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7. Reclaimed Water Program

Reclaimed water is highly treated wastewater that can be used for beneficial purposes. As available water supplies become increasingly scarce, communities throughout the world are turning to reclaimed water as a way to conserve and extend their available water resources. By using reclaimed water for non-potable purposes, higher quality water can be saved for drinking water supplies.

Reclaimed water has been used in the United States for about 40 years. California and Florida, two states that regularly experience water shortages, are leaders in this field. Although the use of reclaimed water is not as common in Washington as in other states, its use is increasing. About 20 reclaimed water projects are currently operating in the State, and many others are in various stages of planning, design or construction.

The most common use of reclaimed water is for irrigation, including agricultural lands, golf courses and parks. It can also be used for a variety of commercial processes. Other beneficial uses for reclaimed water include environmental projects such as groundwater recharge and stream flow and wetland enhancement.

The reclaimed water strategy, along with water conservation strategies described in Chapter 6, is designed to achieve the Utility’s Goal 2:

Use Olympia’s limited water supplies efficiently to meet the needs of the community and natural environment.

The Reclaimed Water Program strategy for 2009-2014 is to advance the use of reclaimed water as defined in Council-adopted policies.

This chapter describes reclaimed water regulations in Washington, regional efforts to develop infrastructure for treatment and distribution, and reclaimed water use in Olympia.

7.1 RECLAIMED WATER REGULATIONS

State law (Chapter 90.46 RCW) encourages the use of reclaimed water to help meet growing water requirements and directs the Washington State Department of Ecology (Ecology) and Department of Health (DOH) to encourage the development of water reclamation facilities. This law was amended with enactment of Engrossed Substitute House 2884 in 2006 and E2SSB 6117 in 2007.

The 2006 amendment directed Ecology to develop and adopt rules on all aspects of reclaimed water use by December 31, 2010. It also directed Ecology to coordinate with DOH and form a rule-making advisory committee with a broad range of interested individuals. Olympia’s Drinking Water Utility staff has participated in this advisory committee since its inception in
7. Reclaimed Water Program

2007. The new rule will update and replace the existing state reclaimed water standards, which were published in 1997.

The 2007 legislative amendment reaffirmed the State’s commitment to reclaimed water and recognized the importance of the benefits of reclaimed water use, including:

- Consistent, reliable water supply as Washington faces climate change challenges.
- Reduced discharge of treated wastewater into Puget Sound.
- More water in rivers and streams for salmon recovery.

State guidelines describe four classes of reclaimed water: A, B, C and D. Class A has the highest quality and is considered safe for public contact and virtually all uses except human consumption.

The Municipal Water Law (70.119A.180 RCW) requires utilities to evaluate potential uses of reclaimed water in their water system plans.

7.2 REGIONAL RECLAIMED WATER USE

This section reviews efforts in north Thurston County to develop regional infrastructure and partnerships to supply and distribute reclaimed water. This has been accomplished through a series of interlocal agreements between the LOTT Alliance and its Partner jurisdictions, defining how reclaimed water will be supplied by LOTT and distributed to end users by Olympia and neighboring cities. These agreements are described below along with current and planned reclaimed water infrastructure.

Reclaimed Water Facilities

The LOTT Alliance (Lacey, Olympia, Tumwater and Thurston County) operates a large central wastewater treatment facility in downtown Olympia. Wastewater is piped from Lacey, Olympia and Tumwater customers. On an average day, about 10 to 12 million gallons of wastewater flows through the Budd Inlet Treatment Plant. This wastewater receives advanced secondary treatment and most of it is then discharged into Budd Inlet.

As part of its 1998 Wastewater Resource Management Plan, the LOTT Alliance identified construction of satellite reclaimed water facilities throughout its service area as a cost-efficient way to deal with the need for future treatment capacity as the area continues to grow.

Generation of Class A reclaimed water is one of LOTT’s key strategies in meeting regulatory restrictions on the volume of treated wastewater that can be discharged into Budd Inlet.

Two reclaimed water facilities have been constructed, the Budd Inlet and Martin Way Reclaimed Water Plants. A third, the Mullen Road Reclaimed Water Plant, is also part of LOTT’s long-term planning (currently being considered for post-2030). Locations of LOTT facilities are shown in Figure 7.1; LOTT and Olympia distribution lines are shown in Figure 7.2.

Under the Reclaimed Water Act (Chapter 90.46 RCW), a State Reclaimed Water permit is issued to the generator of reclaimed water by Ecology in coordination with the DOH, LOTT has been
issued State Reclaimed Water Permits for both of its reclaimed water facilities. The permits cover issues such as monitoring, reporting and record keeping requirements, as well as distribution and use of reclaimed water. As a distributor of LOTT’s reclaimed water, Olympia is required to uphold the permit requirements and to ensure that its customers abide by these requirements as well.

**Reclaimed Water Task Force**

In 2001, a Reclaimed Water Task Force was convened, composed of staff from the LOTT Alliance, the three cities and the County. The Task Force identified over 40 policy issues related to the distribution and use of reclaimed water. Most of these issues have been resolved through a series of interlocal distribution, supply and end user agreements.

These agreements strive to offer a regional resource approach while preserving each jurisdiction’s operating autonomy.

The LOTT Alliance, Thurston County and the three Cities adopted a General Interlocal Agreement specifying policies, distribution methodology, negotiation protocols and roles and responsibilities (Appendix 7-1). This General Agreement was also approved by Ecology and DOH, as required by the State Reclaimed Water Permit.

A Distribution Agreement between LOTT and the three Cities details the volume of reclaimed water available to each City from the existing and planned Reclaimed Water Plants. Table 7.1 shows Olympia’s current allocation under this agreement (see Exhibit B of Appendix 7-2, referenced below). As the LOTT Alliance increases reclaimed water production, the LOTT Partners will revisit the Distribution Agreement.

**Table 7.1. Distribution Agreement – Olympia’s Reclaimed Water Allocation**

<table>
<thead>
<tr>
<th>Reclaimed Water Facility</th>
<th>Year On-line</th>
<th>Daily Volume for Olympia (gallons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Budd Inlet</td>
<td>2005</td>
<td>460,000</td>
</tr>
<tr>
<td>Hawks Prairie (Martin Way)</td>
<td>2006</td>
<td>300,000</td>
</tr>
<tr>
<td>Chambers Prairie (Mullen Road)</td>
<td>Post-2030</td>
<td>300,000 (pending re-evaluation)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>1,060,000</strong></td>
</tr>
</tbody>
</table>

A Supply Agreement between the LOTT Alliance and City of Olympia includes the terms under which LOTT will supply and Olympia will purchase reclaimed water (Appendix 7-2). It defines how much water will be made available, establishes a $1.00 annual fee, and includes general operating and technical agreements. Exhibit B of Appendix 7-2 is the Distribution Agreement between LOTT and the three Cities.

LOTT and the Partners developed a model for End User Agreements (Appendix 7-3), which was also approved by Ecology and DOH. Olympia so far has two End User Agreements, with the Washington State Department of General Administration (GA) and Port of Olympia (Appendix 7-4 and Appendix 7-5).
As required by LOTT’s permit, Olympia and Lacey have also adopted uniform reclaimed water ordinances to ensure permit requirements are met (see below, Section 7.3).

Distribution Infrastructure

The LOTT Alliance has constructed a 12-inch distribution line between the Budd Inlet Reclaimed Water Plant and Heritage Park (Figure 7.2). A 4-inch pipeline extends under the pedestrian bridge across Capitol Lake and through Marathon Park to LOTT’s Capitol Lake Pump Station.

In a cost-share arrangement with the City, the Port of Olympia installed a reclaimed water distribution line from the Budd Inlet Reclaimed Water Plant north through the Port Peninsula.

State Capitol Campus

The Capitol Campus uses about 20 million gallons of water annually for irrigation and other outdoor uses. Section 11 of Engrossed Second Substitute Senate Bill (E2SSB) 6117 directed the Washington State Department of General Administration to work with the City to provide a report to the Legislature in December 2007 regarding the potential use of reclaimed water on the Capitol Campus.

The report is a comprehensive campus-wide plan to use reclaimed water for irrigation and related outdoor applications. It identified needed infrastructure, implementation cost and potential funding sources. The recommended approach would cost approximately $2.32 million. The report indicates that in 2009 the City of Olympia could contribute approximately $750,000 toward this project, representing over 30 percent of the total project cost.

Future LOTT Alliance Infrastructure

The LOTT Alliance’s 2009-2025 Capital Improvements Plan (CIP) proposes producing up to 6 million gallons per day of Class A reclaimed water at the Budd Inlet Reclaimed Water Plant. The CIP further proposes construction of a pipeline to carry the reclaimed water to one or more groundwater recharge sites, one of which will be in the Tumwater area. The first leg of this pipeline is currently in design and will extend reclaimed water south on Deschutes Parkway to the Tumwater Valley Municipal Golf Course, owned by the City of Tumwater. This project will also include the extension of reclaimed water up Lakeridge Drive to Olympia’s Westside in 2009.

The LOTT Alliance is opting to use reclaimed water to recharge groundwater, as this is a reliable, year-round beneficial use of reclaimed water. This assures a reliable year-round destination for any reclaimed water not used for other purposes along the way. This would augment direct seasonal use for irrigation by Olympia water customers. Building on these efforts, Olympia is currently pursuing the creation of a regional dialogue with the LOTT Alliance, Squaxin Island Tribe, and the Cities of Tumwater and Lacey on opportunities for use.
of reclaimed water for stream restoration. Woodland Creek and the Deschutes River have been identified as water bodies that would benefit from restoration efforts.

Because recharge sites and future pipeline routes are still being assessed, the scope and schedule of the project is not known. At the earliest, the stream restoration project is expected to be on line in 2019.

7.3 RECLAIMED WATER USE IN OLYMPIA

The Budd Inlet Reclaimed Water Plant began generating Class A reclaimed water in 2005. Currently, the plant can produce up to one million gallons of reclaimed water each day. Based on the Distribution Agreement (Appendix 7-2, Exhibit B), 460,000 gallons of this water and 1.5 mgd peak is available to Olympia per day. While LOTT generates this reclaimed water, Olympia is responsible for distributing the water to its customers. Olympia began distributing reclaimed water in the downtown area in 2006.

Table 7.2 gives the annual reclaimed water use for Olympia’s three reclaimed water customers:

- Washington State Department of General Administration – at Heritage and Marathon Parks, and along Deschutes Parkway between the two parks.
- Port of Olympia – along Marine Drive.
- Olympia Parks, Arts and Recreation Department – at Percival Landing and Percival Landing Park.

While irrigation is the main use, Olympia’s customers also use Class A reclaimed water for dust suppression, equipment cleaning and pressure washing.

<table>
<thead>
<tr>
<th>Customer</th>
<th>2006 Usage (million gallons)</th>
<th>2007 Usage (million gallons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dept. of General Administration</td>
<td>2.80</td>
<td>6.86</td>
</tr>
<tr>
<td>Port of Olympia</td>
<td>2.11</td>
<td>2.74</td>
</tr>
<tr>
<td>Parks, Arts and Recreation Dept.</td>
<td>0.67</td>
<td>0.60</td>
</tr>
<tr>
<td>Total</td>
<td>5.58</td>
<td>10.2</td>
</tr>
</tbody>
</table>

Business Plan

The Drinking Water Utility contracted with the firm HDR, Inc. to develop a Business Plan for Reclaimed Water Distribution (Appendix 7-6). Completed in June 2005, the plan presents a long-range vision for the City’s reclaimed water program and discusses policy issues that affect development and financing. The plan estimates an additional $40 million would be needed to construct the infrastructure necessary to deliver 2.8 million gallons a day of reclaimed water from LOTT Reclaimed Water plants to the City’s customers. The City’s Capital Improvement Program found in Chapter 14 (Table 14.2) shows an investment of $500,000 in 2013 and 2014 for reclaimed water infrastructure.
**Ordinance and Policies**

As part of the LOTT Alliance’s Reclaimed Water Permit, Olympia was required to adopt a reclaimed water ordinance. The ordinance was adopted in 2005 as Chapter 13.24 of the Olympia Municipal Code (http://olympiamunicipalcode.org/). It includes policies and procedures for the distribution and delivery of reclaimed water. The policies reflected in the ordinance are:

- **Rates for reclaimed water are 70 percent of the equivalent potable rate.** The goal of the discounted rate is to encourage the use of this new resource.

- **The reclaimed water program resides within the City’s Drinking Water Utility.** The program cannot be a stand-alone utility since rates would not be sufficient to cover the costs of the needed infrastructure.

Based on Council direction in 2007, the following additional policies will be proposed for the Olympia Municipal Code or Engineering Design and Development Standards later in 2009.

- **Customers that front reclaimed water mains and meet certain criteria will be required to connect to the City’s reclaimed water distribution system.** Others may connect at their option. This does not apply to single-family homes, except in new subdivisions where reclaimed water is built into the site. Criteria would include the amount of irrigation water used.

- **Customers should bear the costs of connecting to the City’s reclaimed water distribution system, as well as costs for other improvements to the customer’s property required for use of reclaimed water.** The City should budget a fixed amount annually to provide rebate assistance to customers meeting certain criteria.

- **Developers of projects meeting certain criteria will be required to install reclaimed water mains.** Criteria include quantity of water used for non-potable needs and proximity to City’s planned “backbone” system of reclaimed water lines. The City will provide rebate assistance to developers meeting certain criteria.

**McAllister Wellfield Mitigation**

The Cities of Lacey and Olympia are working together to mitigate predicted impacts in the Woodland Creek basin resulting from their new water sources (Olympia’s McAllister Wellfield and Lacey’s groundwater wells). The Cities signed an interlocal agreement in October 2008 to mitigate predicted impacts to Hicks Lake, Pattison Lake and Long Lake (collectively referred to as the “Tri-Lakes”) and Woodland Creek by infiltrating Class A reclaimed water at a location or locations downstream from the outlet of Long Lake. If possible and practical, these location(s) would be upstream of the point where Woodland Creek passes beneath Martin Way.

Lacey and Olympia will use their respective shares of reclaimed water from the Martin Way Reclaimed Water Plant for this purpose, and will share the cost of operation and maintenance of the mitigation facility.
7.4 2009-2014 RECLAIMED WATER PROGRAM

The reclaimed water strategy, along with the conservation strategies described in Chapter 6, is designed to achieve the Utility’s Goal 2:

**Use Olympia’s limited water supplies efficiently to meet the needs of the community and natural environment.**

The strategy is: To advance the use of reclaimed water as defined in Council-adopted policies. Activities planned for 2009-2014 (in no particular order) are:

1. Work with Washington State Department of General Administration to bring reclaimed water to the Capitol Campus.
2. Work with existing facilities to hook up to reclaimed water transmission main in downtown Olympia.
3. Ensure that new projects hook up to existing reclaimed water transmission main in downtown Olympia.
4. Explore feasibility of reclaimed water storage tank in downtown Olympia to improve system reliability.
5. Partner with LOTT Alliance to extend a reclaimed water main to the west side of Olympia via Deschutes Parkway and Lakeridge Drive.
6. Partner with the Squaxin Island Tribe, the LOTT Alliance and others to pursue opportunities for use of reclaimed water for stream restoration purposes.
7. Together with the City of Lacey, use reclaimed water for mitigation of potential surface water impacts related to new water sources.
8. Explore feasibility of using reclaimed water for toilet flushing.
9. Research grant and other funding sources for expanding the reclaimed water program.
Figure 7.1. Location of LOTT Reclaimed Water Facilities
Figure 7.2. Reclaimed Water Distribution Lines