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## Chapter 6

# Local Treatment Plants

At the request of Vashon Sewer District and the City of Carnation, and in accordance with RWSP policies, King County extended its service area to meet specific public health needs and to help manage the environmental impacts of growth in these communities. Since 1999, King County has managed and operated the Vashon Treatment Plant for the Vashon Sewer District. Upgrades to the plant were substantially complete in 2006. In 2002, the City of Carnation contracted with King County to design, build, and operate a new wastewater treatment plant. This chapter summarizes the progress made in 2007 on the Vashon Treatment Plant and Carnation Treatment Facility projects.

## 6.1 Vashon Treatment Plant

Since 1999, the county has carried out several steps to improve the Vashon Treatment Plant to meet regulatory requirements and protect public health and the environment. It extended the marine outfall farther into Puget Sound and completed interim upgrades to improve the plant's performance and compliance with NPDES (National Pollution Discharge Elimination System) permit requirements.<sup>1</sup> Further upgrades were completed in 2006 to increase plant capacity and enhance its backup systems. Improvements include new headworks, an oxidation ditch, two secondary clarifiers, a stormwater detention tank, an administration building, and an electrical building. This project was funded in part by loans from the Public Works Trust Fund, Washington State Department of Ecology, and U.S. Environmental Protection Agency.

The upgraded treatment plant was brought online late in 2006 and is operating well (Figure 6-1). An open house for the community was held in May 2007; closeout of the construction contract will occur in 2008.

Visit the project Web site for more information: <http://dnr.metrokc.gov/wtd/vashon/>.

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<sup>1</sup> NPDES permits are issued by the Washington State Department of Ecology and set limits on the quality and quantity of effluent (treated wastewater) discharged from point sources such as treatment plants, combined sewer overflows, and industrial facilities.



**Figure 6-1. Vashon Wastewater Treatment Plant**

## 6.2 Carnation Treatment Facility

The City of Carnation decided to replace onsite septic systems with a new wastewater treatment facility and collection system to better protect public health and the environment, achieve the city's comprehensive plan goals, and maintain and enhance community livability. The city designed and built the local wastewater collection system and contracted with King County to design, build, operate, and maintain a new treatment plant and associated discharge facilities.

The plant will use membrane bioreactor technology (MBR) and will produce reclaimed water that will be used to enhance a wetland in the Chinook Bend Natural Area. During startup, the plant will discharge effluent through an outfall to the Snoqualmie River. After startup, the Chinook Bend Natural Area will become the primary discharge location. The river outfall will remain operational and will serve as a backup to the wetland when maintenance or equipment problems prevent the plant from producing reclaimed water. Figure 6-2 shows the location of the Carnation treatment and discharge facilities.

At startup, the plant will have the capacity to treat a maximum daily flow of about 480,000 gallons per day and an average daily flow of 210,000 gallons per day. The facilities will initially serve about 2,000 people in Carnation's urban growth area, with provisions to make adjustments to serve up to 4,000 people in 2030 when the area is expected to be built out.

The following sections describe work done to enhance the Chinook Bend Natural Area and present project accomplishments in 2007 and activities planned for 2008.

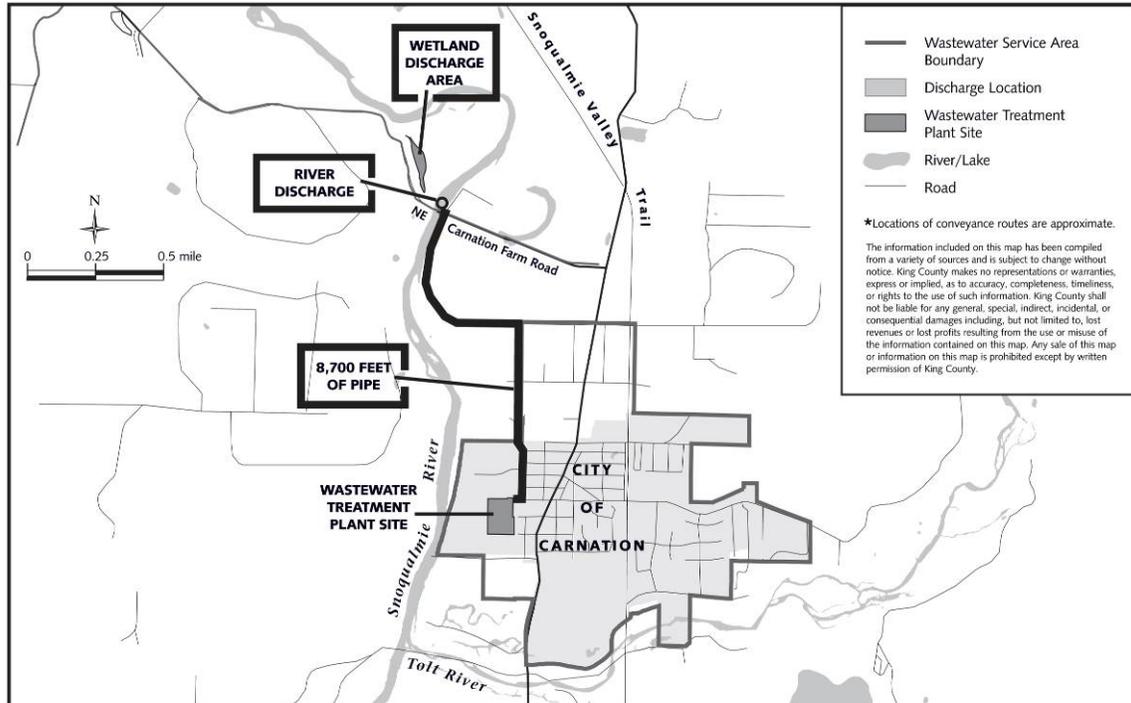


Figure 6-2. Location of Carnation Treatment Facilities

### 6.2.1 Chinook Bend Natural Area

The 59-acre Chinook Bend Natural Area is owned by King County and managed as an open space and habitat protection area by King County Parks. The county partnered with Ducks Unlimited, a non-profit group dedicated to wetland conservation, to enhance the wetland. The partners worked with the Snoqualmie Tribe, Wild Fish Conservancy, and other interested stakeholders to develop a design. The wetland design increases the size of the wetland to nearly four acres, benefiting wildlife and enhancing opportunities for passive recreation. Figure 6-3 shows components of the Chinook Bend Natural Area enhancement.

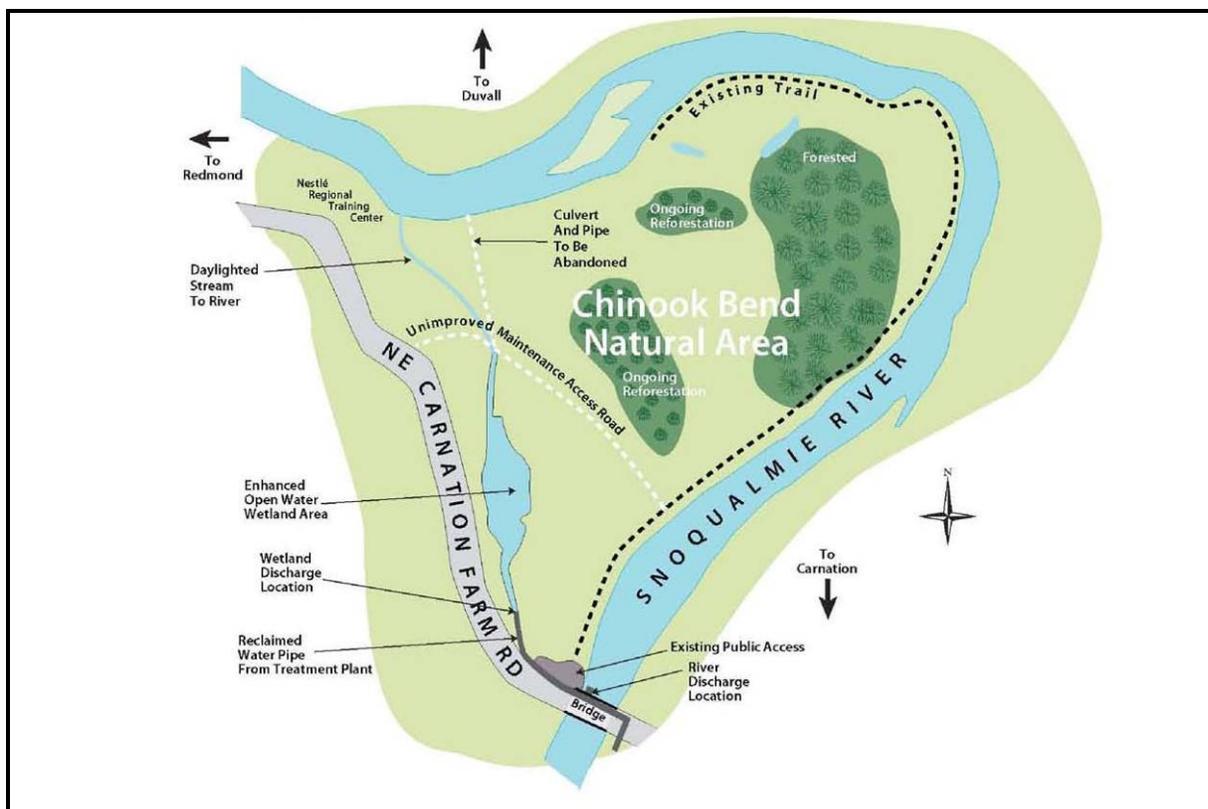


Figure 6-3. Chinook Bend Natural Area Wetland Enhancement

## 6.2.2 Accomplishments in 2007 and Outlook for 2008

King County made substantial progress on the Carnation Treatment Plant and associated discharge facilities in 2007. By the end of 2007, the treatment plant was 75 percent complete (Figure 6-4). Construction of the wetland enhancement was completed in October. A fish-passable water control structure was installed to manage wetland water levels, and minor earthwork was done to create hummocks, depressions, and a more diverse shoreline (Figure 6-5).

In 2007, the Wastewater Treatment Division (WTD) and City of Carnation staff worked closely to involve Carnation residents and businesses in the project and to minimize potential construction impacts. A 24-hour construction hotline was available for community members to call with questions or concerns. Several newsletters, a large public meeting, monthly city council meetings on the project, and monthly information tables at the local farmers market provided opportunities for people to get their questions answered on the project.

The plant started operating in early 2008. A Reclaimed Water Use permit application will be submitted to the Washington State Departments of Health and Ecology. The reclaimed water discharge to the wetland is expected to begin in late 2008 or early 2009 after the permit is issued.

Visit the Carnation project Web site for more information: <http://dnr.metrokc.gov/wtd/carnation/>.



**Figure 6-4. Carnation Wastewater Treatment Plant**



Point where reclaimed water will be released into the wetland. Designed to simulate groundwater seep.



Physical habitat modifications and native plantings to create complexity in the wetland.

**Figure 6-5. Enhancements at Chinook Bend Natural Area**