
<i>EARTH</i>				
<u>Construction:</u> Temporary erosion, sedimentation.	<u>Construction:</u> Smallest excavation volume, about 50 cy.	<u>Construction:</u> Excavation volume up to 4,000 cy.	<u>Construction:</u> Excavation volume about 4,700 cy.	Same as treatment plant site impacts.
<u>Operation:</u> Moderate to high seismic risk.	<u>Operation:</u> See impacts common to all action alternatives.	<u>Operation:</u> See impacts common to all action alternatives.	<u>Operation:</u> See impacts common to all action alternatives. Also some earth disturbance during periodic rototilling.	
<i>AIR</i>				
<u>Construction:</u> Potential fugitive dust and construction vehicle exhaust emissions.	<u>Construction:</u> See impacts common to all.	<u>Construction:</u> See impacts common to all.	<u>Construction:</u> See impacts common to all.	Same as treatment plant site impacts.
<u>Operation:</u> No air resources impacts are anticipated.	<u>Operation:</u> No air resources impacts are anticipated.	<u>Operation:</u> No air resources impacts are anticipated.	<u>Operation:</u> Minor dust emissions during periodic rototilling.	
<i>WATER</i>				
<u>Construction:</u> Local, short-term impacts to surface or groundwater could occur due to erosion, dewatering or leaks and spills from construction equipment.	<u>Construction:</u> See impacts common to all action alternatives. Greater potential than other alternatives for erosion, sedimentation, leaks or spills to impact water quality in the Snoqualmie River.	<u>Construction:</u> See impacts common to all action alternatives. Greater potential than other alternatives for erosion, sedimentation, leaks or spills to impact wetlands and streams.	<u>Construction:</u> See impacts common to all action alternatives.	Same as treatment plant site impacts.

Table 3-3. Comparison of Impacts of Discharge Alternatives (contd.)

Impacts Common to All Action Alternatives	River Discharge	Wetland Discharge	Upland Discharge	No Action
<p>Sediment reaching surface waters could increase turbidity and concentrations of solids, nutrients and other pollutants in those waters.</p> <p>Dewatering could temporarily divert surface and ground water that feeds streams or wetlands.</p>		<p>Constructed wetlands would likely be located within 100-year floodplain of Snoqualmie River.</p>		
<p><u>Operation:</u> In the extremely rare case of treatment plant overflows or failure of disinfection, partially-treated wastewater could be discharged and adversely affect water quality.</p>	<p><u>Operation:</u> Highly treated water would be discharged to the river, potentially affecting water quality in the mixing zone.</p>	<p><u>Operation:</u> Highly treated water would be discharged to wetlands. No significant adverse impacts to surface waters anticipated.</p>	<p><u>Operation:</u> Highly treated water would be discharged to the ground, infiltrating to groundwater. No significant adverse impacts to groundwater anticipated.</p>	
		<p>Placement of large woody debris would assist in retaining water in the wetlands longer than at present.</p>	<p>Without adequate depth of gravel soils, groundwater mounding could occur due to low-permeability subsurface conditions.</p>	
<i>BIOLOGICAL RESOURCES</i>				
<p><u>Construction:</u> If sediment from construction or leaked/spilled chemicals from construction equipment reached surface waters, aquatic organisms could be adversely affected.</p> <p>Construction dewatering could temporarily lower stream and/or wetland water levels,</p>	<p><u>Construction:</u> See impacts common to all action alternatives.</p> <p>Construction activities could disturb bald eagles, great blue herons, bog clubmoss and salmonids.</p> <p>Greater potential than other alternatives for erosion,</p>	<p><u>Construction:</u> See impacts common to all action alternatives.</p> <p>Construction activities could disturb bald eagles great blue herons, bog clubmoss and salmonids.</p> <p>Greater potential than other alternatives for erosion,</p>	<p><u>Construction:</u> See impacts common to all action alternatives.</p> <p><u>Operation:</u> About 10 acres of upland forest or grassland habitat would be eliminated.</p>	<p>Same as treatment plant site impacts.</p>

Table 3-3. Comparison of Impacts of Discharge Alternatives (contd.)

Impacts Common to All Action Alternatives	River Discharge	Wetland Discharge	Upland Discharge	No Action
<p>which could adversely affect some aquatic organisms.</p> <p>Construction noise, lighting and other human activity could adversely affect some wildlife.</p> <p><u>Operation:</u> In the extremely rare case of treatment plant overflows or failure of disinfection, partially-treated wastewater could be discharged and adversely affect aquatic organisms.</p>	<p>sedimentation, leaks or spills to reach Snoqualmie River and affect aquatic organisms.</p> <p>Greater potential than other alternatives to adversely affect Chinook salmon spawning habitat.</p> <p><u>Operation:</u> Highly treated water would be discharged to the river potentially affecting aquatic organisms in the mixing zone.</p>	<p>sedimentation, leaks or spills to reach local wetlands and streams and affect aquatic organisms.</p> <p><u>Operation:</u> Highly treated water would be discharged to wetlands, improving habitat value for native species.</p> <p>Large woody debris could be added and fish passage barrier removed to further enhance habitat.</p>		
<i>ENERGY</i>				
<p><u>Construction:</u> Electrical energy and fossil fuels would be used during construction.</p> <p><u>Operation:</u> No energy impacts are anticipated.</p>	<p><u>Construction:</u> See impacts common to all action alternatives.</p> <p><u>Operation:</u> Energy would be required to pump highly treated water to this discharge site.</p>	<p><u>Construction:</u> See impacts common to all action alternatives.</p> <p><u>Operation:</u> Energy would be required to pump highly treated water to this discharge site.</p>	<p><u>Construction:</u> See impacts common to all action alternatives.</p> <p><u>Operation:</u> More energy would be required to pump highly treated water to this discharge site than would be required for other discharge alternatives because of the site's elevation.</p> <p>Fossil fuels would be used during periodic rototilling of infiltration basins.</p>	<p>Same as treatment plant site impacts.</p>

Table 3-3. Comparison of Impacts of Discharge Alternatives (contd.)

Impacts Common to All Action Alternatives	River Discharge	Wetland Discharge	Upland Discharge	No Action
<i>LAND AND SHORELINE USE</i>				
<u>Construction:</u> See discharge alternative-specific impacts.	<u>Construction:</u> No land and shoreline use impacts are anticipated.	<u>Construction:</u> No land and shoreline use impacts are anticipated.	<u>Construction:</u> No land and shoreline use impacts are anticipated.	Same as treatment plant site impacts.
<u>Operation:</u> See discharge alternative-specific impacts.	<u>Operation:</u> Use of the shoreline at discharge site could be reduced.	<u>Operation:</u> Wetland creation would cause loss of potential farm land.	<u>Operation:</u> No long-term adverse land use impacts are anticipated.	
<i>ENVIRONMENTAL HEALTH</i>				
<u>Construction:</u> Varying levels of noise would be generated by construction activities. Chemical spills or leaks from construction equipment could occur. Some potential to encounter contaminated soils.	<u>Construction:</u> See impacts common to all action alternatives.	<u>Construction:</u> See impacts common to all action alternatives.	<u>Construction:</u> See impacts common to all action alternatives.	Same as treatment plant site impacts.
<u>Operation:</u> Exposure to highly treated water will have a negligible public health impacts. Minor noise associated with periodic inspection/maintenance visits. In the extremely rare case of treatment plant overflows or failure of disinfection, partially-treated wastewater could be discharged and pose human health risks.	<u>Operation:</u> See impacts common to all action alternatives. Highly treated water would be discharged to the river with the potential for extremely slight health risk from contact with water in the immediate vicinity of discharge.	<u>Operation:</u> See impacts common to all action alternatives. Highly treated water, would be discharged to the wetland with the potential for extremely slight health risk from contact with water in the immediate vicinity of discharge.	<u>Operation:</u> See impacts common to all action alternatives. Highly treated water would be discharged into the ground with potential for extremely slight health risks from contact with groundwater. Some water supply wells could pump native water mixed to some degree with infiltrated water. No	

Table 3-3. Comparison of Impacts of Discharge Alternatives (contd.)

Impacts Common to All Action Alternatives	River Discharge	Wetland Discharge	Upland Discharge	No Action
			significant adverse impacts on environmental health expected.	
			Some noise associated with infrequent rototilling of infiltration basins.	
<i>RECREATION</i>				
<u>Construction:</u> Some access to recreational facilities could be temporarily displaced by construction activities and construction-related traffic.	<u>Construction:</u> Construction activity could temporarily displace nearby recreational uses on the Snoqualmie River.	<u>Construction:</u> Construction activities could temporarily displace nearby recreational uses in the Stillwater Wildlife Area and on the Snoqualmie Valley Trail.	<u>Construction:</u> Construction activities could temporarily affect activities at nearby youth camps.	Same as treatment plant site impacts.
<u>Operation:</u> See discharge alternative specific impacts.	<u>Operation:</u> No long-term recreational impacts are anticipated.	<u>Operation:</u> Improved wildlife habitat could enhance recreational activities.	<u>Operation:</u> No long-term recreational impacts are anticipated.	

Table 3-3. Comparison of Impacts of Discharge Alternatives (contd.)

Impacts Common to All Action Alternatives	River Discharge	Wetland Discharge	Upland Discharge	No Action
<i>AESTHETICS</i>				
<p><u>Construction:</u> Presence of construction materials and equipment would have temporary aesthetic impacts.</p>	<p><u>Construction:</u> See impacts common to all action alternatives.</p>	<p><u>Construction:</u> See impacts common to all action alternatives.</p>	<p><u>Construction:</u> See impacts common to all action alternatives.</p>	<p>Same as treatment plant site impacts.</p>
<p><u>Operation:</u> See discharge alternative-specific impacts.</p>	<p><u>Operation:</u> Pipe could be visible during low-flow pierods.</p>	<p><u>Operation:</u> Longer periods of standing water in certain areas and the presence of large woody debris would change the appearance of some parts of the Stillwater Wildlife Area.</p>	<p><u>Operation:</u> The introduction of fencing and landscaping surrounding the discharge site would change the appearance of the immediate area.</p>	
<i>CULTURAL RESOURCES</i>				
<p><u>Construction:</u> Unknown cultural resources could be disturbed by excavation.</p>	<p><u>Construction:</u> See impacts common to all action alternatives. Stossel Bridge (eligible for National Register of Historic Places) could be affected by vibration from construction equipment if in close proximity.</p>	<p><u>Construction:</u> See impacts common to all action alternatives.</p>	<p><u>Construction:</u> See impacts common to all action alternatives.</p>	<p>No impacts to cultural resources would occur.</p>
<p><u>Operation:</u> No cultural resource impacts are anticipated.</p>	<p><u>Operation:</u> See impacts common to all action alternatives.</p>	<p><u>Operation:</u> See impacts common to all action alternatives.</p>	<p><u>Operation:</u> See impacts common to all action alternatives.</p>	

Table 3-3. Comparison of Impacts of Discharge Alternatives (contd.)

Impacts Common to All Action Alternatives	River Discharge	Wetland Discharge	Upland Discharge	No Action
<i>TRANSPORTATION</i>				
<p><u>Construction:</u> See discharge alternative-specific impacts.</p> <p><u>Operation:</u> Infrequent inspection and maintenance would generate about ten vehicle trips per year.</p>	<p><u>Construction:</u> About 230 one-way truck and other vehicle trips anticipated.</p> <p><u>Operation:</u> See impacts common to all action alternatives.</p>	<p><u>Construction:</u> About 300 one-way vehicle trips anticipated. Construction vehicles accessing SR 203 may pose some risks to traffic safety.</p> <p><u>Operation:</u> See impacts common to all action alternatives.</p>	<p><u>Construction:</u> About 1,700 one-way vehicle trips anticipated.</p> <p><u>Operation:</u> See impacts common to all action alternatives.</p>	<p>No impacts on transportation would occur.</p>
<i>PUBLIC SERVICES AND UTILITIES</i>				
<p><u>Construction:</u> No Public Services and Utilities impacts are anticipated.</p> <p><u>Operation:</u> No Public Services and Utilities impacts are anticipated.</p>	<p><u>Construction:</u> See impacts common to all action alternatives.</p> <p><u>Operation:</u> See impacts common to all action alternatives.</p>	<p><u>Construction:</u> See impacts common to all action alternatives.</p> <p><u>Operation:</u> See impacts common to all action alternatives.</p>	<p><u>Construction:</u> See impacts common to all action alternatives.</p> <p><u>Operation:</u> See impacts common to all action alternatives.</p>	<p>Same as treatment plant site impacts.</p>

3.2.2.1 City-owned Site to River Discharge

Potential temporary impacts from construction at the City-owned site could include earth moving, chemical leaks or spills from construction equipment, dust, erosion, sedimentation or other pollution of surface waters, changes in ground or surface water volumes and/or quality caused by dewatering, resulting effects on aquatic organisms, elimination of wildlife habitat and disturbance of wildlife, noise, health risks from accidental chemical leaks or spills, disturbance of cultural resources, traffic, and interference with some public services and/or utilities. Not all of these impacts would necessarily occur. Nearly all of those that did would be minor and temporary. Mitigation measures would be carried out where necessary to minimize impacts.

Potential long-term impacts associated with operation of the treatment plant would include improved treatment of wastewater previously discharged from on-site treatment systems. Long-term impacts could also include increased stormwater runoff with resulting erosion, sedimentation and contaminant transport, which in turn could cause adverse effects on water quality, plants and animals. Other impacts could include odors; rare overflows or chemical spills and resulting adverse effects on water quality, animals, plants and human health; adverse effects on wildlife from increased noise, lights and human activity; changed land use, including removal of the house leased by the Snoqualmie Tribe and the associated outbuilding; and changed appearance of and activities at the site. Mitigation measures meeting or exceeding permit requirements would be put in place where necessary to minimize potential impacts.

Impacts such as dust, noise, odor, environmental health risks and land use and aesthetic changes could affect human uses near the treatment plant site. These uses include industries on the east and south, an apartment complex on the south, baseball fields in Tolt-MacDonald Park to the southwest, and single-family residences located northeast of the site.

The conveyance pipeline route for this system runs north from the treatment plant site along Stewart Street and a private road to 310th Avenue NE. From there the route follows 310th Avenue NE west and north to the outfall at the Carnation Farm Road Bridge. The first quarter mile of this route has single-family residential uses to the east and open-space lands or low-density residential use areas on the west. The remaining 1.3 miles pass through mainly rural open-space lands.

Construction of the conveyance pipeline would have the same types of potential impacts as construction of the treatment plant. However, these impacts would be on a smaller scale because they would be associated with digging a single trench for an 8- to 10-inch diameter pipeline over a distance of about 1.6 miles. In addition, these impacts would be of much shorter duration at any given location because construction would be moving along the pipeline route.

This conveyance route is one of the two shortest routes (the Weckwerth site to upland discharge site route is the other route). Nearly all of the construction impacts would be of shorter duration than those associated with longer routes. In addition, since this route passes through less-developed areas than routes that pass through the city, construction would affect fewer users of land adjoining the route than the longer routes.

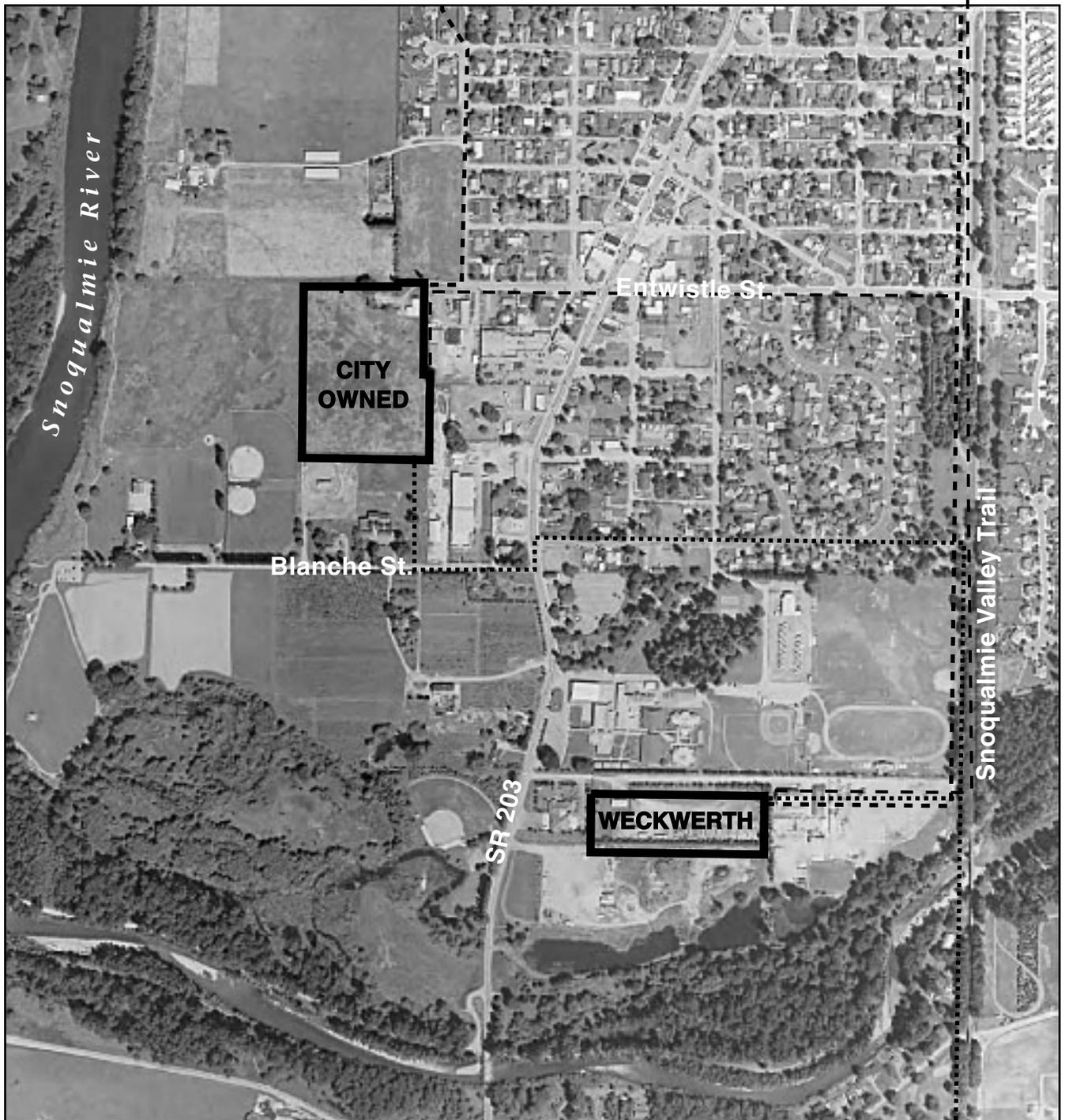
No known archaeological sites are in this system. No buildings or structures over 40 years old are on the City-owned site. One inventoried historic building and one uninventoried historic building are within 50 feet of the conveyance pipeline route. The Stossel (Carnation Farm Road) Bridge, located at the river discharge site, is eligible for listing in the National Register of Historic Places. This system has a high probability of encountering hunter-fisher-gatherer, ethnographic period, and historic Indian archaeological resources that may be significant. It has a low probability of encountering historic-period archaeological resources that may be significant.

The discharge for this system would be into the Snoqualmie River at the Carnation Farm Road Bridge. The resulting construction impacts would potentially be of the same types as described above for the treatment plant, but on a much smaller scale. However, unlike the impacts at the treatment plant site, these impacts would take place in riparian and aquatic areas.

The river discharge has greater potential for erosion, sedimentation, leaks or spills reaching the Snoqualmie River than the other discharge alternatives because it involves construction of an outfall in the river. For the same reason it also has a greater potential for displacing recreational activities during construction at the outfall location.

During treatment plant operation, this system has an extremely small potential to discharge partially-treated wastewater to the river in the event of overflows or disinfection failure. Such a discharge could have temporary adverse impacts on water quality, plants, animals and human health. The treatment plant would be designed with the extensive backup systems described earlier in this chapter to prevent discharge of partially-treated wastewater.

During treatment plant operation, this system would discharge highly treated water to the Snoqualmie River where it would be diluted in the water column. Fish, wildlife and humans would be exposed to the diluted highly treated water in the river. The State of Washington has determined that water of the quality of the highly treated water may be used in areas where human contact is possible.



- - - Conveyance Route to River Discharge Site*
- - - Conveyance Route to Wetland Discharge Area*

- Conveyance Route to Upland Discharge Study Area*
- Treatment Plant Sites

*Locations of conveyance routes are approximate.

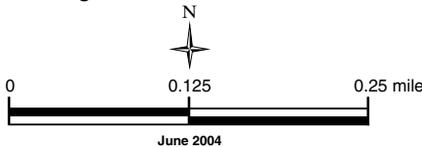


Figure 3-3

 **King County**
 Department of
 Natural Resources and Parks
Wastewater Treatment Division

City-owned and Weckwerth Treatment Plant Sites
CARNATION WASTEWATER TREATMENT FACILITY FINAL EIS

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