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State of Washington

Wastewater Regionalization

Final Report to the Legislature

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Wastewater Regionalization

Final Report to the Legislature

by
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Executive Summary

In 2008 the Washington State Legislature directed the Department of Ecology (Ecology) to review infrastructure needs of local governments in Washington State. Specifically, the Legislature directed Ecology to identify communities that would benefit from regional (or shared) wastewater infrastructure, and to identify barriers to regionalization faced by those communities. The Legislature asked Ecology to prepare an interim report by December 2008. This is the final report.

For the purposes of this report, Ecology defines "regionalization" as an approach where communities inter-connect their wastewater infrastructure or share staff to reduce their capital and/or operational costs of their wastewater (sewage) treatment systems.

One of the most significant findings of Ecology's study was that many communities have already taken advantage of regionalization opportunities. Approximately 200 local governments have already established, or are planning for regional partnerships.

Many of the existing regional partnerships are in areas of the state where regional wastewater treatment showed clear economic and environmental advantages. For example, much of greater Tacoma; urbanized King, Thurston, and Spokane Counties; and the Everett and Vancouver areas embraced wastewater regionalization some time ago.

The opportunities that guide a community toward regionalization or decentralization vary depending on the specific community. Despite widespread adoption of regional models, Ecology has found areas within the state that appear to favor regionalization but have not yet considered regional systems. In a rapidly changing world new regional opportunities may emerge. Growth patterns, water quality concerns, improved treatment technology, and new regulatory requirements are likely to change where regionalization is cost effective. Funding and regulatory agencies will need to keep up with these changes.

Ecology identified barriers that may prevent communities from adopting cost-effective regional solutions. These include, but are not limited to:

1. Unfamiliarity with regionalization as an alternative.
2. Local institutional and political challenges.
3. Complexities of the regionalization process. For example, difficulty negotiating the partnership agreement.
4. Available local government resources for developing regional partnership agreements.
5. Uncertainties regarding regulatory requirements.

Ecology's recommendations and approaches to address or overcome these barriers are:

1. Amend the State's Water Pollution Control Act (Chapter 90.48 RCW) to require the consideration of regionalization alternatives during planning. The recommendations section of this report contains suggested language.

2. Through its responsibility to review engineering reports and facilities plans, Ecology will continue to promote the concept of regionalization to local governments as a viable, cost-effective alternative wherever the option is possible.
3. Enhance technical assistance using state resources with expertise in regionalization to encourage regionalization in smaller and less urban areas of the state.
4. Share information about existing partnerships. For example,
    - As part of this report Ecology posted a number of local government partnership agreements at Ecology's Water Quality Program website http://www.ecy.wa.gov/programs/wq/funding/funding.html. This website could be maintained and updated as a valuable tool for local governments evaluating regionalization.
    - In *Key elements of partnerships agreements* (Appendix A of this report), Ecology listed elements that are often included in partnership agreements. This key elements document could also be maintained and updated as a web based resource.
5. Regional partnership agreements must be carefully crafted to address long term concerns of all partners and include provisions for future contingencies. The agreements must be developed in an open public process that involves citizens, stakeholders, and regulatory agencies.
6. Ecology will recognize priority in our funding programs for regional wastewater projects that support smart or growth or recognize some other environmental outcome. The legislature could direct other state funding agencies to implement similar priority considerations.
7. Ensure that any grant and loan amount limits (or ceilings) for applicants be based on a "per local government" basis, so regional and non-regionalized applicants compete on the same foundation.

Because the cost-effective wastewater management option is often regionalization, the state has made a substantial investment in regional infrastructure. During the past 20 years Ecology's Water Quality Program has invested approximately $850 million, and Commerce has provided $150 million, in regional wastewater infrastructure for local governments.

Introduction

A large number of our state's communities already use a regionalized approach to provide wastewater services. Approximately 200 wastewater utilities statewide have inter-connected infrastructure and have benefited from reduced capital and operational costs as a result. Many of these regional partnerships were formed with support from, or have benefited from, state and federal grants and loans mostly provided by Ecology and Commerce through the Public Works Board loan programs.

Why is this report needed, and how is it organized?

During its 2008 session, the state Legislature directed "the department [of Ecology] to conduct a review of statewide community wastewater infrastructure needs and identify communities that would benefit from regional wastewater infrastructure and identify any barriers to regionalization these communities may face."[1]

This report was prepared in response to the legislative directive to identify:

- Opportunities, benefits, and barriers to regionalization.
- Local governments that could benefit from regionalization.
- Types of regionalization available to local governments.
- Local government roles and responsibilities to study regionalization alternatives.
- Ecology's responsibility to encourage regionalization where it is appropriate.

Ecology has identified ways to remove or otherwise address barriers to wastewater regionalization. in *Appendix A, Key Elements of Partnerships Agreements*, Ecology listed elements that are typically included in effective partnership agreements.

In this report Ecology also presents case studies of specific communities and their experience with regional facilities. These case studies represent the benefits of regionalization, barriers to regionalization, and ways to overcome barriers. They include:

1. Communities that have regionalized in the past. Studies explain the reasons these local governments chose the path of regionalization and experiences to date.
2. Communities that investigated regionalizing and rejected the option. Case studies explain barriers to regionalization encountered and the rationale for choosing decentralization.
3. Areas of the state where regionalization is an option currently being evaluated.

Specific recommendations are made to encourage regionalization when state agencies believe it is an appropriate approach, and to help communities investigating or desiring regionalization to overcome barriers.

[1] Section 3004, 2008 Supplemental Capital Budget, Washington State Legislature, 2008 Session.

Recommendations

Ecology's recommendations are based on the case studies in chapter 6 of this report. They are also based on numerous contacts with elected and appointed officials of communities throughout the state of Washington. And lastly, they are based on decades of professional experience gained by Ecology through NPDES (National Pollutant Discharge Elimination System) and state wastewater discharge permitting processes and the administration and management of water quality state and federal grants and loans.

The recommendations provided will help:

1. The Legislature and state agencies address many institutional barriers to regionalization.
2. Local governments understand whether regionalization or decentralization is the most cost-effective wastewater management approach.
3. Existing and potential wastewater regionalization partnerships overcome or otherwise address barriers to regionalization.

Issue 1: Adequate evaluation and consideration of regionalization alternatives

Recommendation: *Require (by statute) local governments and their consultants to evaluate and consider wastewater regionalization. Language similar to Chapter 90.48.112 RCW could be used:*

> *"The evaluation of any plans submitted under RCW 90.48.110 must include consideration of opportunities for regional wastewater management"*

Enhanced efforts must also be made by state agencies to raise awareness about and encourage regionalization alternatives.

Rationale: Regionalization may not receive adequate evaluation as an alternative when a local government plans its wastewater system. Consulting firms may not evaluate regionalization as an alternative, especially if local governments do not specifically task them, in their contract, to consider the regionalization options.

Chapter 90.48 RCW, *Water Pollution Control*, could be amended to include a requirement that all wastewater treatment general sewer plans, engineering reports, and facilities plans consider regionalization in the analysis of alternatives.

Furthermore, state agencies, including Ecology, need to foster awareness about and encourage regionalization as an alternative. For example: the regionalization concept needs to be widely publicized at funding workshops, engineering seminars, and statewide forums, such as annual Infrastructure Assistance Coordinating Council (IACC) meetings.

Issue 2: Available technical assistance and resources for the local governments considering regionalization

Recommendation: *Enhance existing technical assistance resources by providing more state staff to provide assistance to local governments who could benefit to navigate the regionalization process and form strong partnerships.*

Rationale: The regionalization and partnership development process can be challenging and existing resources to assist local governments are limited. Smaller communities are one of the areas with potential for growth of regional facilities. These communities typically lack staff with specific expertise required. State staff resources with expertise to help local governments with the regionalization process are spread very thin. In order to foster viable partnerships adequate state resources should be provided.

Issue 3: Availability of partnership information

Recommendation: *Expand the resources available on Ecology's web site. Encourage state and local governments with existing experience and information on regionalization partnerships to share their information with other local governments. Additional resources will be necessary for Ecology to implement this recommendation.*

Rationale: Ecology has found excellent examples of wastewater regionalization partnership agreements and other information in the course of preparing this report. Yet staff of local governments considering regionalization may not have access to these examples. Local governments could benefit from improved access to these web based resources, partnership agreements, and contacts.

Issue 4: Managing conflict in regional partnerships

Recommendation: *When crafting partnership agreements, regional partners should give as much attention to the partnership agreement as any other long term contractual agreement, including consideration of contingency planning. Negotiating the partnership agreement must be a team effort, with public involvement, coordination with regulatory agencies and open lines of communication between all parties.*

Rationale: Any regional partnership will face political and institutional challenges at inception and throughout the partnership. Participating local governments may have a history of conflict, and conflict will invariably arise during the life of the regional agreement. In the case studies that follow three factors are shown to help local governments manage conflict and overcome it as a barrier to regionalization.

- A robust partnership agreement that fully addresses all aspects of the partnership, including contingency planning.

- A win-win approach to the negotiation process; looking for opportunities where all parties can benefit.
- Active public participation in the decision making and agreement development process.

Not only are good relationships within and among existing partners important to the success of the regional wastewater system, the tone set by the regionalization partnership often sets a precedent regarding how new (even unrelated) regionalization efforts are considered.

Issue 5: Priority consideration of new and emerging wastewater regionalization partnerships

Recommendation: *State grant and loan priority systems should provide priority consideration to new and emerging wastewater regionalization partnerships.*

Rationale: This report demonstrates the advantages afforded by cost-effective wastewater regionalization throughout the state of Washington. State agencies responsible for administering grant and loan programs should officially recognize these advantages as they design or modify their financial assistance priority systems. For example, specific consideration may be given to:

- The cost savings (both capital and operational) offered by regional solutions.
- Special environmental benefits achieved by adopting regionalization over decentralization.
- The regionalization alternative being adopted as the preferred alternative in the comprehensive sewer plan, engineering report, or comprehensive growth management plan, etc.

Issue 6: Funding limits – project vs. individual community

Recommendation: *Grant and loan ceiling amounts for all local governments (including prospective wastewater regionalization partners) should normally be offered on a "per local government" basis.*

Rationale: Potential partners may perceive an individual financial advantage for not regionalizing if state grant and loan programs limit funding based on per-project ceilings. Each local government may feel that they can "get a better deal" from the funding agency if they remain independent. Funding agencies should recognize the advantages of regionalization by establishing any ceiling amounts on a per-local-government basis that encourages consideration of cost-effective regionalization efforts.

Chapter 1
What are "Regional Wastewater Infrastructure" and "Regionalization"?

When used in this report, "regional wastewater infrastructure" and "regionalization" refer to independent local governments sharing the responsibility of providing wastewater services to their residential, commercial, and industrial customers. The word regionalization will be used in this report for consistency.

There are two ways that communities can share the responsibility of providing wastewater services:

1. Through sharing their physical infrastructure.
2. Through sharing administrative and operational tasks.

Shared infrastructure

Local governments can cooperatively provide wastewater service by physically connecting their sewage collection systems (with pipes and pumps). Centralized treatment for all of the local governments can reduce costs for construction, operation, and maintenance. This form of regionalization is widespread in Washington State and is usually what people mean when they discuss regionalization. Currently, approximately 200 local governments are partners in shared infrastructure regionalization. (Appendix A contains more specifics on these communities).

Two commonly used organizational models for communities with shared infrastructure are "shared authority" and "centralized authority."

- **Shared authority.** Each local government cooperatively forms a single governing body to manage the wastewater treatment facility. An example of this is the Lacey, Olympia, Tumwater, Thurston County Wastewater Alliance (LOTT). LOTT is also responsible for operating two reclaimed water facilities. Each local government in the alliance is responsible for operating its own collection system.

- **Centralized authority.** One local government provides wastewater treatment services to one or more other local governments. The relationship functions more like a contractual business relationship, with local governments purchasing services from another local government. This type of organization is more common than a shared administrative body. Examples include the cities of Yakima and Union Gap; the cities of Raymond and South Bend; and King County with 34 individual jurisdictions that have agreements with King County to treat their wastewater.

Shared administrative and operations staff

Even local governments with separate infrastructure have opportunities to cooperate and achieve efficiencies when delivering wastewater services. This type of regionalization is most commonly seen in a Public Utility District (PUD), where one local government (the PUD) manages wastewater operations for multiple small communities in its service area. Efficiencies are achieved in administrative tasks (billing, planning, rate setting, or engineering services) and operational tasks (equipment maintenance, sampling, laboratory testing, or day- to-day operations). An example of this type of regionalization is the Klickitat County PUD (KCPUD). The KCPUD manages five community sewer systems: Klickitat, Lyle, Roosevelt, Glenwood, and Wishram. It also maintains nine water systems with a common set of operators, a common engineering staff, and a common management board, giving KCPUD a large pool of technical expertise and experience that benefits all the communities it supports.

Centralized treatment

Large centralized sewer systems share many of the infrastructure and administrative efficiencies as regional systems. Although not generally considered to be a regional system, because there is only one local government involved in providing sewer service, a large local government or sewer district can provide wastewater management services to multiple jurisdictions. For example, the Lakehaven Utility District provides centralized wastewater treatment services to the city of Federal Way, parts of Pierce and King counties, and parts of the cities of Edgewood, Milton, Des Moines, Kent, Pacific, and Auburn.

Chapter 2
Local Government Roles and Responsibilities: Recognition and Documentation of Local Wastewater Management Needs

Whether it be for new or aging wastewater infrastructure (sewers and wastewater treatment plants) local governments have the primary responsibility to identify, document, and plan for wastewater management needs. There are statutory directives such as Chapter 90.48 RCW, the state of Washington Water Pollution Control Act and, more recently, Chapter 36.70A RCW "Growth management — planning by selected counties and cities" (Growth Management Act) that require local governments to complete specific planning before they can construct wastewater treatment plants and other wastewater management infrastructure.

Local governments are responsible for protecting the health and safety of their citizens as well as the water quality in and around their communities. Local government officials are accountable for ensuring that the requirements of National Pollutant Discharge Elimination System (NPDES) or State Waste Discharge permits are met. Local governments must not only plan for the wastewater management needs of their present population, but they are also responsible for ensuring wastewater infrastructure will be adequate for anticipated growth (usually using a 20-year planning horizon).

Sewer system users (residential, commercial, industrial and institutional) are ultimately responsible for the cost of services, including capital facilities costs (usually through debt service on locally issued bonds or state loan agreements). User charges also must pay for the cost of operation and maintenance, including replacement of worn out equipment. User charges for nearly all "small" communities in the state, those with populations less than 10,000, can be found in Appendix A of Ecology's report in 2008: *Report to the Legislature: Small Community Wastewater Case Studies and Recommendations* at: http://www.ecy.wa.gov/biblio/0810101.html.

Ecology's responsibilities regarding plan review are explained in Chapter 3, *Ecology's roles and responsibilities: Identification of regionalization opportunities.*

Normally, local governments first procure the services of an engineering consulting firm to complete general sewer plan where the long-term sewer service and wastewater treatment capacities are fully evaluated. Adequate planning is critical to ensure compliance with Ecology issued wastewater discharge permits. These plans must be completed in accordance with Chapter 90.48 RCW and WAC 173-240-050, General Sewer Plans, and must be approved by Ecology.

The General Sewer Plan is often developed as an element of the local governments GMA comprehensive plan. Consideration of options for regionalization as a management strategy should be evaluated for all communities where this is feasible.

Site-specific engineering reports for wastewater facilities are then completed by an engineering firm on behalf of and with the approval of local governments. This detailed report can either include the

elements of a general sewer plan or it may incorporate an up-to-date general sewer plan approved by Ecology. The Engineering Report will implement specific projects outlined in the General Sewer Plan. If the specific project implements a regional solution, one Engineering Report may be developed for the regional partnership.

The engineering report or facilities plan must be sufficiently complete for plans and specifications (design) to be completed without substantial changes. When Ecology approves design documents that are used as the construction bid document, the local government can begin the construction phase of the project.

Chapter 3
Ecology's Roles and Responsibilities: Identification of Regionalization Opportunities

Engineering review of site-specific planning

In accordance with the state's *Water Pollution Control Act* (Chapter 90.48 RCW), Ecology engineers review and approve all general sewer plans and engineering reports prepared for wastewater treatment infrastructure. These planning documents are required by Ecology regulations to evaluate alternative ways of providing wastewater services to meet NPDES or State Waste discharge permit requirements. (WAC 173-240-60 *Engineering Report*) One wastewater treatment plant alternative that is required in engineering reports by statute is consideration of the opportunities to use reclaimed water (RCW 90.48.112 *Plan Evaluation–Consideration of Reclaimed Water*).

Ecology engineering staff must ensure that the use of reclaimed water and other alternatives are evaluated, while still maintaining its primary role of ensuring facilities will meet wastewater discharge permit requirements.

Even though Ecology staff have a strong commitment to encouraging communities to consider regional alternatives in their planning, Ecology regards the decision to regionalize as one best made by local governments. Furthermore, Ecology does not have the statutory authority to mandate any specific treatment technology or management approach.

When communities choose a regionalization option to provide wastewater services, Ecology issues a National Pollutant Discharge Elimination System (NPDES) or wastewater discharge permit to the local government entity operating the facility that will "discharge." The "upstream" regional partner(s) managing the sewage collection system(s) is not presently permitted by Ecology. In the event that compliance issues arise, Ecology enforcement actions are directed to the permitted partner. Therefore, the permitted partner needs a strong (but collaborative) inter-local agreement with other partners to help avoid permit violations.

Added review for Ecology-funded projects

When the state has a direct or potential financial interest in a wastewater project (state funding), Ecology plays a larger role in the decision making process. Any project receiving funding from Ecology must show that the proposed project is the cost-effective alternative for meeting the local government's wastewater management needs (WAC 173-98-730, *Cost Effectiveness Analysis for Water Pollution Control Facilities*). Ecology may also provide technical assistance regarding the local government's choice the treatment technology and management approaches to ensure state funds are wisely invested in cost-effective wastewater treatment projects.

The cost-effective alternative is not necessarily the cheapest solution. Cost-effectiveness analyses consider life-cycle costs as well as environmental concerns, public involvement, and possibility of implementation. The cost-effectiveness analysis is performed during the site-specific planning required for wastewater infrastructure. The analysis is prepared by the local government, its engineering staff, and its consulting engineer.

Ecology and Commerce wastewater infrastructure funding programs encourage regionalization when a regional model is fiscally responsible, environmentally sound, and incorporates trust and cooperation between local governments. During the last 20 years (based on best available information), Ecology has invested approximately $850 million in grants and loans for regional facilities statewide. The Public Works Board, which decides where Commerce Public Works Assistance Account monies are spent, has also issued over $150 million in loans for wastewater regionalization facilities. (Appendices C, D, and E list specific regional projects financed by Ecology and Commerce programs).

Chapter 4
Regional vs. Decentralized Approaches

Wastewater treatment plants employ complex mechanical and biological systems to meet discharge limits, working in conditions that vary widely across the state. Because of this, there is no one-size-fits all approach to providing wastewater infrastructure that will always produce optimal results. In some areas, a regional partnership with a large centralized treatment facility works best. In other places, smaller decentralized treatment systems may work better. However, some generalizations can be made.

Economies of scale – when regionalization makes sense

Regionalization that works is often the result of economies of scale. Economy of scale is a phrase engineers use to explain why large facilities are overall less expensive to build than small facilities. Fixed costs of construction will apply regardless of the size of the treatment plant. Permits, mobilization costs, and overhead are about the same regardless of the size of the project. For example, once the forms and rebar are set, pouring a two million gallon concrete tank does not cost twice as much as a one million gallon tank. Large regional systems are therefore less expensive *to construct* on a per-gallon-treated basis.

Another financial advantage of regional facilities is local governments simply have more customers to share the burden of paying the bills. The community's administrative and operational costs do not vary much with the size of the facilities. Regardless of whether a local government provides sewer services to 500 people or 5,000, the staff needs to send out bills and balance the books. Whether the plant treats 100,000 gallons a day or 1,000,000, the operator needs to run lab tests every day. This means each ratepayer in a larger system may pay a lower portion of the sewer service bill for *operating* the treatment plant.

Regionalization tends to make economic sense in urban areas with high population density areas where (in the case of near-by cities) the city limits have expanded until cities border each other. The Growth Management Act (GMA) has been a factor in creating the densities required for large scale regionalization to work in the state.

Comprehensive regional planning, required by the GMA, often identifies regionalization as an option that deserves serious consideration. Comprehensive sewer planning and site-specific facilities planning frequently identify regionalization as the least costly alternative for communities in close proximity to each other. If communities can work together, the option may emerge as the cost-effective, preferred alternative.

Furthermore, a larger regional facility may have broader ratepayer support to pay for meeting future water quality and permitting standards in a way that may have a more moderate impact on rate changes.

Wastewater regionalization may also set an example of cooperation between communities that extends beyond the immediate wastewater management needs. This can be most dramatic where there is a limited history of cooperation between communities. There are many opportunities for cooperation and cost savings (law enforcement, fire fighting, other infrastructure such as water systems and solid waste facilities, and shared specialty equipment) once communities share one community service.

Decentralized facilities – when local conditions override

Economies of scale at a centralized treatment plant are not the only factor to consider when evaluating regional opportunities. The cost for the pipes and pumps to physically connect the two or more communities must also be taken into consideration. Constructing large pipelines over long distances and operating pumps capable of moving an entire community's wastewater miles away can be very expensive. The overall cost savings for a regional plant may be canceled out by the expense of moving the wastewater to the regional plant. This usually means that only communities that are relatively close to each other can benefit economically from regionalization, but the distance separating the communities is not the only consideration.

The engineering economic analysis performed to make the decision between regionalization and decentralization is a site-specific calculation that is affected by local conditions. Engineers need to know:

- The distance between the communities.
- The communities' relative elevations and sizes.
- How much sewage does each generate?
- What are the chemical characteristics?
- What is the local topography? For example, are there rolling hills, or a mountain ridge, or a gulley between them?
- What are the soil conditions for the interceptor pipeline route?
- Is there deep, well drained soil, or is it rocky? (or is there shallow bedrock?)
- Is there local high ground water that can make trenching more difficult and expensive?
- Are there wetlands or sensitive streams that the pipeline will need to cross?
- Are the communities on opposite sides of a river?
- Is enough land available to construct a larger treatment plant?
- Can an easement or right-of-way be obtained for the best pipeline route, or will it have to go the long way around?

Building a large centralized plant and discharging treated effluent into one point along a body of surface water may not be the best for the environment. A large single discharge may exceed the natural assimilative capacity of a river, where several smaller discharges along its length would not. The presence of a total maximum daily load (TMDL) watershed cleanup plan for the river may tightly constrain how and where effluent can be discharged and may not allow any discharge to the river.

There may also be watershed management and in-stream flow benefits from adopting a more decentralized model. For example, water reclamation (or re-use) is an option that many communities are exploring for managing their wastewater and the regional watershed as a whole. Water reclamation often works best for areas with decentralized (or at least partly decentralized) treatment plants, so the reclaimed water can be produced near the potential users of reclaimed water.

What will the future hold?

Because the choice between a regionalized or a decentralized solution depends so heavily on site specific factors, no broad conclusion can be made about what the future holds. However, some general trends that will affect regionalization can be observed.

- **GMA.** The Growth Management Act has played a significant role in influencing the urbanization of the state's population and thus helping to create population densities that may make regionalization more economical.
- **Water quality requirements.** As population density increases, more and more wastewater is generated in a small part of a watershed, eventually exceeding the pollutant input capacity of a local water body. An emerging requirement for permits on impaired water bodies is to limit the total input of pollutants based on the total maximum daily load (TMDL) study. The scientific TMDL study may result in a total daily discharge limit that a large centralized facility may not be able to meet.
- **Technology.** Wastewater treatment technology continues to improve in remarkable ways. Advances over the last decade in membrane reactors and small scale ultraviolet disinfection have made decentralized treatment more cost-effective, but we cannot predict what the next technological breakthrough will be, let alone its effect on the cost-effectiveness of regionalization.
- **Global energy supply and climate change.** These global forces will perhaps have the most profound effects on the affordability of wastewater treatment. It isn't clear as yet whether the effects will favor regionalization or decentralization.

Chapter 5
Potential Barriers to Regionalization

Regionalization often is the cost-effective, common sense approach to managing a community's wastewater. However, once a community has determined it wants to pursue regionalization with another community (or communities), there are still barriers.

Intergovernmental conflicts

Local political issues can be a barrier to regionalization. If the local governments involved simply cannot work together, a regional approach will not be successful. There may be perceptions that the community will be giving up control of its sewer utility, or that it will be treated unfairly by a larger regional partner.

Community officials may fear a loss of autonomy and independence that owning and managing their own infrastructure allows. Elected officials, public works engineers, and planners are often very fervent about their vision for their wastewater utility and have legitimate concerns about loss of control.

A related barrier is the perception that a local government must give up control of its sewer rates to join a regional system. Local government officials have a responsibility for developing and implementing a fair and equitable sewer user charge system, and they may only choose the regionalization alternative if costs are clearly favorable to their customers.

Complexities and available resources

The regionalization concept and partnership agreements are complex. Local governments need to procure the services of engineering consultants with experience in adequately evaluating all practical alternatives and implementing regionalization if it proves to be the most cost-effective.

If a consulting firm isn't directed by the local government to consider regionalization or does not have experience with regionalization of wastewater, it may only give a cursory review of regional options and recommend that the local government choose a decentralized approach. Decentralization often does not require the coordination and simultaneous work with multiple local governments that regionalization does.

State agency expertise and capacity for providing technical assistance on the complexities of regionalization is limited and stretched. Furthermore, it is the responsibility of local governments to decide what the cost-effective alternative is for its community. Fortunately, there are many engineering consulting firms with the experience to do the job of adequately evaluating and implementing all regionalization and decentralization alternatives.

Partnership agreements

Negotiating the interposal agreement or contract between the regional partners may also become a barrier. The details of this document can become very sensitive and political. The power of relationships between the parties and the fairness of the agreement to all parties must be carefully negotiated.

Even in communities committed to cooperation, negotiating the contract is a time consuming and detail oriented job. The partnership agreement is the economic framework for the community's wastewater system that will be implemented over the next 20 years, or more. Acquiring adequate involvement and buy-in from key local government representatives, clients, and stakeholders takes time, staff resources, and patience.

Existing capital facilities

Many communities are in geographical areas of the state that would, on the surface, make it attractive to regionalize (for example, highly urbanized, close proximity to neighboring communities) but are not part of a regional system. Because each community is so heavily invested in existing capital facilities, the cost to replace the entire existing infrastructure with a new regional system may make the regional option cost prohibitive.

The flip side to this barrier is the opportunity that the TMDL watershed cleanup process offers. When all the wastewater providers in a river basin are faced with the need to upgrade and expand their existing facilities, they have a unique opportunity to reconsider regionalization.

Ceiling amounts of state and federal grant and loan programs

There may be an unintentional barrier for regionalization if state grant and loan program funding limits are set per-project. If each local government was able to compete for funding, but the regional partnership was limited to one application, potential partners may perceive an individual financial advantage for remaining separate.

Other institutional barriers

There may be barriers that already exist within the planning process. These may include, but certainly are not limited to:

- Decentralization (instead of regionalization) is called for in the community's general sewer plan.
- Local governments may have a working decentralization system and are reluctant to change from the system that currently works for them.

Therefore, local governments must be open to the possibility of regionalization and ensure the engineering firm completing the plans adequately considers the regionalization alternative.

Overcoming or addressing barriers

Refer to the Recommendations section, *Recommendations,* of this report which is aimed at overcoming or addressing barriers to regionalization.

Chapter 6
Exploration of Regionalization Opportunities (Case Studies)

The following section features a series of regionalization case studies that highlight actual opportunities and barriers encountered by local governments as they:

Regionalized their wastewater treatment facilities

- The city of Everett has a public-private partnership with the Kimberly-Clark Corporation and city of Marysville.
- The King County Wastewater Division is in partnership with 34 separate communities.
- The city of Yakima partners with the city of Union Gap and Terrace Heights Sewer District.

Considered regionalization and decided on decentralization[2].

- The cities of Centralia and Chehalis, including the Dari gold milk products processing plant, considered regionalization but in spite of their apparent close proximity the approach wasn't considered to be the most cost-effective.

Are in the early stages of examining or implementing regionalization

- The cities of Raymond and South Bend developed a partnership agreement and are designing regional wastewater treatment facilities and decommissioning their sewage treatment facilities.
- The city of Snohomish is completing a facilities plan to investigate the cost-effectiveness of partnering with the city of Everett and decommissioning its sewage treatment facilities.
- The Wenatchee River Regionalization Study Area, including the cities of Cashmere and Leavenworth and the small unincorporated communities of Peshastin and Dryden, is coordinating with the Chelan County Public Utilities District in a preliminary feasibility study of regionalization.

[2] The Chehalis Wastewater Treatment Plant was and is a regionalized facility, as it treats sewage from the city of Napavine and Lewis County Sewer District Number 1.

Everett, Washington
Snohomish County

Location and historical perspective
The city of Everett, with population over 100,000, is the county seat of Snohomish County, Washington. Located about 25 miles north of Seattle, Everett is on Port Gardner Bay of Puget Sound. Once a mill town built on wood-based industries, today's labor force of more than 80,000 is predominately employed in technology, aerospace, and service-based industries.
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Water quality needs
Ecology's mid-to late 1990s studies of dissolved oxygen in the Snohomish River Watershed led to new nutrient and organic effluent standards for discharge to the Snohomish River and its estuary into Puget Sound. In 1999, a partnership was formed to protect the estuary – initially by the city of Everett, and Kimberly-Clark Corporation.

The partnership
The partnership decided to replace Kimberly Clark's 46 year old deep water outfall, by constructing a 54-inch diameter pipeline to convey the combined wastewater flows from the Kimberly-Clark Everett Mill Plant and city of Everett. The outfall was designed and constructed to carry a discharge for up to 106 million gallons per day (MGD) 1500 feet off shore in Port Gardner Bay at a depth of 350 feet.

The Everett Regional Area (including Snohomish (southeast and Marysville (northeast of the city of Everett – Distances in miles are shown between arrows.

In 2002, the city of Marysville formally joined the partnership with an agreement with Everett. While Marysville still provided adequate secondary treatment for its wastewater, the city also needed to remove its discharge point from the Snohomish River estuary during low flow summer periods. City officials decided to pay for the use of the Everett-Kimberly Clark outfall.

In addition to the outfall arrangement noted above, Everett has a complex system of regional partnerships developed in the early 1980s. The service area encompasses an area of approximately 28,000 acres with a population of approximately 144,000. In addition to the city of Everett, three water and wastewater districts convey some or most of their sewage to the Everett wastewater treatment facilities. Nearly all flows from Silver Lake Water District and Mukilteo Water District and a small portion (11 percent) of the flow from Alderwood Water and Wastewater District are treated at Everett's wastewater treatment plant.

Rationale for regionalization

Though specific data aren't available, engineering studies were conducted and showed regionalization to be cost-effective considering distances, topography, cost, and cooperation among the partners. Water and wastewater districts surrounding the city decided to send their sewage to Everett for treatment. The Everett treatment plant has been modified over the years to now provide secondary wastewater treatment for 34 million gallons per day average wet month flow.

Agreements

The agreement between Everett and Kimberly-Clark (K-C) specifies that K-C is the owner and as such was responsible for constructing, operating and maintaining the outfall. Whereas, K-C retains the ownership of 50.5 percent of the outfall, the company sold to Everett 49.5 percent of the capacity of the outfall.

Among the provisions in the agreement between Marysville and Everett, the city of Marysville agreed to purchase 10 MGD of the outfall capacity from the city of Everett in 2002. Marysville also exercised its option to purchase another 10 MGD from Kimberly Clark, so the city, which presently discharges an average annual flow of 10.1 MGD, has adequate outfall capacity for its 20-year growth projection.

For more details on these and other agreements between Everett and the aforementioned three water and sewer districts see the respective agreements at:

http://www.ecy.wa.gov/programs/wq/funding/funding.html.

In their own words

- A regional approach to sewage treatment and outfall construction has enabled all parties to save money and reduce the amount of infrastructure and staffing that individual entities would have had to provide.
- Everett alone saved over $10 million by joining with Kimberly-Clark and Marysville in constructing a joint outfall.
- Approximately 200 staff hours (plus city attorney hours) were needed to execute the agreement with Marysville.

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King County, Washington

Location and historical perspective

Located on Washington State's Puget Sound, and covering 2,134 square miles, King County is nearly twice as large as the average county in the United States. With more than 1.8 million people, it ranks as the 13th most populous county (14th largest by size) in the nation. Much of its area is densely populated, and Seattle is one of its principal cities. For the first half century since the settlement of the area, sewage disposal consisted of open ditches that discharged to the nearest available waterway.

The King County area. Much of this large, populous county is served by regionalized wastewater services. Distances in miles are shown between arrowheads.

In the late 1890s and early 1900s Seattle designed and constructed the city's sewer system. In planning the system for future growth Seattle designed and constructed a brick sewer 12 feet in diameter across the north end of Seattle, expanding beyond needs of the time. In those days, sewage *treatment* was not a consideration. Therefore, this "North Trunk Sewer" discharged untreated sewage into Puget Sound. At most tides, the sewage caused a fan-shaped stain in the water of the Sound. At other tides, the sewage washed aback onto shore. When it rained hard, sewage spilled over the dam in the North Trunk Sewer and spread across the beach. The sandy spit was coated with a dark slime, and health officials closed nearby beaches on Puget Sound because of the bacterial contamination. Sixty different outfalls discharged untreated waste into the Duwamish Waterway, Elliott Bay, and directly into Puget Sound.

Assembling woodstave pipe in 1889. *Photo from King County*

Water quality needs

In the 11 years following World War II, ten cities incorporated within a 15 mile radius of Seattle.[3] By 1956 there were 22 sewerage districts, and 28 independent collection systems and wastewater treatment plants operated within the metropolitan Seattle area. Eighty per cent of the sewage districts had an area of less than two square miles.

With all this "autonomous infrastructure" at that time in King County, there was a serious lack of efficiency as a total 139 sewer district commissioners and 60 different councilmen made decisions about sewerage problems. Yet, nearly a third of the population was without public sewerage service. There were frequent instances in unsewered areas when household wastes flowed over the ground surface and along street gutters or sat stagnate in pools. Around Lake Union, Green Lake, and Lake Washington, sewers carrying a

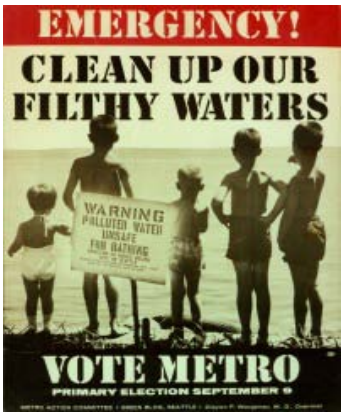
[3] Metropolitan Seattle Sewerage and Drainage Survey, March 1958. Brown K. W., Caldwell D. H. and, Miller H. E.

combination of sewage and stormwater overflowed in rainy weather, contaminating the lakes and often forcing closure of swimming beaches.

As population grew in communities surrounding Lake Washington, ten small sewage-treatment plants discharged 20 million gallons of effluent into the lake daily. All the wastewater treatment plants around Lake Washington provided secondary treatment, but this level of treatment wasn't intended for nutrient removal. The phosphorus-rich effluent stimulated the growth of algae that deprived the lake of light and consumed oxygen from the water in the algae's death phase. Algal blooms led to a decline in water transparency. Green scum could often be seen on the lake surface, and in summer the unpleasant odor of dying algae was in the air.

Rationale for regionalization

In the mid 1950s, Lake Washington was critically ill because of the many treatment plants surrounding it. In an attempt to save this large lake in the middle of King County, a grassroots citizens committee formed in 1956 with the vision of creating a regional entity to manage the wastewater pollution problem for the Seattle metropolitan area. As a result of their efforts, in 1958 voters created Municipality of Metropolitan Seattle, or Metro, to develop a regional wastewater treatment system based on watersheds as opposed to political boundaries. Drivers for creating a regional wastewater system included degradation of water quality in Lake Washington and concern about the future of other water bodies in the area, such as Lake Sammamish, Duwamish River, Elliott Bay, and Puget Sound. The majority (53 percent) of the wastewater from homes connected to sewers was still discharged into water bodies without any treatment.



1958 Metro campaign poster

A comprehensive sewage and drainage survey was conducted in 1958, and the report recommended that a centralized wastewater system be adopted to realize economy of scale benefits of large treatment plants. The report noted that for this metropolitan area it was economically and operationally beneficial when sewage from the entire area can be delivered to a single point or relatively few points for treatment.

Partnership

The Metro Council adopted a comprehensive wastewater disposal and stormwater drainage plan in 1959. This became the core planning document for wastewater treatment services in the Lake Washington drainage basin, which includes most of the Seattle/King County region within the Urban Growth Area, a portion of Snohomish County, and a small portion of Pierce County. This plan, as amended and supplemented, continues to serve as King County's adopted Comprehensive Water Pollution Abatement Plan.

In 1961 Metro entered into a series of agreements with local sewer service providers to accept and treat wastewater collected in their local systems. With the startup of the South Treatment Plant in the city of Renton in 1965 and the West Point Treatment Plant in the city of Seattle in 1966, along with the construction of major trunk lines and pump stations needed to convey wastewater to these regional plants, Metro began closing the 28 small treatment plants and eliminating 46 wastewater discharge points into Lake Washington and Lake Sammamish. In 1967, when the Lake City

Treatment Plant was closed, the flow of effluent into Lake Washington ended less than nine years after Metro was created. By 1969, water quality improved dramatically. Today, Lake Washington is one of the world's cleanest urban lakes. The lake's transparency, as low as 30 inches in 1964, was 10 feet by the end of the 1960s. By 1977, Lake Washington was clearer than ever before in its recorded history.

Water quality elsewhere along the area's waterfront also improved dramatically. In 1970, after Seattle closed its Diagonal Avenue Treatment Plant and Metro completed its Elliott Bay interceptor sewer, dissolved-oxygen levels in the Duwamish Waterway estuary soared from a low of three-tenths of a milligram per liter (part per million) to more than 4 milligrams per liter. The result: A healthier environment for marine life.

King County takes over regional responsibilities

In 1994 after a special county election held November 3, 1992, King County assumed the rights, powers, functions, and obligations of Metro, including operation of Metro's water pollution abatement function. Today the county's Wastewater Treatment Division serves about 1.5 million people within a 420-square-mile service area, which includes most urban areas of King County and parts of south Snohomish County and northeast Pierce County.

Local responsibilities

The local agencies (17 cities, 16 local sewer utilities, and one Indian tribe) plan, design, construct, operate, and maintain their individual sewer systems. These sewer systems collect wastewater from residences and businesses and transport it to King County's regional system of pipelines, pump stations, tunnels and treatment plants. Two customer agencies (Lakehaven and Alderwood) also own and operate treatment plants that don't drain to King County's system. King County owns and operates four regional treatment plants, pipelines, pump stations and other related facilities. An additional regional plant (Brightwater) is presently under construction.

In a year with average rainfall, the county's entire system may treat an average of 206 million gallons per day. When the Brightwater treatment facility comes online in 2011, the system will have the capacity to treat an additional 36 million gallons per day (average wet weather flow, AWWF) initially and up to 54 million gallons (AWWF) a day in 2040. Therefore, when the Brightwater Plant reaches its ultimate capacity in 2040, the King County Regional Facilities will be treating approximately 260 million gallons per day.

State's Growth Management Act (GMA)

Although the GMA was not a factor in the formation of the regional wastewater system (because GMA wasn't in existence at that time), since its adoption in 1990, the GMA has influenced the planning efforts and decisions affecting King County's regional wastewater system. The GMA calls for counties and cities to develop plans for urban growth to occur in designated urban growth areas. Infrastructure, such as wastewater treatment facilities, must be in place to meet the projected growth of local comprehensive plans.

King County is required to ensure wastewater treatment capacity is available for the local agencies it serves in the central Puget Sound region. To fulfill its regional wastewater management function, King County must work closely and cooperatively with the local agencies within its wastewater

service area to review local comprehensive plans and verify growth and development projections and wastewater capacity needs. For example, the construction and operation of the relatively small Carnation and Vashon Island Wastewater Treatment Plants, while primarily driven by public health concerns, was influenced by GMA growth projections. Specifically the plants will allow the city of Carnation and unincorporated King County (in the case of Vashon Island) to meet projected GMA growth levels.

West Point Secondary Wastewater Treatment Plant in 2002. Photo from King County Website.

Agreements

Sewage disposal agreements between King County and each of the 34 local sewer agencies accomplish the following, which is necessary for the partnership:

- Establishes billing cycles and requires certain information to be reported by the local agencies to the county for billing purposes.
- Obligates the local sewer agencies to deliver and the county to accept all sewage for treatment and disposal.
- Specifies the responsibilities of each of the districts, including the construction, maintenance and operation of local sewerage facilities; and the wastewater treatment responsibilities of King County.
- Requires maintaining certain records.
- Provides for insurance and liability for damages.

Rates for wastewater treatment by the King County Wastewater Treatment Division charges to component agencies are uniform throughout the region. Each of the 34 partners is billed for its share of the costs (capital, operation, and maintenance), based on the number of users it serves. This, in essence, is an "equal rate system" that doesn't differentiate between partners based on the cost of service nor wastewater flows.

The local agencies report the number of "residential customer equivalents (RCEs)"[4] each quarter. The county bills the local agency based on this information[5]. The local sewer agency bills the customer for the cost of the local collection system and the county's wastewater treatment services. The capacity charge (the fee charged for new connections to the system) is also based on RCEs and also consistent throughout the region (defined in King County Code). The regional entity (King County Wastewater Treatment Division) directly bills owners of homes or businesses requiring new hookups, rather than partner agencies.

The future

King County is responsible for ensuring wastewater treatment capacity is available when needed. Because it takes approximately ten years to plan, design, and construct wastewater treatment facilities, King County projects regional wastewater needs over a 30-year planning horizon. The

[4] Often referred to as "equivalent residential units (ERUs)." A way of normalizing commercial and industrial flows for billing purposes, planning, etc. in comparison with residential flows.

county considers growth projections, information from local comprehensive plans, existing regulations and potential for changes in regulations, water conservation assumptions, data from the county's flow monitoring and facilities' inspection programs, and other issues, such as potential effects of climate change and the Puget Sound Partnership[6] actions, in its planning efforts.

The county works closely with its local partners and regional wastewater planning agencies, as well as other interested parties, such as Tribes, local elected officials, and environmental, community, and business organizations. Two examples of planning efforts include the development of the Regional Wastewater Services Plan and development of the Conveyance System Improvement Program Update.

In their own words

In support of regionalization

- The King County experience demonstrates that regionalization can be an effective way to meet large, watershed level environmental challenges – such as the cleanup of Lake Washington.
- Regionalization facilitates coordinated action from multiple jurisdictions, providing efficiencies from economies of scale and consistency of purpose and communication.
- The strength of this potential benefit depends on the situation – clearly, regionalization is likely to be more cost-effective when jurisdictions are closer together, more densely populated, and contribute to a common regional problem or issue.
- Regionalization may provide the partnership a stronger voice in state and federal affairs, helping to ensure government agencies appropriately address regional needs and circumstances.
- Adequate operational, policy, and planning expertise are helpful when addressing large watershed water quality issues.
- Economies of scale associated with large regional entities can accrue not just to the utility but also to state regulators or administrative agencies. For example, the county's large facilities result in fewer NPDES permits to write and administer than would be the case if there were many smaller treatment facilities throughout the region.

Barriers and challenges that need to be addressed with regionalization

- There is a substantial amount of effort (political will, time, and resources) to create and maintain the regional entity.
- Individual jurisdictions will often have different priorities and positions than the region as a whole.
- Some partners are reluctant to relinquish control.
- Some partners resent regional decisions or activities they believe to affect other parts of the region more than themselves
- There needs to be a strong driver for regionalization to occur, be it an environmental problem or clear cost savings.

[6] The Puget Sound Partnership is a community effort of citizens, governments, tribes, scientists and businesses working together to restore and protect Puget Sound. Created by the Legislature in 2008, the partnership is building on the efforts of past agencies.

- Capacity and effectiveness that come with large regional facilities may result in it receiving less statewide assistance or even financial support, relative to smaller individual facilities (who are in need of greater technical assistance or support).
- Communication can be a challenge, particularly after the crisis prompting regionalization is addressed.
- The commitment to regionalization needs to be long-term. Because of the high level of capital and fixed costs, it becomes very costly and problematic for individual areas or customers to leave the regional entity as it could create "stranded costs."
- Large regional facilities are not always the best approach. For example, the division operates two very small facilities in Vashon and Carnation, which are cost-effective given the location and population density of these areas.

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Yakima River Regional Partnership

Yakima County, Washington

Location and historical perspective

Yakima County in south-central Washington covers 4,296 square miles – second largest land area in Washington State. Yakima County ranks first in the United States in the number of all fruit trees. It produces more apples, mint, winter pears, and hops than any other county in the nation.

The city of Yakima is the site of the regional wastewater treatment plant for much of the area. The city serves as the county seat, and it covers nearly 17 square miles. The regional wastewater treatment plant serve the city of Yakima, the city of Union Gap, the Terrace Heights Sewer District (which lies east of Yakima), and additional customers within the Urban Growth Management Area. (UGA). The UGA is determined by counties in the state in accordance with the state Growth Management Act. The regional wastewater treatment plant provides wastewater treatment for approximately 98,000 people in the service area.

The city's wastewater treatment plant was originally constructed in 1936 as a primary treatment facility. In 1955 the city improved wastewater treatment facilities by separating industrial and domestic sewage and the associated construction of an industrial waste sprayfield. The plant was upgraded to meet secondary treatment standards in 1965 with the addition of trickling filter biological treatment. The plant has undergone numerous improvements since that time to ensure it could adequately treat the wastewater prior to discharge to the Yakima River.

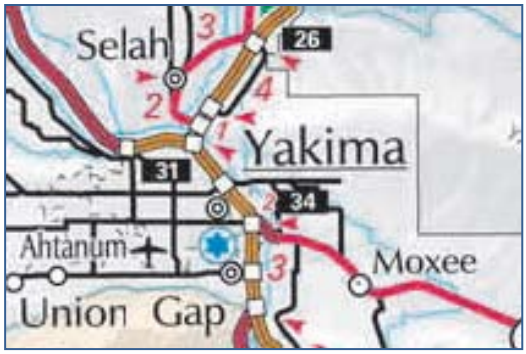
Water quality needs

The Lower Yakima River (segments downstream of the Yakima facility) is listed as water quality-impaired for dissolved oxygen. Comprehensive analyses are needed to establish the waste load allocation. In addition to direct non point sources to the river (upstream and downstream of the regional facilities, other downstream dischargers to the river include: nine municipal wastewater treatment plants, two industrial food processors, 10 agricultural return drains, and seven small tributary streams that receive agricultural runoff.

The regional wastewater facility has technology-based effluent limits in its discharge permit that limit further impairment of the Yakima River. Effluent limitations are based on the secondary treatment standards.

Rationale for regionalization

The regional partnership began in 1976 with the "4-Party Agreement" between the city of Yakima, Yakima County, city of Union Gap, and the Terrace Heights Sewer District to address water quality issues pertaining to the Water Pollution Control Act of 1972. In order for each respective entity to meet compliance and to absorb the huge cost to upgrade each of their individual facilities, all four parties decided to upgrade and expand the city of Yakima's wastewater treatment to accommodate "regional" sewage treatment. The city of Moxee also began sending its



Yakima Regional Area Map (The city of Selah (top left) opted not to join the partnership. The city of Moxee joined relatively recently in 2008. Distances in miles are shown between arrowheads.

wastewater to the Yakima Regional Facility in July 2008. The conditions of the agreement are such that it has technically expired; however, the entities are currently operating as if it is still in effect. The city of Yakima will be initiating efforts to develop a successor agreement to maintain the city of Yakima's wastewater treatment plant as a regional facility and to recognize changes in state and federal laws. The city of Selah (see map of regional area) opted not to join the partnership. The city of Selah still operates its own secondary treatment facility.

Partnership

To some degree, the partnership was merely a "union of convenience." It was accepted only because federal and state grants were available for the least costly, implementable solution. The partners share comprehensive plans and facilities plans with one another, yet they don't generally coordinate nor share a common vision.

Agreements

Nearly standard arrangements in each agreement are well established to charge each partner the proportionate share of debt service for improvements, operation, and maintenance based on flows and influent contaminant concentrations and yearly adjustments are made to charges, as needed.

In their own words

- The city of Yakima monitors its influent from partners, provides partners the opportunity to correct any violation of pretreatment standards, but there are limits to its ability to enforce limits in accordance with the partnership agreement written in the 1976.
- This agreement has expired, and the city of Yakima will work with the partners to adequately define roles and responsibilities.
- Among the provisions of the agreement that is in the best interest of all partners would be the prohibition of discharging deleterious waste into the transmission pipe to the regional wastewater treatment plant.
- In 2003, the city of Yakima was fully delegated the responsibility of a Wastewater Pretreatment Program from the Department of Ecology.

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Centralia, Chehalis and Darigold Inc.

Lewis County, Washington

Location and historical perspective

Centralia and Chehalis Washington are located four miles apart in southwestern Washington and share city boundaries. The "twin cities" are located about halfway between the Seattle, Washington and Portland, Oregon.

Centralia (current population 15,540) was founded by George Washington, an African American who came west in 1850 to escape discrimination. Washington first settled in Oregon Territory, but was barred from owning land there, so he moved north and eventually obtained a land claim at the junction of the Skookumchuck and Chehalis Rivers. When the Northern Pacific Railroad built a line through the area in 1872, Washington recognized the opportunity to start a town. The town he platted over 125 years ago has grown, and is now the largest city in Lewis County, Washington.

Although neither city escaped the downturn in the timber and related industries, in recent years Centralia has become known for its many retail and discount stores, and it has become somewhat of a popular place to purchase antique items. All the stores together employ several hundred people.

Chehalis (population 7,215), the seat of Lewis County, grew out of a claim settled in 1850 by the Saunders family near the confluence of the Newaukum and Chehalis Rivers. Known then as Saunders' Bottom because of its marshy ground, Chehalis gained footing as a town when the Northern Pacific Railroad established a depot there in 1873. Chehalis is the home of a Darigold Inc. milk processing plant.

The Centralia and Chehalis area showing Napavine south-southeast of Chehalis. Distances in miles are shown between arrows.

The Chehalis Darigold plant was built more than 75 years ago and has approximately 40 employees working in the production and bagging facility. Chehalis is a balancing plant that receives excess fluid milk from other plants and dries it into powdered milk products that are shipped worldwide.

For thousands of years, people in this region have relied on the natural resources of the area–water, fish, timber, coal, and a fertile, level valley well suited to agriculture. Over the years, local residents have built their cities with a varied economy – relying on logging, mining, farming, small industries, and retail businesses.

Water quality needs

In the early 1990s the Chehalis River was found to be significantly affected due to oxygen demanding pollutants discharged by sewage treatment plants and nonpoint sources of pollution along the river. One slow moving stretch between Chehalis and Centralia called the Centralia Reach was especially susceptible to pollution. A water cleanup plan (often referred to as a Total Maximum Daily Load or TMDL) was developed which, as required, looked at both point and nonpoint sources of water pollution and their contributions to the water quality problem. This "Chehalis River Dissolved Oxygen TMDL" was published in 1996. The plan demonstrated that the assimilative capacity of the river was being used up primarily by contributions from nonpoint sources of pollution and background conditions, such as leaf litter and natural erosion. However, load allocations for nonpoint source pollution were based on *enforceable* "best management practices."

The waste load allocations required the point source dischargers to meet seasonal low flow discharge levels. By 2000, the cities of Centralia and Chehalis, and Darigold Inc., dischargers to the Centralia Reach, were parties to an agreed order with Ecology to remove their discharges from this stretch and thereby restore the ability of this river to support beneficial uses such as fishing and swimming. These actions, together with a number of nonpoint initiatives have greatly improved water quality in the river, and the condition of the river continues to improve as further nonpoint actions continue to bear fruit.

Regionalization at Chehalis (Napavine and Lewis County Sewer District #1)

Chehalis has provided regional wastewater services to the city of Napavine (population 1,610) and Lewis County Sewer District #1 (population 792) since 1976. The partnership agreement was last updated in 1994. The agreement provides for sharing of capital costs according to each community's share of ownership in the infrastructure's capacity and sharing operational costs according to the actual wastewater flow each community discharges.

Rationale for regionalization and ultimately, decentralization

The proximity of Centralia, Chehalis, and Darigold, combined with their common needs to meet stringent water quality standards, provided the rationale for serious consideration of regionalization. The 1970s partnership between Chehalis, Napavine, and Lewis County Sewer District #1 was formed when the EPA and Ecology offered high percentage *grants* for cost-effective wastewater treatment facilities that would solve water quality problems. Since the early 1990s, Ecology's financial assistance has been primarily in the form of *loans (*with the provision of "hardship grants"), and EPA is essentially out of the business of issuing grants for wastewater treatment plants.

As part of a more recent (1990s) process to identify and evaluate alternatives, the cities of Centralia and Chehalis and Darigold, Inc. studied the potential of building one regional wastewater treatment facility. Although a group of local citizens in both communities supported regionalization, engineering reports and studies prepared by the communities in 1995, 1999, and 2004 consistently determined that a regional alternative would be more expensive than separate treatment plants in each community. However, the latter two studies also concluded that the difference in cost would be within 15 percent.

The cost difference between the alternatives appeared to be within the margin of error for planning level estimates. However, many other unanswered questions and limitations to regionalization made the "two-plant option" the preferred alternative. In no particular order, these included:

- Historically each city has provided wastewater treatment independently. A relatively large cost savings would have been necessary to convince the potential partners to change existing ways of doing business.
- Although separate police, fire, and governmental services serve each community, the communities have developed several inter-local agreements to enhance and protect the services provided to each community.
- There was a difference of opinion between the communities. Each community questioned the objectivity of the other's planning efforts and raised numerous concerns about the fairness of any partnership agreement. Because of the ages, condition and distance between the communities' existing infrastructure, a fair cost distribution system (acceptable to both parties) would have been challenging to negotiate and put in place.
- Reclaimed water was evaluated as an option in the regional plant. Both communities cited the reclaimed water rules as barriers (water rights impairment and ownership of the reclaimed water by the producer).
- There were technical questions about the location, availability of land, and wastewater treatment technology.
- There were many unanswered questions about how the partners would operate a joint facility.
- There was limited support of the local public and that of elected (and appointed) officials.
- Lewis County officials apparently didn't wholeheartedly support the regionalization project.
- The TMDL created pressure to implement water quality solutions sooner rather than later. Because of the need to negotiate a partnership agreement, a regional solution would have taken about a year longer to implement.

Ultimately, the city of Centralia and the Chehalis/Napavine/Lewis County Sewer District #1 Partnership constructed their own new separate wastewater treatment plants in 2004 and 2007. Chehalis opted to become a Class A Water Reclamation Facility and irrigates hybrid poplar trees when river flows in the Centralia Reach section of the Chehalis River are less than 1,000 CFS (generally between May and October). In accordance with a Consent Decree issued in 2000, Centralia moved its outfall below the segment of the river with critically low dissolved oxygen.

In their own words

From Centralia:

- The state's Growth Management Act limits Centralia to providing sewer service within the city limits and the city's designated urban growth area (UGA) unless Lewis County chooses to declare a health emergency to allow services outside the UGA. This prohibition on providing sewer service to areas outside the UGA limits the positive environmental effects of providing centralized, regulated facilities for treating wastewater. One example is aquifer protection. There are areas outside the UGA that could be served with sanitary sewer while maintaining rural character that would have a positive environmental effect. Current GMA prohibitions on sewer service outside a city's UGA prevent this positive environmental effect.

- The state should review projects for financial impact on limited grant/loan funds and tell communities that if they want state funding assistance they need to choose the most cost-effective solutions (even if that means cooperation on regional facilities).

From Chehalis:

- It would be helpful that if one were considering regionalization, templates for planning purposes were available. (These might include): Spreadsheets to help calculate cost benefits, sample partnership agreements, public information, brochures for the public and elected officials about the pros and cons of regionalization and decentralization.

- It isn't Ecology's role to force regionalization. It should be driven at the local level.

- Contrary to the regionalization effort, there is a lot of buzz in the trade journals about the benefits of decentralizing some of the regional wastewater treatment plants.

- If regionalization is a state preference, substantially elevated levels of grant funding need to be provided to make it cost effective for all of the proposed regional partners.

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Raymond and South Bend, Washington

Pacific County

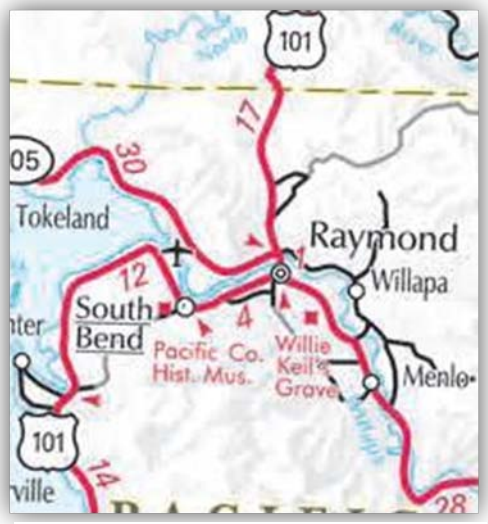
Putting aside past rivalries and mistrust, the cities of Raymond and South Bend, Washington have, in recent years, developed similar visions and specifically embraced the efficiencies of building a regional wastewater treatment plant to serve both cities.

Location and historical perspective

Raymond and South Bend, Washington are three miles apart (center to center) and lie near the mouth of the Willapa River on the Pacific Coast Highway (U.S.101) in the southwest corner of the state. City limits are adjacent and Raymond's population is approximately 3,000 with 1,770 people residing in South Bend.

In the early 20th century, Raymond had a population of 6,000 and had a reputation as a wild and woolly lumber mill town. Raymond's most active years were from 1912 to 1932, when 20 mills and factories lined the river bank. Raymond was largely supported by the logging industry, which has declined in recent years. Today, a single high-technology sawmill owned by Weyerhaeuser, Inc. dominates the Raymond waterfront.

South Bend is the Pacific County Seat and is supported, to a large extent, by three seafood packing plants. Both cities have large numbers of county workers in their populations.



The Raymond - South Bend area. Both cities are near Willapa Bay to the Pacific Ocean. Distances in miles are shown between arrowheads.

Water quality needs

The Willapa Bay estuary is extremely productive and its water quality has allowed for largely unrestricted shellfish harvesting.

In the 1960s and early 70s both cities constructed separate unlined sewage treatment ponds. In the 1980s, with the assistance of Ecology grants and Environmental Protection Agency (EPA) federal construction grant funds, the ponds were upgraded to be multi-celled, and both cities' ponds were aerated to increase their effectiveness. Small cities throughout Washington, and indeed most of the United States, use similar low-capital cost, low-maintenance technology to treat their wastewater.

However, both cities will soon be required to meet new water quality-based permit limits as a result of the recently-completed *Lower Willapa River Dissolved Oxygen Total Maximum Daily Load (TMDL) Study*. The TMDL concluded that continued use of the South Bend ponds for sewage treatment threatens the shellfish industry. The existing wastewater treatment ponds cannot meet these limits.

Catalysts and early efforts toward regionalization

- Major upgrades to the wastewater facilities were overdue and joint planning was initiated in the late 1990s.
- The preferred alternative in the 2007 Regional General Sewer Plan/Wastewater Facilities Plan was a new regional facility to replace the two cities' respective outdated lagoon systems.
- Regionalized facilities were the least costly alternative by approximately $2 million on a "Net Present Worth[7]" basis.
- An independent "value analysis" study also endorsed the regional concept as the most cost-effective and reliable means of meeting current and future wastewater treatment effluent limits set by Ecology and EPA.
- Ecology included the requirement in the latest update of its NPDES permit that cities consider regionalization.

South Bend's current wastewater stabilization ponds (center of picture – across the river) lie in an area that is inaccessible during high tide. They will be decommissioned for sewage treatment when the regional facility is complete. *Ecology photo*

- The cities received a substantial amount of technical assistance from the Ecology's technical and financial staffs and staff from the state department of Commerce's "Small Community Initiative," which is supported by Ecology.

School districts lead the way

Leading the joint effort are Mayors Bob Jungar of Raymond and Karl Heinicke of South Bend, (both retired high school teachers) who both speak of times when there was uneasiness between the two cities. The first thing to happen to change the feeling of mistrust was about ten years ago when the three local school districts (Raymond, South Bend, and the "Valley District" at the community of Menlo (see map) pooled the expertise of teachers and curriculum by bussing students to and from the three high schools. The high schools have saved money, increased student performance, and drawn the communities closer together. Even though the schools remain arch rivals at athletic events, students have come to know each other, and, like the mayors, became good friends.

According to the mayors older people are virtually the only folks in the communities that still harbor ill feelings from decades ago. Uneasiness that once existed has largely defused, but there is still considerable individual city pride.

The drinking water systems for Raymond, South Bend, and Menlo are intertied. Drinking water supplied to each community is measured, so each community pays its fair portion of the cost.

[7] "Net Present Worth" is the total value (or cost) of a project over time, expressed in present value terms. It is a standard method for using the time value of money to appraise long-term projects. For capital projects it typically considers both the cost of construction and the cost to operate and maintain a facility for 20 years. The value includes a long-term average inflation factor.

However, the intertie increases reliability, makes system maintenance easier, and has fostered cooperation between the community's public works staffs.

The Partnership and agreement

Building on past successes, citizens from both cities began meeting regularly to attempt to formalize a partnership agreement. The structure a for regional wastewater partnership evolved during the two year period between 2006 and 2008 when representatives of both cities met twice a month for two to three hour meetings. They used agreements from the LOTT partnership (in and around Olympia, Washington) and the Seaview–Ilwaco draft agreement as models. These representatives worked out the *Intergovernmental Contract for Wastewater Services* signed by both mayors on May 31, 2008. This contract at: http://www.ecy.wa.gov/programs/wq/funding/funding.html formally:

- Instituted a "Regional Wastewater Coordinating Committee (RWCC)" of six people (three from each city) and a nonvoting "Administrative Manager." The committee chair and other officers are to be from the six voting members.
- Named Raymond as the "Lead City."
- Established the duties for the manager and RWCC.
- Accepted the recommended alternative of the facilities plan (regionalized activated sludge plant in Raymond).
- Structured the design and construction phases.
- Provided for accounts and debt service procedures.
- Proportioned the costs and ownership (each city owns a clear right to system capacity with South Bend having 31.3 percent and Raymond having 68.7 percent).
- Specified that the collection systems are under the individual ownership of each city.
- Established responsibilities for making payments.
- Provided for operation and maintenance.
- Assigned responsibilities for future expansion of facilities.
- Determined the proportional share of capital facilities and on-going rates (based on the strength and quantity of influent from each partner to the regional wastewater treatment plant).
- Provided a detailed process for dispute resolution.

The agreement development committee, which became recognized as the RWCC, doesn't always have the same opinion. However, it isn't a contentious group and members work toward consensus. Several members of the committee were engineers or had experience operating wastewater treatment facilities. The committee also used the expertise of four different lawyers, one of whom had helped with the very complex Lacey, Olympia, Tumwater, Thurston County, WA (LOTT) sewer partnership.

Current mayors Bob Jungar (left) and Karl Heinicke (right) do what past mayors could not: work together toward a common goal. *Small Communities Initiative photo*

The "regional facility" proposed

The project underway now is a joint effort by the cities of South Bend and Raymond to design, acquire construction funding, and build a regional wastewater

treatment facility to serve both sewer service areas. The proposed facilities will consist of a new mechanical activated sludge plant at the site of the existing Raymond lagoons.

Other key elements of the project include:

- A new wastewater transmission pipeline from South Bend to convey wastewater to the new regional plant. The aging and temporarily fixed pressure main under the Willapa River that brings raw sewage from South Bend to its current lagoon system will be capped off.
- Upgrades to both cities' pump stations.
- A new outfall in the Willapa River.
- South Bend's lagoon facility will be decommissioned as a sewage treatment facility.

The new regional plant will provide far greater pollutant removal than either of the existing lagoon systems can, and it will eliminate chlorination by-products from the waste stream by replacing the chlorination process with ultraviolet radiation disinfection in the new regional plant**.**

Facilities costs

- The estimated total construction cost of the regional facility is $30 million.
- The proposed funding strategy includes a significant amount of state and federal grants and loans.
- Even with the most optimistic funding scenario, debt service on the portion of the project funded by low interest loans proposed, operation and maintenance of the plant, and an adequate reserve fund for repair and replacement of plant equipment will result in user charges of at least $90 per month.
- Both mayors see this figure as the upper end of what can be reasonably expected of their citizens.
- Grant levels assumed in the cost analysis were very optimistic and were developed prior to the economic downturn of 2008/2009.

However, the city of South Bend agreed to be responsible for paying the $2.5 million for the pressure transmission pipe between the South Bend collection system and the regional facility (adjacent to the Raymond wastewater treatment plant). This sewer is designed and South Bend will receive American Recovery and Reinvestment Act (ARRA) funds for construction of the pipe and pump station in 2009. Because the original agreement called for a 50/50 percent split of the cost of the transmission pipe, Raymond will, in turn, provide the land for the regional facility at no cost to South Bend.

In their own words

- Cities or partnerships must take the lead. If their consulting engineer appears to be a challenge or barrier, ask for another staff engineer; and if that doesn't produce results quickly, change firms.
- We really could not be where we are today without the help of Cathi Read of the Washington State Department of Commerce, Small Communities Initiative.
- Use other intergovernmental agreements as guides.
- Understand that the formal development of a partnership is a complex undertaking.
- Use citizens' expertise in engineering, legal, and capital finance issues.

Local contacts

Bob Jungar, Mayor of Raymond, 360-942-4100
Karl Heinicke, Mayor of South Bend, 360-875-5571

Snohomish, Washington
Snohomish County

Location and historical perspective
One of the first inland communities in the Puget Sound Region, Snohomish (current population, 9,020) was founded in 1859 at the ferry crossing of the Snohomish River for the military road between Fort Steilacoom and Fort Bellingham. The town-site quickly grew as a center of transportation and commerce and for 30 years was the county seat of Snohomish County. The city was connected to Puget Sound by the Snohomish River, first by canoe and then by steamship. Early employers included sawmills, which produced lumber from the cedar trees native to the area; and agricultural processing and distribution industries.

Existing wastewater facilities
The city of Snohomish currently has a wastewater treatment plant with a 2.8 million gallon per day (MGD) maximum monthly plant capacity. The original city of Snohomish wastewater treatment facility was a 40-acre wastewater stabilization lagoon system constructed in 1958. As part of an upgrade in 1995, 10 acres of the site were improved to provide more effective treatment. The remaining 30-acreas of the old lagoon haven't been used since the 1995 upgrade.

The city of Snohomish currently has combined (sanitary and storm) sewers in the older portion of the city serving an area of about 325 acres. The city's sewage sytem includes approximately 40,000 linear feet of combined sewers installed before 1950, and 130,000 feet of separated sewers installed since then. The flows from the combined sewer system often result in combined sewer overflows (CSOs) to the Snohomish River at two locations. There were in excess of 100 overflows of untreated combined sewage in 2003. Ecology regulations require cities to limit CSO discharges to no more than one event per year. The city has submitted a design to Ecology to impliment the projects outlined in the city's 2005 CSO Reduction Plan Update.

The Snohomish, WA area. The city is bordered on its southwest by the *Snohomish River. The Everett area is about five miles northwest. Distances in miles are shown between arrowheads.*

Water quality needs
Ecology's 1999 study of dissolved oxygen in the Snohomish River led to new standards for discharge to the Snohomish River that the plant cannot meet without a major upgrade. The upgrade would involve construction of an advanced treatment facility for removal of ammonia nitrogen and further reduction of organic waste. The area around the discharge is protected as a Class A river segment for swimming, fishing, spawning, and other needs demanding high water quality. In 2003 the Puget Soundkeeper Alliance sued the city in district court for failure to comply with the permit. The consent order from that lawsuit and the city's 2006 NPDES permit required final compliance

with the permit in 2008. The city and the Soundkeepers have since renegotiated the final compliance date to 2013. The city is now reevaluating a regional alternative with Everett to achieve compliance.

Rationale for regionalization or decentralization

In a revised 2008 facility plan, the city estimated the cost for upgrades at the wastewater treatment plant site to be $38 million. Latest estimates to convey the sewage to Everett and provide the "buy-in" fee to Everett are $33 million. Because of the $5 million cost differential, the city has begun evaluating the possibilities for regionalization. However, this differential is well within preliminary planning accuracies; so Snohomish will still evaluate decentralized treatment alternatives.

"A larger regional facility would have broader ratepayer support to meet future standards in a way that may have a more moderate impact on rate changes."

Before designing for a regional alternative, the city must prepare a more detailed look at the cost effectiveness of both alternatives. Ecology approval of a facilities plan and extensive environmental review of the selected alternative must be completed.

Partnership and agreements

The city of Everett would be the senior partner in this regional arrangement providing wastewater treatment services for Snohomish. Although a formal agreement hasn't been negotiated, informal meetings have been held between the two communities. Everett has extensive experience managing regional wastewater systems, and currently provides wastewater treatment services to parts of the city of Mukilteo, the communities of Alderwood and Silver Lake. The city of Everett, in partnership with Kimberly Clark Corporation also provides its deep water outfall in Puget Sound for adequately treated wastewater from the city of Marysville.

Continued challenges

The city of Snohomish faces several wastewater related challenges, including, but not limited to:

- Compliance deadlines.
- Additional costs among residents for either the regionalization or decentralization options.
- Approval of facilities plan addendum and complete design.
- Negotiation of an interlocal agreement with Everett if regionalization is the selected alternative.
- Additional work required to reduce CSO events to one discharge per year.

In their own words

- As a relatively small city with approximately 3,500 ratepayers, the future prospects of managing to meet increasingly stringent standards for discharge have focused our planning on the advantages of becoming part of a larger regional facility such as broader ratepayer support.
- The state of Washington should encourage and support regionalization through its statutes and regulations. But as important, or more importantly, it should develop funding programs and prioritizations through the department of Ecology to finance regional solutions for small jurisdictions, especially those under 20,000 in population.

Local contact

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Wenatchee River Regionalization Study Area
Chelan County, Washington

Location and historical perspective

The area of the regionalization project under consideration is between the principal cities of Leavenworth, Washington and the city of Cashmere, Washington (see map). The area also includes the small unincorporated communities of Peshastin (population 325) and Dryden (population 110), which are near the junction of US 97 and US 2. Leavenworth (population 2,225) will likely not participate in the regional alternative for cost reasons discussed in the section, *Rationale for regionalization*…(below).

Cashmere, incorporated in 1904, is approximately 10 miles west of Wenatchee, straddling the Wenatchee River. Cashmere (population: 2,990) serves as a residential "bedroom" community for the greater Wenatchee area. It is also a commercial and industrial center with many fruit related industries. These include Tree Top, Inc., Crunch Pak fruit processing facilities, two fruit-packing facilities, and Liberty Orchards, a candy maker. Recently, the local Tree Top plant closed, and faces, at best, an indefinite future. Cashmere lies downstream of the other communities on the Wenatchee River, which flows into the Columbia River at Wenatchee, Washington.

Leavenworth, approximately 12 miles northwest of Cashmere and upstream on the Wenatchee River, saw tremendous growth in the 1800s as gold was discovered in the surrounding area and the city had a once thriving sawmill. The city was incorporated in 1906. The sawmill and logging industry eventually fell apart when the Great Northern Railway Company pulled out of Leavenworth. With the re-routing of the railroad and the subsequent closure of the sawmill, city officials saw tourism as a way to save the community. They converted what had been nearly a ghost town into one with a Bavarian village look to it, and about two million tourists visit the city every year.

The Wenatchee River Regionalization Study Area. Distances in miles are shown between arrowheads.

Water quality needs

Ecology is presently completing the Wenatchee River total daily maximum load (TMDL) water quality clean up study. The agency is also working to complete a "detailed implementation plan" to restore the dissolved oxygen levels to the river and thereby restore the ability of the river to more fully support beneficial uses such as fishing and swimming. In accordance with the these two studies, all of the communities along the Wenatchee River will likely be required to substantially upgrade their existing secondary treatment plants. The communities will need to remove phosphorus from wastewater effluent discharged to the Wenatchee River. Potential treatment processes for phosphorus removal include membrane filtration or multi-stage effluent filtration preceded by secondary sedimentation and chemical (flocculent) addition.

Rationale for regionalization and decentralization of Leavenworth

To address these substantially more stringent requirements, the Wenatchee Regulatory Strategy Group (WRSG) was formed. The WRSG is made up of representatives from Cashmere, Dryden, Peshastin and Leavenworth; the Chelan County Public Utility District, which operates wastewater treatment facilities for Peshastin and Dryden; Chelan County; the city of Wenatchee; and Ecology. The WRSG commissioned the *Wenatchee River Regionalization Study*.

This study identified all wastewater treatment facilities and examined potential upgrade alternatives that would be needed for the various regionalization or decentralization alternatives. The WRSG provided a final version of the study to Ecology in January 2009. The study concluded:

- The apparent least expensive alternative (at $34.3 million) is to regionalize treatment for Dryden, Peshastin, and Cashmere with a substantial upgrade of wastewater treatment facilities at Cashmere and upgrade the Leavenworth wastewater treatment plant at its present site.
- The next least costly option (at about $5 million more – total cost, about $39.9 million) was to upgrade the facilities at Dryden and Peshastin together, and upgrade the Leavenworth and Cashmere facilities independently and separately.
- The most expensive alternative (by about $32 million– total cost, about $72 million) was complete regionalization of all four (4) facilities at the downstream Cashmere site.

Among the reasons why the complete regionalization was so much more expensive were:

- The Leavenworth treatment facility is extremely adaptable. The upgrade cost to provide phosphorus removal at the treatment plant site is about $4.3 million.
- The relatively long length of pipeline infrastructure to transfer Leavenworth's wastewater to Cashmere.
- Even though the topography shows that it generally downhill from Leavenworth to Cashmere, pipe must be aligned in such a way that it needs to be pressurized and pumped over several small ridges.

The study only evaluated potential alternatives for continued discharge to the Wenatchee River while meeting the load allocations set forth in the TMDL. Each local government may identify and evaluate additional alternatives to meeting load allocations in its respective wastewater facilities plans to be prepared soon.

Partnership and agreements

The potential partnership is in its infancy. Because further work needs to be done to verify and refine the costs and fully evaluate the alternatives, final decisions regarding a preferred alternative haven't been made.

In their own words

- A regional plant sited in Cashmere to treat Cashmere, Dryden and Peshastin wastewater may be feasible (based on the study) compared to the costs for each of these entities to remove phosphorus on their own and continue discharging to the Wenatchee River.
- However, additional study and evaluation of alternatives would be necessary to evaluate the true feasibility of this alternative.
- The regional alternatives evaluated in the study would include several miles of wastewater transmission piping located in unincorporated Chelan County. Service could not be provided to

these properties (because the Growth Management Act prohibits such connections). If service could be provided, and the number of service connections increased, the feasibility of the project would likely improve.

Local contacts

Ron Slabaugh, Water Resources Manager
Chelan Public Utilities District
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Bob Schmidt, Director of Operations
City of Cashmere
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Dave Schettler, Public Works Director
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Chapter 7
Conclusions

Providing regional wastewater services and managing regional partnerships is an enormous topic. This report can really only serve as a broad overview or introduction to the topic. Some broad conclusions can be drawn, based partially on the case studies presented in chapter 6 of this report. These conclusions are also based on numerous contacts with elected and appointed officials of communities that have experience with regional facilities. And lastly, they are based on decades of professional experience gained by Ecology through NPDES (National Pollutant Discharge Elimination System) and state wastewater discharge permitting processes and the administration and management of water quality focused state and federal grant and loan programs.

Conclusion 1: Wastewater regionalization is broadly accepted and can be seen throughout the state. Regional facilities can be found in large and small communities, east and west of the cascades, and in both urban and rural settings. Approximately 200 local governments have entered wastewater regionalization partnerships. These partnerships have been the recipient of over one billion dollars in state financial support from the Ecology's Water Quality Program and the Department of Commerce over the past 25 years.

Conclusion 2: The economic and environmental benefits of implementing wastewater regionalization are real. One of the reasons regionalization is so widespread is that both regulatory agencies and local governments recognize the potential cost savings for construction and operation of regional facilities. Regional facilities have delivered improved environmental outcomes through fewer discharges and improved reliability for the treatment process.

Conclusion 3: The state has a role to support and encourage wastewater regionalization. State agencies can do this by identifying areas of the state where regionalization appears to be a viable option and encouraging local governments to evaluate regionalization as an alternative. State provided technical assistance to these local governments will help them overcome barriers to regionalization, although current resources are limited. Statutory language requiring consideration of regional solutions during wastewater planning would help ensure that all regional opportunities are fully explored.

Conclusion 4: State funding agencies have a role in supporting regionalization by providing funding priority to regional solutions that show cost effectiveness and deliver environmental results.

The future of regionalization?

Because the choice between a regionalized or a decentralized solution depends so heavily on site specific factors, no broad conclusion can be made about what the future holds. However, some general trends that will affect regionalization can be observed, and Chapter 4, Regionalization vs. Decentralization Approaches, details these observations.

The causes include, but are not limited to:

1. The Growth Management Act (GMA): this has played a significant role in urbanizing the state's population.
2. Water quality requirements: these will change as loading increases.
3. Wastewater treatment technology: it continues to improve.
4. Global energy supply and climate change: these both likely will affect the affordability of wastewater treatment.

Appendix A. Key Elements of Partnership Agreements

As potential wastewater regionalization partners begin the process of developing partnership agreements, they may be unsure of what elements should be included in the partnership agreement. Whereas the specific provisions often vary and the order and complexity will change with individual circumstances, (see examples at: http://www.ecy.wa.gov/programs/wq/funding/funding.html). The following elements should be included in partnership agreements:

Date – *Usually underscore to be handwritten on the date of signature*

Parties to the agreement – *Listing all partners*

Rationale for agreement – *For example,*
- *(Cite Partnership RCW*
- *The (partners) desire more reliable wastewater treatment*
- *The (partners) must all comply with National Pollutant Discharge Elimination System Waste Discharge Permit WA0012345*

Purpose of agreement

Definition of terms

Scope of agreement
- *Sewers (Where)*
- *Interceptors(Where)*
- *Wastewater treatment plant (Where)*

Organization of partnership
- *Board*
- *Administrator*
- *Meetings and quorums*
- *Sharing technical requirements and reports*
- *Decision making*
- *Voting*
- *Conflict resolution*

Planning, design and construction of regional facilities
- *Regional facilities*
- *Associated local facilities*
- *Change orders*

Financing

- *Bonding*
- *Applying for state and federal grants and loans*
- *Cost sharing (for example, actual wasteload or volume)*
- *Share of cost for debt service and operation and maintenance*
- *Maintaining records*
- *Payment covenant(s)*
- *Established billing cycles*
- *Rates for wastewater treatment*
- *Uniform rates or rates directed at the actual cost of serve specific areas8*
- *Basis of billing*
- *"Equivalent Residential Units"9*

Operation and maintenance

- *Regional wastewater treatment plant*
- *Associated local facilities (sewers and interceptors)*
- *Insurance of regional facilities*
- *Insurance of local facilities*
- *Partners responsibility for preventing deleterious wastes from local facilities entering regional facilities*
- *Partners must meet standards identified in the agreement or required by regulations and permit*
  - *(Standards listed)*
  -
  -

Construction of future facilities

Ownership of regional and local facilities

Ownership of capacity of regional facilities

Audits

Disputes

Contractual matters

- *Amendments*
- *Notices and agreements*
- *Severability*

Signatures

[8] Rates for wastewater treatment by one major partnership charges to component agencies are uniform throughout the region. This approach may or may not suit other regionalization partnerships.

[9] "Equivalent residential units or (ERUs)." A way of normalizing commercial and industrial flows for billing purposes, planning, etc. in comparison with residential flows.

Appendix B. Existing Regionalized Wastewater Treatment Facilities[10,11]

Regional Wastewater Facility (Permittee)	Regional Wastewater Contributors
Ecology's Central Region	
Chelan, City of	Lake Chelan Reclamation District Lake Chelan Sewer District
Cle Elum, City of	Roslyn, City of Ronald, City of South Cle Elum, City of Suncadia, Private Recreational Community of
Yakima, City of	Union Gap, City of Terrace Heights Sewer District Moxee, City of Yakima County (portions)
Bingen, City of	White Salmon, City of
Cowiche Sewer District	Tieton, City of
Ecology's Eastern Region	
Clarkston, City of	Asotin County (portions)
Ione, City of	Chippewa Water and Sewer District
Loon Lake Sewer District	Deer Lake Sewer District
Newport, City of	West Bonner Sewer District Old Town, Idaho
Spokane, City of	Airway Heights, City of Fairchild Air Force Base Millwood, City of Spokane Valley, City of Spokane County (portions)
Stevens County PUD	Addy, Community of Blue Creek, Community of

[10] As all appendices were developed, staff used multiple databases and other information. Staff strived for accuracy, but information is changeable, so they are works in progress.

[11] Both Ecology and Commerce consider wastewater projects conducted by regional partners to be regionalization projects. For example, a project to remove extraneous stormwater or groundwater from a partner's sewer, may in fact, increase the efficiency and extend useful life of the regional wastewater treatment plant, so the entire partnership benefits.

Regional Wastewater Facility (Permittee)	Regional Wastewater Contributors
	Waitts Lake, Community of
Ecology's Northwest Region	
Alderwood Water and Wastewater District	Picnic Point, Community of King County (North Creek) King County (Swamp Creek)
Bellingham, City of	Whatcom Water & Sewer District #10
Bremerton, City of	Kitsap County Sewer District #1 Puget Sound Naval Shipyard
Burlington, City of	Samish Water District (Whatcom WD #12) Port of Skagit County Bayview Hills Area Community of
Edmonds, City of	Mountlake Terrace, City of Lynnwood, City of (portions) King County (portions) Ronald Wastewater District (portions) Olympic View Water and Sewer District Town of Woodway Shoreline , City of (portions) WA State Department of Transportation ferry wastewater effluent
Everett, City of	Mukilteo Water District Silver Lake Water District Alderwood Water and Sewer District (portions)
Everson, City of	Nooksack, City of
Friday Harbor, City of	State department of Transportation ferry wastewater effluent
Gig Harbor, City of	Wollochet Bay Sewer District

Regional Wastewater Facility (Permittee)	Regional Wastewater Contributors
King County Department of Natural Resources and Parks – Wastewater Treatment Division Flows to either: Renton Wastewater Treatment Plant West Point Wastewater Treatment Plant	Alderwood Water & Wastewater District (portions) Algona, City of Auburn, City of Bellevue, City of Black Diamond, City of Bothell, City of Brier, City of Cedar River Water & Sewer District Coal Creek Utility District Cross Valley Water District Highlands Sewer District Issaquah, City of Kent, City of Kirkland, City of Lake Forest Park, City of Lakehaven Utility District Mercer Island, City of Muckleshoot Indian tribe Redmond, City of Seattle, City of Woodinville Water District Alderwood Water and Wastewater District Northeast Sammamish Sewer and Water District Northshore Utility District Olympic View Water & Sewer District Pacific, City of Renton, City of Ronald Wastewater District Sammamish Plateau Water & Sewer District Skyway Water & Sewer District Soos Creek Water & Sewer District Tukwila, City of Valley View Sewer District Woodinville Water District

Regional Wastewater Facility (Permittee)	Regional Wastewater Contributors
King County Department of Natural Resources and Parks – Wastewater Treatment Division Carnation Wastewater Treatment Plant	Carnation, City of
King County Department of Natural Resources and Parks – Wastewater Treatment Division Vashon Wastewater Treatment Plant	Vashon Sewer District (owns and operates entire collections system)
King County Department of Natural Resources and Parks – Wastewater Treatment Division Beulah Park and Cove Treatment Facility Treatment Plant	Beulah Park and Cove Communities (O&M by Vashon Sewer District)
Kitsap County Department of Public Works – Manchester Wastewater Treatment Plant	Manchester (Naval) Fuel Depot (includes graywater from ships)
Kitsap County Department of Public Works – Central Kitsap	Poulsbo Silverdale and Keyport Naval Base Kitsap (NBK) Naval Undersea Warfare Center at Keyport
Kitsap County Sewer District #7	Fort Warden Military Base Bainbridge Island, City of (portions) Lynnwood Center Area Connections
La Conner, City of	Swinomish Indian Reservation
Lake Stevens Sewer District	Lake Stevens, City of
Lakehaven Utility District – Lakota Wastewater Treatment Plant	Federal Way, City of (portions) Auburn, City of (portions) Des Moines, City of (portions) Pacific, City of (portions) Tacoma, City of (portions) Milton, City of (portions) King County – unincorporated (portions)
Lakehaven Utility District – Redondo Wastewater Treatment Plant	Federal Way, City of (portions) Auburn, City of (portions) Des Moines, City of (portions)

Regional Wastewater Facility (Permittee)	Regional Wastewater Contributors
	Pacific, City of (portions) Tacoma (portions) Milton, City of (portions) King County - unincorporated (portions)
Lynnwood, City of	Edmonds, City of (portions)
Midway Sewer District	Des Moines, City of (portions) Sea Tac, City of (portions) Burien, City of (portions) Federal Way, City of (portions) Kent, City of (portions) Normandy Park, City of (portions) King County – unincorporated (portions)
Olympus Terrace Sewer District	Everett, City of (portions) Mukilteo, City of (portions) Snohomish County Airport
Southwest Suburban Sewer District – Miller Creek Wastewater Treatment Plant	Des Moines, City of (portions) Burien, City of (portions) Normandy Park, City of (portions) King County – unincorporated (portions) Sea Tac, City of (portions) White Center, Community of
Southwest Suburban Sewer District – Salmon Creek Wastewater	Des Moines, City of (portions) Burien, City of (portions) Normandy Park, City of (portions) King County- unincorporated (portions) Sea Tac, City of (portions) White Center, City of

Ecology's Southwest Region	
Aberdeen, City of	Cosmopolis, City of
Chehalis, City of	Napavine, City of Lewis County #3 Sewer District
Clark County Salmon Creek Wastewater Plant	Hazel Dell, City of Battle Ground, City of Meadow Glade, Community of Hochison, Community of Vancouver, City of
Ilwaco, City of	Seaview, Community of
LOTT wastewater Alliance	Olympia, City of Lacey, City of Tumwater, City of Thurston County (portions)
Pierce County Chambers Creek Plant	Lakewood, City of Steilacoom, City of University Place, City of DuPont, City of Tacoma, City of (portions) Unincorporated: Fredrickson, Spanaway, Parkland, Midland, and South Hill
Sumner, City of	Bonney Lake, City of
Tacoma, City of Plant #1	Pierce County (portions) Fife, City of Fircrest, City of Lake Haven Utility District (portions) Milton, City
Tacoma, City of (Plant #3)	Ruston, City of
Three Rivers Regional Wastewater Authority	Beacon Hill Sewer District Longview, City of Kelso, City of Cowlitz County (portions)
Vancouver, City of Westside Plant	Hazel Dell, City of Hazel Dell Sewer District Vancouver Marine Park

Appendix C. State Department of Ecology Centennial Clean Water Fund Grants to Regionalized Local Governments, State Fiscal Years (SFY) 1989 - 2010[12][13]

SFY	Recipient	Project Title	Project Description	Grant
89	Tacoma, City of	Tacoma North End Treatment Plant Outfall	Extend outfall and install effluent diffuser at Tacoma north end wastewater facility to meet water quality standards.	$175,237
89	Spokane County	North Valley Interceptor, Phase I	Includes the installation of a sanitary sewer interceptor, which is necessary to service the northern portion of the Spokane Valley that generally lies north of the I-90 interstate highway. Phase 1 is part of the total interceptor needs.	$928,515
89	Spokane County	University Utility Local Improvement District And North Kokomo Utility Local Improvement District	Project includes installation of sanitary sewers & appurtenant facilities in an urban area of Spokane County, which will serve approx. 600 parcels of land that are currently served by individual on-site septic tanks. Collector systems to be installed connect to existing one.	$1,255,534
89	Seattle City, of	Southwest Hinds Combined Sewer Overflow Control Project	Purpose of project: to reduce the number of overflows to an average of one per year.	$457,685
89	Seattle City, of	Step II/III Grant To Construct The 15th Avenue Combined Sewer Overflow Control Project	Purpose of project: to produce approved plans and specifications and complete construction of new detention/flow control systems and associated work along 14th Avenue West, between West Boston Street and West Newton Street, and along 15th Avenue West between West Raye Street and West Armour Street.	$917,669
89	Seattle, City of	Step II/III Grant for University Street Combined Sewer Overflow In Seattle	Purpose of project: to reduce overflows into Elliott Bay to an average of no more than one per year.	$918,431
89	Seattle, City of	Diagonal Avenue South Combined Sewer Overflow Control Project	Purpose of project: to design a sewerage and drainage conveyance, and storage and diversion facilities to reduce overflows into the Duwamish Waterway.	$420,270

[12] As all appendices were developed, staff used multiple databases and other information. Staff strived for accuracy, but numbers are changeable, so they are works in progress.

[13] Both Ecology and Commerce consider wastewater projects conducted by regional partners to be regionalization projects. For example, a project to remove extraneous stormwater or groundwater from a partner's sewer, may in fact, increase the efficiency and extend useful life of the regional wastewater treatment plant, so the entire partnership benefits.

89	Olympia, City of (LOTT)	Engineering Reports for Hydraulic Modifications & Nitrogen Removal	Separate engineering reports for hydraulic improvements and nitrogen removal at the LOTT wastewater treatment facility.	$102,500
90	Kitsap County Sewer District # 7	Wastewater Treatment Plant Engineering Report Implementation	The Kitsap County Sewer District #7 will design and construct a secondary treatment plant. The facility shall be designed in accordance with the Engineering Report approved by the Department on October 9, 1990. Plans and specifications shall be prepared in accordance with the requirements of Chapter 173-240-WAC, RCW 90.48, and the Washington State Department of Ecology Criteria for Sewage Works Design.	$1,694,445
90	Chehalis, City of	Chehalis Sewer Rehabilitation	The city of Chehalis will prepare plans and specifications contract documents) for the rehabilitation of sewers in Basins 4078 and 4026. The plans and specifications will be prepared in accordance with the engineering report approved by the Department on May 31, 1989, State of Washington's Criteria for Sewage Works Design, Chapter 178-240 WAC and 90.48.110 RCW.	$475,979
90	Clarkston, City of	Clarkston Wastewater Treatment Plant	Install variable frequency drives in the influent pump station to reduce peak flows, and increasing the capacity of the pumps installing a rotating drum screen to remove solids which plug pumps and settle out in the aeration basin; two new aeration basins to allow continued operation.	$67,817
90	Lake Stevens Sewer District	Influent Pipeline Repair Project	Design and construction of a geologically stable route for the Lake Stevens influent pipeline. This includes investigation of possible locations and construction of pipeline in stable location.	$214,052
90	Tacoma, City of	West Slopes/Chambers Creek Wastewater Treatment Plant Buy-In	Tacoma is required by Ecology to upgrade to secondary wastewater treatment by February 1991. Approved facilities plan alternatives. Transfer western slope's 2.2 MGD of design flow to Chambers Creek Wastewater Treatment Plant. Project also includes pumping & conveyance facilities for the transfer of flow are currently being constructed/partially funded by federal grant program.	$3,468,614

90	Olympus Terrace Sewer District	Wastewater Treatment Plant Phase 2 (expand/modify)	Wastewater treatment plant is extended aeration activated sludge process, referred to as oxidation ditch. Site is approximately four (4) acres. Project includes one (1) aeration tank, two (2) clarifiers, one (1) chlorine contact chamber, three (3) small buildings. Project also includes the addition of another aeration tank, enlargement of chlorine contact chamber, addition of 3rd clarifier.	$1,607,849
90	Spokane County	Design & Construction of Sanitary Sewers	The purpose of this project was to prepare plans and specifications and construct sanitary sewers, sewer interceptors and a force main to provide better protection of the Spokane Valley-Rathdrum Prairie Sole Source Aquifer.	$2,813,773
91	Clarkston, City of	Upgrade Wastewater Treatment Plant To Meet NPDES Permit/Ecology Compliance Requirements	The City will construct a complete secondary treatment system that will comply with Department of Ecology design criteria and NPDES permit conditions. The major elements to be addressed during this project include: pump station upgrade; fine screening; aeration basins; secondary clarifier; aeration and sludge pumping; chlorination equipment; sludge digestion and dewatering facilities; sludge hauling and disposal equipment; remediation of existing sludge seepage pits.	$2,153,818
91	Chehalis, City of	Chehalis Sewer Rehabilitation	The city of Chehalis was awarded a 30 percent financial hardship supplement to Federal Grant No. C530-555-05 awarded by EPA for rehabilitation of mainline sewers, manholes, and side sewers from the mainline to the street shoulder or curb line within city rights-of-way in basins 2012, 2004, 3012, and 4082.	$882,592
91	Seattle, City of	Diagonal CSO Construction Project	Purpose of project: to construct a sewerage and drainage conveyance, and storage and diversion facilities to reduce overflows into the Duwamish Waterway.	$2,586,739

91	Cle Elum, City Of	Regionalization of Sewage Treatment	The city of Cle Elum will perform sewer system rehabilitation to reduce infiltration and inflow (I/I), and make system improvements to receive sewage flows from the town of South Cle Elum; determine amount of exfiltration from existing lagoon system; monitor I/I to determine the effectiveness of the sewer system rehabilitation, and evaluate the treatment effectiveness of the lagoon system after the sewer system rehabilitation; Use the resulting flow measurements and lagoon evaluation data to choose the most appropriate design alternative, prepare approvable plans and specifications consistent with Special Condition K, and construct sewage treatment plant improvements to accommodate sewage flows from the city and from the town of South Cle Elum.	$911,950
91	Yakima, City of	Yakima Wastewater Treatment Facility Upgrade	Project goals: to upgrade the existing Yakima wastewater treatment facility to meet federal and state requirements and in accordance with the city's adopted comprehensive sewer plan and updated facilities plan.	
91	Spokane, City of	Water Pollution Control Grant	The purpose of this project was to prepare an engineering report that identifies the remaining combined sewer overflows in the Spokane wastewater system.	$250,000
91	LOTT (Olympia, City of)	LOTT Hydraulic Modifications	Construction of new outfall pipeline & improvements to wastewater treatment plant. Includes: 1) Preloading of portion of outfall alignment to consolidate soils to provide suitable pipeline foundation; 2) Installation of land portion of new outfall; 3) Installation of offshore, submarine pipeline.	$1,541,768
91	Chehalis, City of	Basins 4006 And 2051 Sewer Rehabilitation Project	This project will develop approvable plans and specifications to rehabilitate sanitary sewers in Basins 4006 and 2051 in accordance with the facility plan approved by the Department May 31, 1989. This project will include the complete rehabilitation of Basins 4006 and 2051 in the city of Chehalis to reduce infiltration and inflow into the sewer system.	$702,630

92	South Cle Elum, Town of	Design of Wastewater Collection System - Hardship Grant	The purpose of this grant was to design a new lift station, metering facility, force main and gravity sewer to connect with the city of Cle Elum's wastewater collection system. This grant was supplemental to G9200114 due to hardship determination.	$9,102
92	South Cle Elum, Town of	Design of Wastewater Collection System	The purpose of this grant was to design a new lift station, metering facility, force main and gravity sewer to connect with the city of Cle Elum's wastewater collection system.	$48,683
92	King County Surface Water Management Division	Inter-jurisdictional Decant Sediment Plan	The grant enabled King County to formulate a plan for regional handling and disposal of vactor wastes; to evaluate options for reuse of vactor wastes; and monitor vactor liquids and solids for contaminant levels, thereby determining whether they could be disposed of in a conventional landfill or would have to be considered hazardous waste.	$190,976
92	Cosmopolis, City of	Infiltration/Inflow Study	The City of Cosmopolis will use the funds to prepare an Infiltration/Inflow study of their sanitary sewer system. The report will address: The requirements of Chapter 173-240 WAC, "Submissions of Plans and Reports for Construction of Wastewater Facilities"; The requirements for compliance with SEPA and all other applicable state laws and regulations; Generally recognized engineering standards and good engineering practices including the requirements described in the most recent addition of the state of Washington's "Criteria for Sewage Works Design"; Justification of need and; Justification of the recommended alternative as the most cost effective alternative based on realistic assumptions and procedures for analysis of cost-effectiveness.	$82,500
93	LOTT Wastewater Management Program	Construct ultraviolet disinfection basin . SRF loan for the remainder of this work.	This $280,000 grant from the Centennial fund was to fund some of the costs of construction of ultraviolet disinfection at the LOTT wastewater facility. LOTT will be the first large wastewater facility in Washington to use ultraviolet radiation to disinfect its wastewater.	$280,000

93	Spokane County	North Spokane Interceptor V Project	The county will construct a new wastewater pump station and force main between the Little Spokane Pump Station and the Fairwood Pump Station in the northern part of Spokane County. This project is part of the ongoing efforts at improving the water quality of the Spokane-Rathdrum Prairie Aquifer and protecting the aquifer from further degradation.	$514,451
93	South Cle Elum, Town of	Construction of Sewer System Improvements	This project is to construct wastewater facilities improvements for the Town of South Cle Elum. The facilities to be constructed will include sewer system rehabilitation to correct inflow and infiltration. A new lift station and metering facility; new force main and gravity sewer to transmit sewage to the regional wastewater treatment facility owned and operated by the city of Cle Elum; improvements at the city of Cle Elum treatment facility, to provide capacity to treat sewage from the town of South Cle Elum; and reclamation of the existing South Cle Elum wastewater treatment lagoon.	$321,715
93	Bellingham, City of	Construction of Secondary Treatment Plant at Post Point Site	Purpose of project: to upgrade the existing facility to secondary treatment, modify the existing plant, and expand capacity.	$21,927,441
93	Spokane, City of	Wastewater Facility Plan Extension Project	Purpose: Development and preparation of a Wastewater Facilities Plan which provides recommendation for future management and operational improvements for both the wastewater collection system and the regional wastewater treatment plant.	$394,101
93	Spokane County	North Spokane Interceptor - IV	Purpose of Project: This project, referred to as Construction Package No. 4 of the North Spokane Interceptor project, was for the installation of a gravity interceptor along Waikiki Road from Hawthorne Road to the Fairwood Pump Station.	$102,522
93	Spokane County	North Spokane Interceptor – III.	The Recipient will construct a pump station at Fairwood in accordance with the plans and specifications approved by Ecology on March 25, 1992.	$349,689

94	Northshore Utility District	Totem Lake Utility Local Improvement District 13/Manhole Number Nine Emergency Repairs	The purpose of the grant was to repair a portion of the sewer main under Totem Lake Boulevard near Totem Lake. In June, 1993, the district's maintenance crew discovered a sheared section of pipe, between two manholes. The 120 foot section of pipe was between peat and hard clay and badly out of alignment. The site is near a wetland.	$154,818
94	Spokane, City of	Glennaire Sewage Lagoon Elimination Project	The city will prepare an approvable engineering report that will investigate the feasibility of constructing a new trunk sewer to intercept and eliminate the existing Glennaire sewage lagoon system.	$23,377
94	Bingen, City of	Bingen/White Salmon Wastewater Treatment Facility Improvements	The purpose of this project is to expand and upgrade Bingen's wastewater treatment facility to meet all of the requirements of their enforcement order and to protect the quality of the area's ground and surface water.	$1,020,597
94	Bingen, City of	Design of Wastewater treatment facilities upgrade to Bingen/White Salmon Regional Facility.	The goal of the grant agreement was for Bingen to develop approvable plans and specifications for the upgrade to their wastewater treatment facility. The facility serves the city of White Salmon as well as Bingen. The city of Bingen is the owner/operator.	$89,346
95	Edmonds, City of	Wastewater Treatment Plant Dechlorination Facility	Purpose of project: to produce plans and specifications and construct a dechlorination facility to reduce the chlorine toxicity into Puget Sound.	$21,783
95	Edmonds, City of	Treatment Plant Outfall Line Replacement	This project will correct effluent leakage which flows to a recreational beach (Olympic Beach) prior to reaching the dilution zone. This will reduce the risk of human contact with fecal coliform. The salinity of the tidal zone will be increased back to its natural state and result in a more ideal condition for the marine habitat.	$303,601

95	Tacoma, City of	North End Wastewater Treatment Facility Improvements	The City will use the funds to upgrade the North End Wastewater Treatment Facility. This upgrade will consist of headworks modifications, flow monitoring, standby power, sludge storage facility, upgrade influent pump station, modification of grit removal facilities, replace miscellaneous piping, bypass for existing grit tank, miscellaneous site improvements, replacement of clarifier center feed wells, the addition of a biological filter device, and a pump station for the filter. The plans and specifications were approved by Ecology on February 24, 1994, with a final construction eligibility percentage of 80.2 percent.	$1,900,000
96	Bremerton, City of	Wastewater Treatment Plant Dechlorination System	The city of Bremerton will construct a dechlorination facility to reduce chlorine residual from the city's wastewater treatment plant to meet the limitations established in the city's NPDES permit.	$118,250
97	Hazel Dell Sewer District	Wildwood Line Slope Failure	The Hazel Dell Sewer District will use this money to cover costs incurred in January of this year for emergency stabilization of a sliding slope in order to protect an 8" sewer line. Failure of this sewer line could have caused a severe water quality impact to Cougar Creek.	$34,574
97	Lake Chelan Reclamation District	Northshore Interceptor Reliability Improvement Project	The project will design and build reliability improvements to the Northshore Sewer Interceptor at Lift Stations 1-3 to help eliminate sewage discharges into Lake Chelan. The improvements to the lift stations will include two emergency storage tanks, and electrical upgrades to allow the use of emergency generators.	$115,800
97	Aberdeen, City of	Chehalis River Sewage Force Main Crossing	The Aberdeen project will replace an aging, failing sewer force main which crosses the Chehalis River near the Highway 101 Bridge. A recently discovered leak showed the need for emergency replacement of this pipe to prevent a more catastrophic break. Such a break in the pipe would result in the closure of numerous commercial shellfish operations in Grays Harbor.	$306,283

98	King County (formerly Municipality of Metropolitan Seattle, or Metro)	Secondary Treatment Facilities	Purpose: Eliminate one f the few remaining major primary (raw sewage) discharge to the Puget Sound and meet the requirements of the CWA and their NPDES permit. The upgrade to secondary treatment would greatly improve the effluent quality, provide superior removals for priority pollutant metals and organics. The upgrade would result in decreases of 43,000 tons/year of conventional pollutants, 45 tons/year or priority pollutant metals, and 41 tons/year of priority pollutant organics discharged in Puget Sound. The reductions would reduce the number of fecal coliform violations near West Point and at the adjacent beaches affected by West Point effluent. The funds for this extended payment grant project were used for construction, installation and startup of secondary treatment facilities in a manner which maintains operation of the existing primary facilities during construction in accordance with plans and specifications approved by Ecology for the following: off-site support facilities; site work; pretreatment and primary modification; solid processes; secondary facilities-liquid stream; and, on-site, non-process facilities.	$175,144,044
98	Whatcom Co Water District #10	Sudden Valley Detention Basin	Whatcom County Water District #10 will use the money to construct a sewage detention basin to provide capacity for infiltration/inflow containment in the District's sewage collection system, thereby reducing the chances of overflows of untreated sewage into Lake Whatcom	$420,800
98	Swinomish Indian Tribal Community	Swinomish Buy-In To La Conner Wastewater Facilities Upgrade	The grant and loan will be used to purchase capacity at the LaConner Wastewater Treatment Facility that will soon be upgraded and expanded for the Tribal Community and other users. The loan will also refinance the local share of the wastewater collection improvements for the Tribal Community and Skagit County Sewer District No. 1.	$1,129,440

99	Burlington, City of	Burlington Wastewater Treatment Plant Upgrade	The city of Burlington will upgrade and expand its wastewater treatment plant to provide adequate treatment capacity for projected flows and loads based on planning required under the state Growth Management Act. The plant has been designed to meet new National Pollutant Discharge Elimination System permit conditions to ensure compliance with state water quality standards, the lower Skagit River Total Maximum Daily Load Water Quality Study, treatment plant reliability, wastewater reuse within the plant, and new federal regulations regarding sludge/biosolids quality	$2,500,000
00	Bremerton, City of	Bremerton CSO Reduction Plan Upgrade	The city of Bremerton will use the money to update its Combined Sewer Overflow Reduction Plan, Targeting those basins that require CSO reduction improvements as required for compliance with state Regulations, Department of Ecology consent orders, and court orders.	$191,250
00	Wollochet Harbor Sewer District	Sanitary Sewer System Improvement	The immediate purpose of the project was to eliminate the inadequate Wollochet Harbor treatment plant by intercepting it to an existing larger municipal sewerage system at Gig Harbor. The water quality goal was to remove The largest source of contamination from the inner waters of Wollochet Harbor, thus removing a significant obstacle to the possible recertification of shellfish harvest areas there.	$1,411,886
00	Olympus Terrace Sewer District	Open Channel Ultraviolet Disinfection System	Olympus Terrace Sewer District will use the money to replace its existing chlorination disinfection system with a new ultraviolet disinfection system. This new disinfection system will allow the District to meet its discharge permit limits and keep harmful chlorine residuals from its wastewater effluent from entering Possession Sound.	$500,000
01	Clark County Department of Public Works	De-Watering Facility for Vactor Waste - Phase 2	The Clark County Department of Public Works will use the money to add an additional 30' by 40' dewatering pad and three additional settling vaults to the existing facility. All dewatering pads and setting vaults will be covered to allow them to process wastes much more quickly.	$206,000

01	Cle Elum, City of	Interim Wastewater Treatment Facilities	The city of Cle Elum will use the money to construct ultraviolet disinfection facilities, provide for aerators in lagoons 1 and 2, modifications to the headworks and the addition of influent and effluent samplers. The City is also pursuing additional regionalization of its municipal sewage treatment facilities.	$524,928
03	Centralia, City of	Pump Station and Conveyance Pipelines	This project is construction of the pump station and conveyance pipelines to transport wastewater from the existing wastewater treatment plant site in southwest Centralia to the new wastewater treatment plant located northwest of the City. The project is the final element needed to complete the wastewater treatment plant.	$4,100,000
05	Chehalis, City of	Chehalis Regional Water Reclamation Facility Project	The city of Chehalis will use the money to construct a new wastewater treatment plant capable of producing class A reclaimed water to irrigate a poplar tree plantation, reconstruct the two largest wastewater pump stations to meet new hydraulic requirements, and construct a force main to convey treated wastewater to the poplar plantation.	$5,000,000
08	Clark Co Regional Sewer Cooperative	Wastewater Treatment Projects	Comprehensive planning for the cities of La Center, Ridgefield, Battle Ground, and Vancouver and town of Yacolt. Design and construction of adequate long-term wastewater treatment plant needs for the city of Ridgefield.	$4,000,000
95-10	Spokane County	Protection of the Spokane-Rathdrum Prairie Aquifer	Spokane County's portion of extended payment grant at a total of $5 million per year between 1995 and 2015 to provide sewerage facilities to Spokane area residents to protection the Spokane-Rathdrum Prairie Aquifer.	$75,000,000
95-10	Spokane, City of	Protection of the Spokane-Rathdrum Prairie Aquifer	The city of Spokane's portion of extended payment grant at a total of $5 million per year between 1995 and 2015 to provide sewerage facilities to Spokane area residents to protection the Spokane-Rathdrum Prairie Aquifer.	$25,000,000
			TOTAL	**$347,993,321**

Appendix D. State of Washington Water Pollution Control Revolving Fund (SRF)
Loans to Regionalized Local Governments, State Fiscal Years (SFY) 1990 - 2010[14][15]

SFY	SRF Loan Recipient/Descriptive Project Title	Assistance Amount
90	Everett, City of Snohomish River CSO Interceptor	$8,671,423
	SFY 1990 Total to Regionalized Local Governments	**$8,671,423**
91	METRO (King County) Secondary Treatment	$7,450,582
91	METRO Secondary Treatment	$9,734,450
	SFY 1991 Total to Regionalized Local Governments	**$17,185,032**
92	Yakima, City of Wastewater Treatment Plant Upgrade, Secondary Treatment	$2,550,559
92	LOTT Wastewater Alliance Advanced Treatment, Nitrogen Removal.	$18,185,709
92	Cle Elum, City of Secondary Treatment, Infiltration and inflow (I/I) Correction, Interceptors & Sewer Rehabilitation	$834,049
92	Asotin County Wastewater Treatment Plant Upgrade, Secondary Treatment	$350,053.00
92	METRO Secondary Treatment	$13,845,754
	SFY 1992 Total to Regionalized Local Governments	**$35,766,124**

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[15] Both Ecology and Commerce consider wastewater projects conducted by regional partners to be regionalization projects. For example, a project to remove extraneous stormwater or groundwater from a partner's sewer, may in fact, increase the efficiency and extend useful life of the regional wastewater treatment plant, so the entire partnership benefits.

93	METRO Secondary Treatment	$17,769,214
93	LOTT Wastewater Alliance Advanced Treatment, Nitrogen Removal.	$15,436,980
	SFY 1993 Total to Regionalized Local Governments	**$33,206,194**
94	Mason County New Wastewater Treatment Facility	$159,996
94	Mason County New Wastewater Treatment Facility	$2,620,000
94	Gig Harbor, City of Wastewater Treatment Plant Expansion, Provide Secondary Treatment	$933,537.00
94	Ilwaco, City of Secondary Treatment Design & Construction	$2,034,004.00
94	Clarkston, City of Outfall Upgrade	$540,969.00
94	LOTT Wastewater Alliance Advanced Treatment, Nitrogen Removal.	$2,957,147
	SFY 1994 Total to Regionalized Local Governments	**$9,245,653**
95	Clark CountyWastewater Treatment Plant Expansion, Providing Secondary Treatment	$1,221,508
	SFY 1995 Total to Regionalized Local Governments	**$1,221,508**
96	N/A	N/A
	SFY 1996 Total to Regionalized Local Governments	**$0**
97	Tieton, Town of Wastewater Facilities Plan	$161,209
97	Shelton, City of Infiltration/Inflow Facility Plan Update	$77,119
97	Mason County Design & Construction I & I Reduction	$89,982
97	Lake Chelan South Shore Sewer District Facilities Design, WW Interceptor & STEP System	$416,558

97	Lake Chelan Reclamation District Facilities Design & Construct Interceptor Improvements	$134,200
97	Lynnwood, City of Facilities Design & Construction WWTF Improvements, Secondary Treatment	$1,823,363.00
97	Seattle, City of Watershed Planning	$200,860
97	Clarkston, City of Facilities Construction Sewer Outfall Line	$499,645.00
	SFY 1997 Total to Regionalized Local Governments	**$3,402,936**
98	Vashon Sewer District Facilities Construction, New Wastewater Facilities	$401,050
98	Wollochet Harbor Sewer District Facilities Design & Construction Collection System Improvements	$52,190.00
98	Wollochet Harbor Sewer District Facilities Design Collection System Improvements	$108,500.00
98	Tieton, Town of Facilities Design New Wastewater Reclamation Facility	$383,303
98	Vashon Sewer District Facilities Construction Eliminate Public Health Hazard - New Collection System	$343,750
	SFY 1998 Total to Regionalized Local Governments	$1,288,793
99	Concrete, Town of Facilities Design & Construction Wastewater Treatment Plant Maintenance Repairs	$34,634
99	Raymond, City of North Pacific County Wastewater Management Plan (Phase A)	$127,320
99	Raymond, City of North Pacific County Wastewater Management Plan (Phase B)	$139,033

99	PUD No. 1 of Chelan County Facilities Construction, South Shore Sewer Replacement	$2,719,900
99	Lake Chelan Reclamation District Facilities Design & Construction Replace On-Site Failing Septic Systems With Collection System	$554,888
99	Roslyn, City of Comprehensive Sewer/Facilities Plan Wastewater Treatment Plant & Collection System Improvements	$38,671
99	Cashmere, City of Facilities Design & Construction Wastewater Treatment Plant Upgrade	$566,378
99	Castle Rock, City of Comprehensive Sewer Plan Wastewater Treatment Plant & Collection System Improvements	$170,915
99	Cosmopolis, City of Facilities Design & Construction, Infiltration/Inflow Reduction	$423,023
	SFY 1999 Total to Regionalized Local Governments	$4,774,762
2000	Tieton, Town of Facilities Construction, New Wastewater Reclamation Facility	$16,841
2000	Spokane, City of CSO Basin Planning #6, #34, #12, #15, and #22 A-D	$1,353,345
2000	Cowiche Sewer District Wastewater Treatment Plant Construction	$290,158
2000	Mason County North Bay - Case Inlet Wastewater Facilities	$7,320,095
	SFY 2000 Total to Regionalized Local Governments	**$8,980,439**
2001	King County Department of Natural Resources Refinance Loan	$13,838,279
2001	Shelton, City of Basin 2 Sewer Rehabilitation Design	$155,000
	SFY 2001 Total to Regionalized Local Governments	**$13,993,279**
2002	Mason County North Bay Case Inlet Wastewater Facilities	$1,111,461
2002	Shelton, City of Shelton Wastewater Treatment Plant Digester Expansion Project	$960,190

2002	South Bend, City of Inflow and Infiltration Abatement Project	$984,604
	SFY 2002 Total to Regionalized Local Governments	**$3,056,255**
2003	King County – Dept. of Natural Resources Denny Way/Lake Union CSO Project - Final Design & Program Consultant – Refinance	$14,207,000
2003	Bremerton, City of Trenton Avenue Pump Station Improvements	$1,000,000
2003	Bremerton, City of Cherry/Trenton CSO Reduction Improvements	$1,000,000
2003	Bremerton, City of Anderson Cove - Basin 12	$300,000
2003	Bremerton, City of Tracyton Beach CSO Reduction Improvements	$593,176
2003	Spokane, City of Cochran Basin I/I Facility Plan	$593,135
2003	Bremerton, City of Anderson Cove CSO Reduction Facilities	$640,427
2003	Spokane County Refinancing of OSS Elimination Projects	$10,640,000
2003	Monroe, City of Eastside Interceptor	$1,327,254
	SFY 2003 Total to Regionalized Local Governments	**$30,300,992**
2004	Mason County Belfair Water Reclamation Facility Design	$331,278
2004	Bremerton, City of Pacific Avenue CSO Reduction - Separation	$250,000
2004	Bremerton, City of Pacific Avenue CSO Reduction - Storage	$1,000,000
2004	King County Wastewater Treatment Division (WTD) Denny Way/Lake Union CSO Control Project/Elliott West Pipelines Contract	$12,549,757
2004	King County Wastewater Treatment Division (WTD) Henderson/M.L. King CSO Project	$53,065,126

2004	Tacoma, City of Tacoma Central Treatment Plant Upgrade	$5,000,000
2004	King County Wastewater Treatment Division (WTD) Southwest Interceptor - Kent and Auburn Sections	$2,230,000
2004	Chehalis, City of Chehalis Regional Water Reclamation Facility (CRWRF)	$2,775,165
2004	Tacoma, City of Tacoma Central Wastewater Treatment Plant Upgrade	$1,000,000
2004	Vashon Sewer District Health Hazard Areas Loan Refinance	$2,832,852
2004	Stevens Public Utility District, Addy/Blue Creek Sewer System Loan Refinancing	$447,395
2004	Roslyn, City of Standard Refinance FHA Loan #2	$35,623
	SFY 2003 Total to Regionalized Local Governments	**$81,517,196**
2005	Spokane County Spokane County Regional Wastewater	$8,500,000
2005	Bremerton, City of Cherry/Trenton CSO Reduction - Final Improvements	$1,075,000
2005	Thurston County Environmental Health Division On-Site Financial Assistance Program	$167,400
2005	LOTT Wastewater Alliance Hawks Prairie Reclaimed Water Satellite	$30,052,299
	SFY 2005 Total to Regionalized Local Governments	**$39,794,699**
2006	Chehalis, City of Chehalis Regional Water Reclamation Facility (CRWRF)	$31,797,149
2006	Chehalis, City of Chehalis Regional Water Reclamation Facility (CRWRF)	$775,026
2006	Tacoma, City of Tacoma Central Treatment Plant Upgrade	$20,130,000

2006	Tacoma, City of Tacoma Central Treatment Plant Upgrade	$25,870,000
2006	Klickitat County Public Utility District No. 1 Lyle Wastewater Treatment Facilities Improvements	$279,413
2006	King County Wastewater Treatment Division Vashon Island Treatment Plant Upgrade	$4,708,577
2006	King County Wastewater Treatment Division Vashon Island Treatment Plant Upgrade	$291,423
2006	King County Dept. Natural Resources & Parks Barton CSO Control Project Facilities Plan	$1,143,247
2006	Mason County Hartstene Pointe Outfall Relocation	$633,767
2006	King County Dept. Natural Resources & Parks Murray CSO Control Project Facilities Plan	$593,435
2006	South Bend, City of Wastewater Treatment Plant Improvements	$495,000
2006	King County Dept. Natural Resources & Parks North Beach CSO Control Project Facilities Plan	$470,915
2006	Mukilteo Water District Big Gulch Sanitary Sewer Repair	$1,125,785
	SFY 2006 Total to Regionalized Local Governments	**$88,313,737**
2007	Carnation, City of Carnation Wastewater Collection and Conveyance System	$5,199,457
2007	King County Department of Natural Resources and Parks - Wastewater Treatment Division Carnation Wastewater Treatment Facility	$1,200,000
2007	Bremerton, City of Bremerton Combined Sewer Wastewater Treatment Plant Upgrade	$1,000,000
2007	Hazel Dell Sewer District Salmon Creek Wastewater Treatment Improvements	$1,000,000
2007	King County Dept. of Natural Resources & Parks - Wastewater Treatment Division Brightwater Marine Outfall	$947,246

2007	Tacoma, City of Tacoma Central Treatment Plant Upgrade	$21,237,895
2007	Concrete, Town of Concrete Wastewater Treatment Facility	$671,500
	SFY 2007 Total to Regionalized Local Governments	**$31,256,098**
2008	King County DNR Wastewater Treatment Division Brightwater Marine Outfall	$4,002,626
2008	King County DNR Wastewater Treatment Division Carnation Wastewater Treatment Facility	$14,085,238
2008	Shelton, City of Goldsborough Creek Sanitary Sewer Improvements (Hardship)	$2,007,661
2008	Mason County Belfair Water Reclamation Facility Design	$3,033,500
2008	Shelton, City of Basin 5 Sewer Rehabilitation Design	$1,000,000
2008	Shelton, City of Shelton Wastewater Treatment Plant Improvements Design	$1,390,850
2008	Lake Stevens Sewer District Sunnyside Wastewater Treatment Facility (Construction)	$13,969,445
2008	Olympia, City of Septic Connection Assistance Loan Program	$250,000
	SFY 2008 Total to Regionalized Local Governments	**$39,739,320**
2009	King County DNR-WWTD Brightwater Marine Outfall	$11,065,940
2009	Concrete, Town of Concrete Wastewater Treatment Facility	$287,000
2009	Lake Stevens Sewer District Sunnyside Wastewater Treatment Facilities Project	$25,970,567
2009	Alderwood Water and Wastewater District Picnic Point Wastewater Treatment Facility Upgrade Project	$9,015,745
	SFY 2009 Total to Regionalized Local Governments	**$46,339,252**

2010	Spokane County Regional Water Reclamation Facility	$16,225,000
2010	Bremerton Public Works and Utilities Gorst Sewerage Project	$4,709,550
2010	Bremerton Public Works and Utilities Gorst Septic System Replacement Project	$1,393,000
2010	Raymond and South Bend cities Willapa Regional Wastewater Facilities	$4,150,000
2010	Shelton, City of Goldsborough Creek Sanitary Sewer Improvement Project	$1,321,210
2010	Everett Public Works Bond Street Combined Sewer Overflow Control Facilities	$6,249,652
2010	Mason County Belfair Wastewater & Water Reclamation Facilities	$5,891,886
2010	LOTT Alliance Deschutes Parkway to Tumwater Reclaimed Water Pipeline	$2,763,000
2010	Spokane, City of West Broadway SURGE	$382,000
2010	Yakima, City of Lincoln Avenue Grade Separation Storm Drainage	$1,214,000
2010	Spokane, City of Lincoln Street SURGE	$1,173,000
2010	Pierce County Pierce County Integrated Water Resource Management	$908,978
	SFY 2010 Total to Regionalized Local Governments	**$46,381,276**
	Grand Total	**$504,695,648**

Appendix E. State of Washington Existing Regionalized Wastewater Treatment Facilities Public Works Assistance Account Funded Projects (1986-2009)[16][17]

Ecology's Central Region			
Regional Wastewater Facility (Permittee)	**Regional Wastewater Contributors**	**Public Works Trust Fund (PWTF)[18] Investment**	**Project Description**
Chelan, City of	Lake Chelan Reclamation District	$0	N/A
	Lake Chelan Sewer District	$0	N/A
Cle Elum, City of	Roslyn, City of	$237,000	City of Roslyn PWTF Pre-Construction Loan: The project will join a regional WW treatment system with neighboring communities. – Equalization basin and interceptor necessary to convey flows to the plant. This will remove all effluent from crystal creek, and decommission the older lagoons. Treatment will be provided at the Cle Elum Regional WWTP.
	South Cle Elum, City of	$1,000,000	City of Cle Elum PWTF Construction Loan: Construct a regional WWTF to serve the city of Cle Elum, the city's urban growth area, the Town of South Cle Elum, and a master planned resort. Build or install all of the associated piping, telemetry, storage, and treatment facilities. Construct or install related equipment.
	Suncadia, Private Recreational Community	$0 $0	N/A N/A
	Ronald, City of	$0	N/A
Yakima, City of	Union Gap, City of	$0	N/A
	Terrace Heights SD	$0	N/A
	Moxee, City of	$0	N/A
	Yakima County (portions)	$0	N/A

[16] As all appendices were developed, staff used multiple databases and other information. Staff strived for accuracy, but numbers are changeable, so they are works in progress

[17] Both Ecology and Commerce consider wastewater projects conducted by regional partners to be regionalization projects. For example, a project to remove extraneous stormwater or groundwater from a partner's sewer, may in fact, increase the efficiency and extend useful life of the regional wastewater treatment plant, so the entire partnership benefits.

[18] PWTF Public Works Trust Fund (PWTF) Funds in the Public Works Assistance Account are often referred to by this abbreviation.

Bingen, City of	White Salmon, City of	$1,500,000	City of Bingen PWTF Timber Loan: Upgrade WWTF
Cowiche Sewer District	Tieton, City of	$0	N/A
Ecology's Central Region			
Regional Wastewater Facility (Permittee)	**Regional Wastewater Contributors**	**Public Works Trust Fund (PWTF) Investment**	**Project Description**
Clarkston, City of	Clarkston, City of Asotin County (portions)	$0 $0	N/A N/A
Ione, City of	Chippewa Water and Sewer District	$0	N/A
Loon Lake Sewer District	Loon Lake Sewer District Deer Lake Sewer District	$0 $0	N/A N/A
Newport, City of	West Bonner Sewer District Old Town, Idaho	$0 $0	N/A N/A
Spokane, City of	Spokane, City of PW-**98**-791-059 Airway Heights, City of PW-**06**-962-PRE-104 PW-**07**-962-001 Fairchild Air Force Base Millwood, City of Spokane Valley, City of Spokane County (portions)	$1,984,430 $1,000,000 $7,000,000 $0 $0 $0 $3,700,000	<u>Advanced WWTP Solids Process Rehabilitation:</u> Project will upgrade and/or replace the existing solids handling processes at the city's advanced WWTP. The work includes upgrades to the flotation and gravity thickeners and their structures, replacement of three of six belt filter presses, construction of side stream storage, and treatment facilities with pumping and control equipment Project will provide additional overall protection to the Spokane River for the aquatic life, and recreational and irrigation users, and others. <u>Reclamation and Recharge Project</u>: Project will design and construct an approximately 1.0 MGD annual average flow WWT, Reclama6tion and **groundwater** recharge facility. The installation of the proposed reclaimed water treatment, distribution, and recharge system would provide a source of reclaimed water to reduce the purchase of potable4 water from the City of Spokane; conserve the City's existing ground water supply; and supplement the City's ground water supply by recharging the well field ground water aquifer with reclaimed water N/A N/A N/A Regional WW Reclamation Facility (PWTF Interest Rate Buy down pilot program. This was a Grant, not loan- pending execution)
Stevens County PUD	Addy, Community of Blue Creek, Community of Waitts Lake, Community of	$0	N/A

Ecology's Northwest Region			
Regional Wastewater Facility (Permittee)	**Regional Wastewater Contributors**	**PWTF Investment**	**Project Description**
Alderwood Water and Wastewater District	Picnic Point, Community of PW-**06**-962-001 PW-**05**-691-PRE-108 PW-**05**-691-PRE-126 King County (North Creek) King County (Swamp Creek)	 $7,000,000 $1,000,000 $1,000,000 $0 $0	<u>Picnic Point WWTF Upgrade:</u> The project will upgrade the Picnic Point Wastewater Treatment Facility (WWTF) and increase the maximum monthly flow capacity from 3 million gallons per day (MGD) to 6 MGD. The upgraded WWTF will include construction of the following: Headworks building to house screenings removal and processing and grit removal and processing equipment; Two grit tanks to perform grit removal; Membrane bioreactor System, including, aeration tanks, membrane tanks and UV disinfection system, odor control and standby generation system equipment; Solids handling building that houses thickening, dewatering, and drying equipment; Operations building to provide space for maintenance functions. N/A N/A
Bellingham, City of	Whatcom Water & Sewer District #10	$0	N/A
Bremerton, City of	Kitsap County Sewer District #1 Puget Sound Naval Shipyard	$0 $0	N/A N/A
Burlington, City of	Samish Water District (Whatcom WD #12) Port of Skagit County Bayview Hills Area Community of	$0 $0 $0 $0	N/A N/A N/A N/A
Edmonds, City of	Edmonds, City of Mountlake Terrace, City of Lynnwood, City of (portions) King County (portions) Ronald WWD Dist (portions) Olympic View W/S District Town of Woodway Shoreline , City of (portions) WA State Department of Transportation ferry wastewater effluent	$0 $0 $0 $0 $0 $0 $0 $0 $0	N/A N/A N/A N/A N/A N/A N/A N/A N//A

Ecology's Northwest Region			
Regional Wastewater Facility (Permittee)	**Regional Wastewater Contributors**	**PWTF Investment**	**Project Description**
Everett, City of	Everett, City of Mukilteo Water District Silver Lake Water District Alderwood Water and Sewer District (portions)	$0 $0 $0 $0	N/A N/A N/A N//A
Everson, City of	Nooksack, City of	$0	N/A
Friday Harbor, City of	State department of Transportation ferry wastewater effluent	$0	N/A
Gig Harbor, City of	Wollochet Bay Sewer District	$0	N/A
King County Department of Natural Resources and Parks – Wastewater Treatment Division Flows to either: • Renton Wastewater Treatment Plant • West Point Wastewater Treatment Plant	King County-Brightwater PC08-951-020	$7,000,000	Brightwater Reclaimed Water Pipeline: The purpose of this construction project is to convey reclaimed water from the Brightwater Treatment Plant to the Sammamish Valley. This project will construct the first phase of the "Brightwater Backbone", a set of conveyance pipelines for reclaimed water. The first priority is to provide about a half million gallons per day to the Willows Run Golf Course to meet the County's commitment to the Washington State Department of Ecology and reduce withdrawals of 250-acre feet per year from the Sammamish River currently being made for irrigation purposes. This project involves construction of Brightwater Reclaimed Water Pipeline Sections 1 (BWRW1) and 2 (BWRW Sec 2), necessary to carry reclaimed water from the Brightwater Treatment Plant to north end of the Sammamish Valley. The completed pipelines will have a capacity of about 9 million gallons per day (MGD), which is sufficient to meet predicted reclaimed water uses as far south as the City of Redmond. Section 1 will carry reclaimed water (via 2300 lineal feet of 30-inch pipe) from the Brightwater Influent Pump Station to the existing conveyance pipelines (North Creek Force mains) at the North Creek Pump Station site near the north end of the Sammamish Valley. Section 2 will carry reclaimed water (via 10,800 lineal feet of 24-inch pipe) from the end of the existing conveyance pipelines (North Creek Force mains) at the York Pump Station site, to the Willows Run Golf Course. The initial system will provide up to 7 MGD of reclaimed water to users in the South Segment beginning in 2011.
	Alderwood WW District (portions) Algona, City of Auburn, City of Bellevue, City of Black Diamond, City of Bothell, City of	$0 $0 $0 $0 $0 $0	 N/A N/A N/A N/A

Ecology's Northwest Region			
Regional Wastewater Facility (Permittee)	**Regional Wastewater Contributors**	**PWTF Investment**	**Project Description**
	Brier, City of	$0	N/A
	Cedar River W/S District	$0	N/A
	Coal Creek Utility District	$0	N/A
	Cross Valley Water District	$0	N/A
	Highlands Sewer District	$0	N/A
	Issaquah, City of	$0	N/A
	Kent, City of	$0	N/A
	Kirkland, City of	$0	N/A
	Lake Forest Park, City of	$0	N/A
	Lakehaven Utility District	$0	N/A
	Mercer Island, City of	$0	N/A
	Muckleshoot Indian tribe	$0	N/A
	Redmond, City of	$0	N/A
	Seattle, City of	$0	N/A
	Woodinville Water District	$0	N/A
	Alderwood WW District	$0	N/A
	NE Sammamish S/W Dist	$0	N/A
	Northshore Utility District	$0	N/A
	Olympic View W/S District	$0	N/A
	Pacific, City of	$0	N/A
	Renton, City of	$0	N/A
	Ronald WW District	$0	N/A
	Sammamish Plateau W/S Dist	$0	N/A
	Skyway W/S District	$0	N/A
	Soos Creek W/S District	$0	N/A
	Tukwila, City of	$0	N/A
	Valley View Sewer District	$0	N/A
	Woodinville Water District	$0	N/A
			N/A
			N/A

Ecology's Northwest Region			
Regional Wastewater Facility (Permittee)	**Regional Wastewater Contributors**	**PWTF Investment**	**Project Description**
King County Department of Natural Resources and Parks – Wastewater Treatment Division Carnation Wastewater Treatment Plant	King County Carnation, City of PW-03-691-PRE-106 PW-04-691-012 PW-05-691-007	$0 $983,790 $5,625,300 $4,374,700	N/A Carnation - Sanitary Sewer Collection System The project for this Construction Loan Application will include: Construction administration. Construction observation. Construction-phase environmental studies (sensitive areas and geo-technical evaluations). Preconstruction and construction-phase archaeological services. Permit applications and construction-phase permit activities. Public involvement meetings and public informational mailings. The major task element for the project will be the construction of the sanitary sewer collection system consisting of: PVC vacuum sewer pipe in 10", 8", 6" and 5" diameters (approximately 54,000 feet). 2" or 3" diameter PVC force main (approximately 3,000 feet). Vacuum/pump station with emergency standby power generator. PVC force main from the vacuum/pump station to the King County wastewater treatment facility (diameter and length to be determined during design). Water main relocations in alleys to permit the construction of the new vacuum sewer pipe. Side sewers and th4 abandonment of septic tank/drainfield systems. Telemetry system for the City's new sewer facilities. The construction elements (such as the lineal footages for the various pipe diameters) described above is approximate and will be determined more precisely during design. Other tasks associated with the construction project include: field staking (surveying), legal fees, and coordination with King County on their treatment facility design and construction, and prepayment of King County's Capacity Charge.
King County Department of Natural Resources and Parks – Wastewater Treatment Division • Vashon Wastewater Treatment Plant	King County Vashon Sewer District (owns and operates entire collections system)	$0 $0	N/A N/A
King County Department of Natural Resources and Parks – Wastewater Treatment Division • Beulah Park and	King County Beulah Park and Cove Communities (O&M by Vashon Sewer District)	$0 $0	N/A N/A

Ecology's Northwest Region			
Regional Wastewater Facility (Permittee)	**Regional Wastewater Contributors**	**PWTF Investment**	**Project Description**
Cove Treatment Facility Treatment Plant			
Kitsap County Department of Public Works – • Manchester Wastewater Treatment Plant	Kitsap County Manchester (Naval) Fuel Depot (includes gray water from ships)	$0 $0	N/A N/A
Kitsap County Department of Public Works – Central Kitsap	Kitsap County Poulsbo Silverdale and Keyport Naval Base Kitsap (NBK) Naval Undersea Warfare Center at Keyport	$0 $0 $0 $0 $0	N/A N/A N/A N/A N/A
Kitsap County Sewer District #7	Kitsap Co. Sewer Dist #7 PW-05-691-PRE-110 PW-06-962-019 Fort Warden Military Base Bainbridge Island, City of (portions) Lynnwood Center Area Connections	 $350,000 $1,288,000 $0 $0 $0	Kitsap Co. SD #7-Upgrade and increase capacity: Reason for the Project: 1. The City of Bainbridge Island rescinded the lot aggregation policy. This action created more lots than the plant was designed for. 2. The District has provided 250 sewer connections to the City of Bainbridge Island for homes on septic systems that are outside of the District. Additional requests for sewer service cannot be met as the plant's capacity is committed. Description of the Project: a. Add an influent fine screen. b. Add a second aeration basin with a floating surface mixer. c. Remove the floating aerator in the existing basin to reduce noise, odors and aerosols. d. Add fine bubble diffusers to both aeration basins. e. Add dissolved oxygen meters and controls to aeration basins. f. Add a third clarifier. g. Add a 3rd return-activated sludge pump. h. Add additional bank(s) of UV lights for redundancy and increased capacity. i. Add a 2nd sludge digester. j. Add fine bubble aerator to sludge tanks. k. Add a 30'x 64' building to contain blowers and sludge thickening equipment. l. Remove stockpiled soil from original construction. N/A N/A N/A

Ecology's Northwest Region			
Regional Wastewater Facility (Permittee)	**Regional Wastewater Contributors**	**PWTF Investment**	**Project Description**
La Conner, City of	Swinomish Indian Reservation	$0	N/A
Lake Stevens Sewer District	Lake Stevens Sewer Dist PW-05-691-PRE-133 PW-05-691-PRE-107 PW-07-962-013 PR08-951-054 PC08-951-024	 $1,000,000 $1,000,000 $7,000,000 $1,000,000 $10,000,000	The project will construct a 5.01 MGD membrane bioreactor (MBR) wastewater treatment facility (Sunnyside WWTF) on Lake Stevens Sewer District property between SR 204 and Sunnyside Boulevard at 9th Street SE. The project includes easement acquisition and permit fees, construction management, and preparation of startup and maintenance manuals. Please note: Construction costs have increased due to Hurricane Katrina, the Iraq War, local Odor Ordinance compliance, wetland impact mitigation and road impact mitigation requirements. The project will construct the following conveyance infrastructure: ~Vernon Road Diversion: 5,600-foot, 36-inch diameter sewer main to convey District flows to the new WWTF site. ~Sunnyside Lift Station to redirect wastewater flows along Sunnyside Boulevard to the new WWTF: ~Sunnyside Sewer Main: Conveying flows from north of the existing WWTF along Sunnyside Boulevard to the new Sunnyside WWTF. ~30-inch diameter, 1,155-foot long Effluent Pipeline, and dual port 14-inch Outfall to Ebey Slough. SUNNYSIDE WASTEWATER TREATMENT FACILITY (5.01 MGD MEMBRANE BIOREACTOR) Specific MBR Components will include at a minimum: Headworks and CMU Building Headworks including influent flow measurement, screening, and grit classifier Primary clarifier flow splitter box Primary clarifiers Primary sludge gravity thickener Primary effluent screening CMU building Primary clarifier effluent screening Aeration basin splitter box Three activated sludge basins Equipment CMU building Chemical/alkalinity fee system Mixed liquor pumps Membrane bioreactor tanks Waste activated sludge pumps and thickening centrifuge Ultraviolet light disinfection system Effluent flow meter Solids treatment using mesophilic primary anaerobic digesters, including sludge storage tank and dewatering centrifuge Effluent pipeline and outfall to Ebey Slough Plant Drain Pump Station Non-potable water pumps Stormwater control system Administration CMU Building Vehicle maintenance building Odor control fans and biofilters EFFLUENT PIPELINE & OUTFALL TO EBEY SLOUGH 1,055 linear feet of 30-inch HDPE effluent pipeline 100 feet 30-inch HDPE outfall pipe Two 15-foot lengths of 14-inch HDPE diffuser pipe 40 cubic yards (CY) of quarry spalls & 380 CY of crushed base coarse material. SUNNYSIDE SEWER: 2 x 350 feet of 12-inch ductile iron pipe (including Wieser Creek Crossing) 1,700 feet of 21-inch PVC sewer line from Wieser Creek Crossing to Sunnyside Lift Station 90 feet of 15-inch PVC pipe VERNON ROAD DIVERSION SEWER MAIN: 5,600 feet of 36-inch sewer main, including two 54-inch borings and 11 easements SUNNYSIDE LIFT STATION: 1,500 gallon per minute (gpm) duplex vacuum

Ecology's Northwest Region			
Regional Wastewater Facility (Permittee)	**Regional Wastewater Contributors**	**PWTF Investment**	**Project Description**
			prime (suction lift) type, Fully automatic controls based on wet well level Backup control system Alarms and telemetry Variable speed pump drives allow regulation of flows down to 1,000 gpm The pump station would be prefabricated and mounted on a concrete wet well Walk-in steel pump enclosure would house the sewage pumps Valve vault would be provided to include: surge protection valve, magnetic flow meter connection for a bypass pump for use in emergencies or maintenance operations Inlet valve to permit the wet well to be temporarily isolated for maintenance Inlet manhole to serve as a temporary bypass wet well in emergencies or during maintenance operations Wet well ventilation system with dual bed, activated carbon filter to treat odorous gases from the wet well and inlet manhole Low-flow alarm to notify the operator of odor control system failure.
	Lake Stevens, City of PW-05-691-PRE-137 PW-06-962-020 PC08-951-023	 $1,000,000 $7,000,000 $10,000,000	 The project involves the construction of a new 5.01 million gallon per day membrane bioreactor tertiary wastewater treatment plant on property owned by the City. The facility will include liquid and solids handling streams; disinfections process and related process units, equipment and support facilities. The project also includes the construction of interceptor lines and a pup station to intercept and redirect existing wastewater flows to the new treatment facility location and construction of a new outfall pipe and appurtenances from the new facility to Ebey Slough. Biosolids will be removed from the existing wastewater treatment plant and the site will be decommissioned following completion of the new facility. The City contributes at least 30% of the flow to the treatment facility. The project involves the construction of a new 5.01 million gallon per day membrane bioreactor tertiary wastewater treatment facility on property owned by the City on Sunnyside Avenue, and a new outfall to Ebey Slough. The project also includes the construction of interceptor lines and a pump station to intercept and redirect existing wastewater lows to the new treatment facility location the total length of piping (not including in-plant piping) is approximately 9,500 feet. The City contributes at least 30% of the flow to the treatment plant.
Lakehaven Utility District – • Lakota Wastewater Treatment Plant	Lakehaven Utility District PW-04-691-040	$2,000,000	<u>Lakota Biosolids Drying</u> – At the Lakota WWTP, the district will install a biosolids dryer, natural gas lines to the dryer, and an odor scrubber for the off gases to meet more restrictive regulatory requirements and increase the recycling of the biosolids in the district's service area.
	Federal Way, City of (portions) Auburn, City of (portions) Des Moines, City of (portions) Pacific, City of (portions)	$0 $0 $0 $0	N/A N/A N/A N/A

Ecology's Northwest Region			
Regional Wastewater Facility (Permittee)	**Regional Wastewater Contributors**	**PWTF Investment**	**Project Description**
	Tacoma, City of (portions) Milton, City of (portions) King County – unincorporated (portions)	$0 $0 $0	N/A N/A N/A
Lakehaven Utility District – • Redondo Wastewater Treatment Plant	Lakehaven Utility District PW-04-691-PRE-130 PW-06-962-021	 $600,000 $2,400,000	<u>Redondo WWTP Outfall Replacement</u> - The Lakehaven Utility District has retained a consultant who has studied the issues surrounding the replacement of the Redondo WWTP Outfall pipe and recommends extending the outfall pipe over 800+ feet further out into Puget Sound and to a much deeper location approximately -400 feet (from -125 feet) and replacing the existing outfall pipe that has reached the end of its use full life. The extension of the outfall would be done at the same time the district would be replacing the existing outfall pipe; and by extending the outfall further into Puget Sound it would allow the shellfish beds that are currently closed because of the outfall being located in shallow water to be opened and would improve the dilution of the plant effluent that the district currently obtains from its existing outfall. The new outfall and its extension will provide a better environment because of the increased dilution of plant effluent and the shellfish will be able to be harvested without any impact from the outfall pipe. With the opening of the shellfish beds, there will be a positive economic impact for the area and the state as a whole.
	Federal Way, City of (portions) Auburn, City of (portions) Des Moines, City of (portions) Pacific, City of (portions) Tacoma (portions) Milton, City of (portions) King County - unincorporated (portions)	$0 $0 $0 $0 $0 $0 $0	 N/A N/A N/A N/A N/A N/A N/A
Lynnwood, City of	Lynnwood, City of Edmonds, City of (portions)	$0 $0	N/A N/A
Midway Sewer District	Des Moines, City of (portions) Sea Tac, City of (portions) Burien, City of (portions) Federal Way, City of (portions) Kent, City of (portions) Normandy Park, City of (portions) King County – unincorporated (portions)	$0 $0 $0 $0 $0 $0 $0	N/A N/A N/A N/A N/A N/A N/A

Ecology's Northwest Region			
Regional Wastewater Facility (Permittee)	**Regional Wastewater Contributors**	**PWTF Investment**	**Project Description**
Olympus Terrace Sewer District	Olympus Terrace Sewer Dist. Everett, City of (portions) Mukilteo, City of (portions) Snohomish County Airport	$0 $0 $0 $0	N//A N/A N/A N/A
Southwest Suburban Sewer District – • Miller Creek Wastewater Treatment Plant	SW Suburban Sewer Dist. Des Moines, City of (portions) Burien, City of (portions) Normandy Park, City of (portions) King Co.–unincorporated (portions) Sea Tac, City of (portions) White Center, Community of	$0 $0 $0 $0 $0 $0 $0	N/A N/A N/A N/A N/A N/A N/A
Southwest Suburban Sewer District – • Salmon Creek Wastewater	Des Moines, City of (portions) Burien, City of (portions) Normandy Park, City of (portions) King County- unincorporated (portions) Sea Tac, City of (portions) White Center, City of	$0 $0 $0 $0 $0 $0	N/A N/A N/A N/A N/A N/A

Ecology's Southwest Region			
Regional Wastewater Facility (Permittee)	**Regional Wastewater Contributors**	**PWTF Investment**	**Project Description**
Aberdeen, City of	Aberdeen, City of Cosmopolis, City of	$0 $0	N/A N/A
Chehalis, City of	Chehalis, City of Napavine, City of Lewis County #3 Sewer District	$0 $0 $0	Declined $10,000,000 loan offer N/A N/A
Clark County • Salmon Creek Wastewater Plant Hazel Sewer District is now known as	Clark County Hazel Dell Sewer District PW-03-691-PRE-107 PW-04-691-033 PW-05-691-PRE-116	$0 $1,000,000 $10,000,000 $1,000,000 $8,000,000	N/A <u>Salmon Creek Treatment Plant Phase 4 Expansion Program</u> - The Phase 4 Expansion of the Salmon Creek Wastewater Treatment Plant consists of modifications to existing facilities and the construction of new facilities to ensure treatment processes continue to be in compliance with current regulations that provide a higher degree of environmental health and safety. It is an extensive

Ecology's Southwest Region			
Regional Wastewater Facility (Permittee)	**Regional Wastewater Contributors**	**PWTF Investment**	**Project Description**
Clark Regional WW Dist.	PC08-951-009 Battle Ground, City of PW-03-691-PRE-112 PW-05-691-003 PW-06-962-005 ·	 $1,000,000 $10,000,000 $4,000,000	expansion that includes the following major components. Secondary Treatment Process: * Existing aeration basin no. 5 modifications, including enhanced instrumentation and controls * New aeration basin no. 6 * New process aeration blower no. 7 and blower building modifications * Existing secondary clarifier no. 3 modifications * New secondary clarifier no. 4 * Existing return activated sludge pump station modifications Digester Gas System Upgrades: * New hot water boiler, existing boiler burner retrofit and hot water system modifications * New enclosed waste gas burner package Other System Upgrades: * New primary clarifier no. 4 * New UV disinfection equipment All of the supporting process piping, plumbing, fabricated metalwork, painting, instrumentation and controls, electrical, site work and other components necessary to complete the project are also included in this scope of work. Salmon Creek Treatment Plant Phase 4 Expansion Construction work for treatment plant upgrades at Salmon Creek Treatment Plant, which are modifications to existing screens and washer/compactors to achieve added capacity; rebuild concrete masonry units from grit basin 1 influent channel; provide new scum pump and upgrade scum system controls; add new secondary clarifier; add new aeration basin; blower sizing and upgrades; sludge blend tank sizing and materials evaluation; sludge handling facilities upgrades, UV disinfection analysis and upgrades, facility component upgrades such as pumps, motors, access control; demolish and abandon chlorine contact basin and effluent pump station; new effluent pumps design; and upgrade security systems. Construction work for the new Klineline Sewer Pump Station and 5 mile force main system. This work involves the construction of a new 5 MGD sewer pump station located at Klineline Park. The lift station will be constructed to accommodate future pumping capacity needs for Battle Ground and Hazel Dell Sewer District. The project includes a pump house, pumps and all components for a fully functional sewer facility. The new 5 mile force main will begin at Klineline Pump Station and terminate at the Salmon Creek Wastewater Treatment plant. The pipeline will be constructed to handle a 30 year planning period of 22 MGD. N/A N/A N/A

Ecology's Southwest Region			
Regional Wastewater Facility (Permittee)	**Regional Wastewater Contributors**	**PWTF Investment**	**Project Description**
	Meadow Glade, Community of Hochison, Community of Vancouver, City of	$0 $0 $0	
Ilwaco, City of	Ilwaco, City of Seaview, Community of	$0 $0	N/A N/A
LOTT Wastewater Alliance	LOTT PW-05-691-031 PW-07-962-PRE-111	$ 4,278,404 $977,500	<u>Kaiser Road Pump Station & Force main Replacement .</u>The Kaiser Road Pump Station and Kaiser Road Force main Replacement Project will include design and construction of the Kaiser Road Pump Station replacement, a 1,000 gpm Pump Station. The Project also includes design and construction of the Kaiser Road Force main Replacement which will include a 7,400 foot long 10-inch diameter PVC force main installed from the Kaiser Road Pump Station to connect to the recently constructed 10-inch diameter ductile iron extension of the 14th Ave Force main. <u>Budd Inlet TP Primary Sedimentation Tank Project –</u> This Budd Inlet Treatment Plant Primary Sedimentation Tank Project potentially involves complete replacement or rehabilitation of the primary sedimentation plants at the LOTT Alliance Budd Inlet Treatment Plant. The existing primary sedimentation tanks are more than 50 years old and have exceeded their expected useful life. The primary sedimentation tanks are the only part of the treatment plant process without a backup process and the only part of the process without a bypass. The primary sedimentation tanks are at risk due to non-code compliant electrical equipment, structural deterioration and lack of seismic code compliance. The project is expected to take two years to accomplish. Three alternatives for replacement or rehabilitation are being considered. Rebuilding the existing tanks in place. Rebuild the existing tanks and additional tankage. Replace the existing tanks. LOTT has hired a professional engineering firm to complete a study and recommend the best alternative for the design of the new primary sedimentation tanks. A bypass pipeline and a coagulant addition system will be constructed in the interim, so that high flow events can be treated without negatively affecting the treatment plant process or plant effluent discharge. Benefits of the project include increased capacity due to better engineered centrate treatment. Improved processes will produce a better effluent product discharge to the secondary process, while maintaining NPDES permit limits. This will be achieved by increasing solids treatment and increasing efficiency.

Ecology's Southwest Region			
Regional Wastewater Facility (Permittee)	**Regional Wastewater Contributors**	**PWTF Investment**	**Project Description**
	PC08-951-026	$4,003,807	Budd Inlet TP Secondary Clarifier Upgrades - Design and construct secondary clarification upgrades to equipment and mechanisms to meet increasing loads at the Budd Inlet Wastewater Treatment Plant. Specific upgrades of the project include: REPLACE 4 EXISTING SECONDARY CLARIFIER MECHANISMS: Including drive unit, center column, energy dissipating inlet, flocculating feed well, center cage, rake arm, suction tube, rake arm, scum skimming blade, drive platform, scum removal equipment, and access bridge. REPLACE RAS PUMPS WITH SUBMERSIBLE PUMPS: Replace 8 vertical mixed flow pumps with Hydrostal submersible pumps with VFD drives. SECONDARY SCUM PUMPING: Replace manhole and install piping to connect the pump with WAS piping in the south RAS pump station. Purchase second pump to replace the installed pump for maintenance or in case of failure. Level controls and alarms will be installed to allow for automatic operation with less operator attention. MOTORIZED ACTUATORS FOR MIXED LIQUOR SPLITTING GATES: Install motorized actuators for controlling the distribution of mixed liquor to each of the 4 secondary clarifiers
	Olympia, City of Lacey, City of Tumwater, City of Thurston County (portions)	$0 $0 $0 $0	N/A N/A N/A N/A
Pierce County • Chambers Creek Plant	Pierce County Lakewood, City of Steilacoom, City of University Place, City of DuPont, City of Tacoma, City of (portions) Fredrickson, Spanaway, Parkland, Midland, and South Hill (unincorporated Communities)	$0 $0 $0 $0 $0 $0 $0 $0	N/A N/A N/A N/A N/A N/A N/A N/A

Ecology's Southwest Region			
Regional Wastewater Facility (Permittee)	**Regional Wastewater Contributors**	**PWTF Investment**	**Project Description**
Sumner, City of	Sumner, City of PW-02-691-054	$4,892,800	Wastewater Treatment Facility Upgrade- Upgrade WWTF by replacing obsolete and deteriorating equipment, adding a new process to meet water quality requirements, and add facilities to increase plant capacity by nearly double current capacity.
	PW-04-691-067	$2,109,000	Wastewater Treatment Facility Upgrade – Upgrade WWTP to increase treatment capacity and implement ammonia removal. The project will include new primary clarifiers, aeration basin, blowers, UV disinfection system, influent pump station, headworks, additional secondary clarifiers, anaerobic digester, and centrifuge for sludge de-watering, sludge dryer, and improved flood controls.
	Bonney Lake, City of PC08-951-005	$4,648,000	Reconstruct trunk Sewer to Sumner WWTP - Work to be accomplished is to replace segments of the City's SR 410 interceptor sewer system that have experienced failure and sections that show significant damage from H2S and microbiologically induced corrosion. Portions of the interceptor system experiencing the most severe problems occur in the ductile iron pipe pressure main sections of the sewer system. Emergency repairs and replacement of 9,040 lf of 11,140 lf of 16-inch DI pipe with 16-inch HDPE pipe was completed in 2006 as part of the project's emergency segment. Video and field inspections of various sections of the interceptor system have been recently completed. Severe corrosion of the existing pipe's invert from approximately 4 o'clock to 7 o'clock has been detected where the pipe wall is totally absent or severely corroded. The condition is most likely the result of low velocities of the wastewater flow where the pipe sewer slope is flat across the valley floor and occurs where waste deposits have deposited over time along the pipe invert and where H2S is released by areas of flow turbulence in the system. The proposed repairs are to complete the replacement sewer interceptor line remain in three segments. See attached vicinity map for segment locations. The first segment is completing the replacement of the remaining 2,100 lf of 16-inch DI pipe with 2,100 lf of HDPE pipe. The second segment will replace approximately 3,200lf of existing 18-inch concrete pipe with 18-inch HDPE pipe. The third segment will slip line approximately 6,700lf of existing 30-inch concrete pipe with 27-inch PVC pipe. The proposed replacement pipe will follow the existing pipe alignment and be located in existing easement areas and within City, County, and State roadway rights-of-way. These segments will complete the reconstruction of the City's main sewer interceptor line.

Ecology's Southwest Region			
Regional Wastewater Facility (Permittee)	**Regional Wastewater Contributors**	**PWTF Investment**	**Project Description**
Tacoma, City of • Plant #1	Tacoma, City of Pierce County (portions) Fife, City of Fircrest, City of Lake Haven Utility District (portions) Milton, City	$0 $0 $0 $0 $0 $0	N/A N/A N/A N/A N/A N/A
Tacoma, City of • Plant #3	Ruston, City of	$0	N/A
Three Rivers Regional Wastewater Authority	TRRWWA PW-06-962-PRE-115 PC08-951-049 Beacon Hill Sewer District Longview, City of	 $277,834 $6,630,750 $0 $0	Replace Two Final Clarifiers - The failed clarifiers will be demolished and their associated piping will be removed. Excavation will be done and a piling system will be installed in the excavation site area to stabilize the foundation for the new clarifiers. Two (2) new clarifiers will be constructed with associated piping to replicate the existing clarifier system. The new clarifiers will have additional piping run to them from the South Plant so that they can be operated from either the North Plant or South Plant. This will greatly increase flexibility within the facility. A polymer delivery system will be constructed for the new clarifiers to enhance settling. An electrical and a computer control system for the clarifiers and polymer system will also be installed. Specific components of construction for this project are: 1. Demolition of two (2) failed ninety (90) foot diameter clarifiers. 2. Excavation and installation of approximately seventy (70) feet to stabilize the clarifiers and associated piping. 3. Construct two (2) ninety (90) foot diameter clarifiers. 4. Install approximately five hundred (500) feet of forty two (42) inch piping to feed the new clarifiers with associated fittings, valves, and accessories. 5. Install approximately four hundred (400) feet of twenty four (24) inch piping to remove sludge form the new clarifiers with associated fittings, valves, and accessories. 6. Construct a new intertie for new clarifiers from the South Plant aeration basin splitter box. 7. Install a polymer system to aid settling in the clarifiers. 8. Install an electrical and computer control system for the clarifier project. This project will restore the plant capacity to 26 million gallon (MGD) per day and enhance operational capacity by providing more flexibility. N/A N/A N/A N/A

Ecology's Southwest Region			
Regional Wastewater Facility (Permittee)	**Regional Wastewater Contributors**	**PWTF Investment**	**Project Description**
	Kelso, City of Cowlitz County (portions)	$0 $0	
Vancouver, City of • Westside Plant	Vancouver, City of Hazel Dell, City of or Sewer District Solids from Vancouver Marine Park	$0 $0	N/A N/A
	Total	**$150,861,315**	