Appendix A

WAC 173-240-050
Department of Ecology Requirements for General Sewer Plans

Appendix A – WAC 173-240-050
Department of Ecology Requirements for General Sewer Plans

WAC 173-240-050 (as of June 2013)

General Sewer Plan

1) All general sewer plans required of any governmental agency before providing sewer service are "plans" within the requirements of RCW 90.48.110. Three copies of the proposed general sewer plan and each amendment to it must be submitted to and approved by the department before implementing the plan.

2) The general sewer plan must be sufficiently complete so that engineering reports can be developed from it without substantial alterations of concept and basic considerations.

3) The general sewer plan shall include the following information together with any other relevant data as requested by the department. To satisfy the requirements of the local government jurisdiction, additional information may be necessary.

Where in Plan each subsection of Section 3 is addressed

Subsection	Description	Chapter(s) and/or Section in Plan
a	Purpose and need for the proposed plan.	1
b	Discussion of who will own, operate and maintain the systems.	3
c	Existing and proposed service boundaries.	2.1
d	Layout map to include the following (d.i-vii):	
d.i	Boundary lines of the municipality or special district to be sewered, including vicinity map.	2.1, Appendix M
d.ii	The location, size, slope, capacity, direction of flow of all existing trunk sewers, and the boundaries of the areas served by each.	Appendix M
d.iii	The location, size, slope, capacity, direction of flow of all proposed trunk sewers, and the boundaries of the areas to be served by each.	10, Appendix M
d.iv	The location of all existing and proposed pumping stations and force mains, showing which are existing and which are proposed.	10, Appendix M

d.v	Topography showing pertinent ground elevations and surface drainage, as well as proposed and existing streets.	Appendix M
d.vi	Streams, lakes, and other bodies of water. The location and direction of flow of major streams, the high and low elevations of water surfaces at sewer outlets, and controlled overflows, if any. All existing and potential discharge locations should be noted.	2, Appendix M
d.vii	Water systems. The location of wells or other sources of water supply, water storage reservoirs and treatment plants, and water transmission facilities.	2.7, Appendix M
e	The population trend and the estimated future population for the stated design period. Method used to determine future population trends and the concurrence of any applicable local or regional planning agencies.	2.2
f	Any existing domestic or industrial wastewater facilities within 20 miles of the general plan area and within the same topographical drainage basin containing the general plan area.	2, 3.6, Appendix M
g	A discussion of I/I, and actions that will alleviate these problems in the future.	5, 8.1
h	A statement regarding provisions for treatment and discussion of the adequacy of the treatment.	2.8, 3.6
i	List of industrial wastewater permittees, the quantity of wastewater and periods of production, and the character of the industrial wastewater insofar as it may affect the sewer system or treatment plant. Consideration must be given to future industrial expansion.	3.7
j	Discussion of the location of all existing private and public wells or other sources of water supply, and distribution structures as they are related to both existing and proposed domestic wastewater treatment facilities.	Not Applicable
k	Discussion of the various alternatives evaluated, and a determination of the alternative chosen, if applicable.	10
l	A discussion, including a table, that shows the cost per service in terms of both debt service and operation and maintenance costs, of all facilities (existing and proposed) during the planning period.	11, Appendix K
m	A statement regarding compliance with any adopted water quality management plan under the Federal Water Pollution Control Act as amended.	Not Applicable
n	A statement regarding compliance with the State Environmental Policy Act (SEPA) and the National Environmental Policy Act (NEPA), if applicable.	Appendix L

Appendix B

City of Olympia Wastewater Fact Sheet

June 2013

Appendix B – City of Olympia Wastewater Fact Sheet

June 2013

Population and Water Use

Population (2010): City = 46,513 UGA = 11,797
City of Olympia's WW utility (2010) has approx. 24,500 ERUs
Total customer accounts: Residential (incl. duplex) = 12,919; Commercial, multi-family and other = 2,040
1 ERU (for non-residential billing) = up to 900 cu.ft./mo. = 224 gpd
Average daily flow for SFR (2011) = 130 gpd

Flow

Base flow (2010; without I&I) to LOTT = 3.56 MGD Peak Hour Flow (2010; with I&I) = 22.1 MGD

Infrastructure

Miles of gravity sewer collection pipe = 185
Amount of gravity pipe video inspected (June 2013) = 92%
Miles of sewer force main = 8.5
Miles of STEP main = 29
Lift stations = 33 (including 3 private ones that we operate)
Septic Tank Effluent Pump (STEP) tanks (2012) = 1,860
Onsite Sewage Systems (OSS) in City (2012) = 1,900
OSS in UGA (2012) = 2,245
Grinder pump connections = 140+
Miles of grinder force main = 1

Applicable sections of Olympia Municipal Code (OMC)

4.24.010B - Rates
13.08 Sewers – Sewer Connections, Rates, Area Service Charges, Violations
13.20 Wastewater System – Pretreatment Regulations

LOTT and National Pollution Discharge Elimination System (NPDES) Permit

- Held by LOTT, but all LOTT Clean Water Alliance Partners responsible to meet permit requirements
- Current permit's 5-year term is October 1, 2011 – September 30, 2016

2013 Development Fees

Olympia Sewer GFC = $3,198.51 LOTT CDC = $4,718.88

2013 Monthly Rates (adding $1/mo. on every sewer account bill totals about $180,000/yr.)

Residential:

SFR w/ or w/out ADU; mobile home; or each unit of duplex = $52.53/mo. (LOTT=$33.99 + City=$18.54)
Multi-family units larger than duplex (each unit) = $36.77 (70% of 1 ERU rate)

Non-residential:

Up to 1 ERU water consumption (900 cu.ft./mo.) = $52.53/mo.
Each additional 100 cu.ft./mo. water consumed: LOTT=$3.67, City=$2.65

Budget

Annual Wastewater Budget (2012) = $5.78M (does not include LOTT wastewater service charge portion of monthly)
LOTT "pass thru" wastewater service charge = $9.75M (2012; estimated)

Avg. Capital Projects/yr. = $1.6M
Debt Service & Interfund Transfers = $0.51M (2011) Reserves = 10% of budget

1 psi = 2.3'
cu.ft. = cubic feet
1ccf = 100 cu.ft .= 25 gpd
1 cu.ft. = 7.5 gallons
1,000m^3/day = 183 gpm
" " = 0.26 MGD

1 MGD = 695 gpm
mo. = month
gpm = gallons per minute
gpd = gallons per day
gpcd = gallons per capita per day
M = million

MGD = million gallons per day
GFC = general facility charge
CDC = capacity develop. charge
SFR = single family residence
ADU = accessory dwelling unit
I&I = infiltration and inflow

UGA = Urban Growth Area
LOTT=Lacey,Oly,Tumw,ThurCo.
ERU=Equivalent Residential Unit

Appendix C

Glossary of Terms and Acronyms

Appendix C – Glossary of Terms and Acronyms

AC – Asbestos cement; type of sewer pipe commonly used for pressure force mains up to the 1970s.

Alternatives – Within a Strategy, specific infrastructure investments or operational changes for achieving objectives.

Asset Management – A process for maintaining a desired level of customer service at the lowest life cycle cost.

CDC – Capacity Development Charge; a LOTT fee defined in OMC 133.08.210.

CI – Cast iron; pipe formerly used in situations where there were soil loading or other concerns; typically lined with cement or other material to inhibit corrosion of the metal.

Condition Assessment – A core component of an Asset Management Program, it is "the collection of data and information through the direct inspection, observation, and investigation an indirect monitoring and reporting, and the analysis of the data and information to make a determination of the structural, operational and performance status of capital infrastructure assets." (EPA Report No. EPA-ORD-NRMRL-CI-08-03-02)

Criteria – Measures or considerations used to evaluate criteria, e.g. when ranking lift stations in a Vulnerability Assessment.

DI – Ductile iron; similar to CI pipe and used in applications where CI would have been used in the past; for sewer it is lined with polyethylene or other material that resists corrosion from wastewater (cement no longer used).

EDDS – City of Olympia's most recent Engineering Design and Development Standards.

ERU – Equivalent Residential Unit; defined in OMC 13.08.190 and used to convert non-residential water use to an equivalent residential use for the purposes of estimating wastewater flows and establishing monthly rates.

GFC – General Facility Charge; a City of Olympia Wastewater Utility fee defined in OMC 13.08.205.

Goals – Broad, qualitative statement of what the Wastewater Utility hopes to achieve.

GPD – Gallons per day; Gallons per minute = GPM.

HDPE – High density polyethylene; becoming more commonly used as a sewer force main pipe, it can also be used in gravity flow situations.

I&I – Infiltration and Inflow; infiltration is groundwater that leaks into pipes through joints, cracks and breaks in pipes, manholes and other wastewater appurtenances, while inflow is groundwater and/or stormwater that is piped into the sewer system (intentionally or otherwise) via catch basins, roof leaders, basement drains, areas drains and other directly piped sources of stormwater, as well as stormwater flowing through unsealed manhole covers.

LOTT – Lacey, Olympia, Tumwater and Thurston County, also referred to as the LOTT Clean Water Alliance (http://www.lottcleanwater.org/), or LOTT Partners.

MGD – Million gallons per day.

Objectives – Specific, measurable statements of what will be done to achieve these Goals within a particular time frame.

OMC – Olympia Municipal Code; Chapter 13.08 of the OMC addresses wastewater service, 13.20 wastewater pretreatment requirements, and 4.24.010B monthly rates and connection fees.

OSS – Onsite Sewage System, also called a septic system.

PPM – Parts per million; 1 ppm is equivalent to 1 milligram per liter (mg/L) of water.

PSI – Pounds per square inch; a measurement of pressure equal to about 2.3 feet of head.

PVC – Polyvinyl chloride; the most prevalent type of gravity sewer pipe currently in use. Pressure class PVC is also used for sewer force mains.

RCW – Revised Code of Washington; the statutes of the State of Washington

SFR – Single family residence; considered 1 ERU (see above) for the purposes of connection fees and monthly rates, as opposed to a residential structure with more than two units, where each unit is considered 0.7 ERU.

STEP System – Septic Tank Effluent Pumping system; a method of collecting wastewater from a residence or building in a septic tank and pumping the effluent into a STEP pressure main that discharges into the City's gravity sewer collection system.

Strategies – General approaches or methods for achieving Objectives and resolving specific issues. Strategies speak to the question "How will we go about accomplishing our Objectives?"

TRPC – Thurston Regional Planning Council.

UGA – Urban Growth Area; established as part of the implementation of the Growth Management Act. Municipal wastewater utilities, with some exceptions described in the relevant RCW, can only serve customers within their City limits and UGA.

VC – Vitrified clay; a type of gravity sewer pipe commonly used until the 1970s.

WAC – Washington Administrative Code; the regulations that implement the RCW through the state's executive branch agencies.

Appendix D

Hyperlinks and References

Appendix D – Hyperlinks and References

External Links

Department of Ecology (DOE) Water Quality Program	http://www.ecy.wa.gov/programs/wq/wqhome.html
DOE's Criteria for Sewage Works Design manual	http://www.ecy.wa.gov/biblio/9837.html
EPA's Wastewater Programs	http://water.epa.gov/polwaste/wastewater/index.cfm
The Clean Water Act	http://www.epa.gov/lawsregs/laws/cwa.html
The Safe Drinking Water Act	http://www.epa.gov/lawsregs/laws/sdwa.html
LOTT Clean Water Alliance	http://www.lottcleanwater.org/
Olympia Municipal Code	http://www.codepublishing.com/wa/olympia/
Olympia's Engineering Design and Development Standards (EDDS)	http://www.codepublishing.com/wa/olympia/
Olympia's Comprehensive Plan	http://www.codepublishing.com/wa/olympia/
Thurston County Environmental Health	http://www.co.thurston.wa.us/health/ehadm/index.html
Article IV, Sanitary Code of Thurston County	http://www.co.thurston.wa.us/health/ehadm/pdf/Article_IV_Int.pdf
Thurston Co. OSS Management Plan	http://www.co.thurston.wa.us/health/ehadm/OSS_Imp.html
Washington Administrative Code (WAC) and Revised Code of Washington (RCW)	http://www.leg.wa.gov/lawsandagencyrules/Pages/default.aspx
Water System Plan	http://olympiawa.gov/city-utilities/drinking-water/water-system-plan-for-2004-2014.aspx
2003 Storm & Surface Water Plan	http://olympiawa.gov/city-utilities/storm-and-surface-water/policies-and-regulations/policies-and-regulations-storm-and-surface-water-plan
1996 North Thurston County Coordinated Water System Plan	http://olympiawa.gov/city-utilities/drinking-water/~/media/Files/PublicWorks/Water-Resources/NTC%20Coor%20Water%20System%20Plan.pdf
Sustainable Thurston	http://www.trpc.org/regionalplanning/sustainability/Pages/default.aspx
WRIA 13 – Deschutes	http://www.ecy.wa.gov/apps/watersheds/wriapages/13.html
Deschutes TMDLs	http://www.ecy.wa.gov/programs/wq/tmdl/deschutes/index.html
E-one grinder pumps	http://www.eone.com/home/
Growth Management Act	http://apps.leg.wa.gov/rcw/?cite=36.70a

References not Available Online

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Sanitary Sewer Comprehensive Plan, Amendment No. 1, 1992.

Shana Park Nitrate Study, Robinson, Noble & Saltbush, July 2005.

Sewage Disposal Master Plan and Final Environmental Impact Statement, December 1997.

Wastewater Management Plan, 2007.

Thurston County

Bacteriological Contamination Source Identification, Henderson Inlet, 1999-2001, Thurston County Environmental Health Division in conjunction with Dr. Mansour Samadpour, University of Washington, 2002. (Other information on Henderson Inlet is online at http://www.co.thurston.wa.us/health/ehrp/henderson.html.)

Sewerage General Plan for Unincorporated Growth Management Area, April 17, 1990.

LOTT Clean Water Alliance

Sanitary Sewer Overflow Emergency Response Plan, 2006.

Wastewater Resource Management Plan, November 1998.

Other

Bicki, T, and Brown, R., 1991. "On-site Sewage Disposal: The Influence of System Density on Water Quality", J. Environmental Health 53(5):39-42. Cited in: WSDOH, Rule Development Committee Issue Research Report – Lot Size (Minimum Land Area), Technical Issue Reports/T-7A, August 2002.

DeFeo, Wait & Associates, Inc., 1991. Technical Evaluation of Title 5, State Environmental Code 310 CMR 15.00. Prepared for the Massachusetts Department of Environmental Protection.

Thurston Regional Planning Council. The Profile, November 2012.

Washington State Department of Health, 2005. Water Conservation Using Graywater, Fact Sheet, DOH Pub 333-058).

U.S. Department of Agriculture Soil Conservation Service, 1990. Soil Survey of Thurston County, Washington.

Yates, Marylynn V., 1985. "Septic Tank Density and Ground Water Contamination," Ground Water, Vol 23, No.5, pp. 586-591

Appendix E

History of Olympia's Wastewater System

Appendix E – History of Olympia's Wastewater System

The following brief historical summary is drawn mainly from Olympia's earlier (1989, 1997 and 2007) wastewater management plans.

1850-1950

Olympia was founded in 1850 with the establishment of the townsite. Most early settlers traveled from the central and eastern states, and were headed for the gold fields of California, so non-Native American settlement in the South Sound area was sparse, and at first there were no public sewers or other utilities. By 1858 it became quite apparent that some control was necessary, if not for the public health then at least for a more pleasant environment. The first permanent sewers were installed in 1892; they were primarily short reaches flowing directly into Budd Inlet or the Deschutes Waterway. Sewers were expanded when needed, and the urgency of the situation usually prevailed over planning.

Until the mid-1950s, sewers carried both sanitary and storm flows in single pipes discharging into Budd Inlet. Adequate flushing and some dilution were seen as benefits over separate sanitary sewers. By the late 1940's and early 1950s, reports of pollution in Capitol Lake and Budd Inlet made it clear that significant sewer infrastructure improvements would be needed as Olympia grew. Work in the 1940s had identified the need for routing wastewater flows from Tumwater and the Olympia Brewery towards a future treatment plant.

1950 - Present

The first sewage treatment plant was constructed at the site of the present LOTT facility adjacent to the Port of Olympia, and began operation in 1952.

In 1955 the City mandated that storm and sewer flows be separated in future systems and initiated a program to improve the situation by treating wastewater at a cursory level prior to discharge. In 1955, a Pollution Control Commission study of water quality in Budd Inlet and Capitol Lake resulted in the closure of the lake and Budd Inlet south of Priest Point Park to recreational use. The commission recommended intercepting all wastewater to eliminate outfalls into Capitol Lake, West Bay and East Bay, and diverting it to the treatment plant.

In 1956, the Thurston-Mason County Health District found that pollution in Capitol Lake had declined since Tumwater began diverting its wastewater to the treatment plant; however, contamination of Budd Inlet had increased. Its report also recommended directing flows to the treatment plant.

In 1975, another study by the Pollution Control Commission found that Capitol Lake was still not safe for water sports although contamination had decreased. The report also noted that effluent was present along several streets in northwest Olympia, probably because poor soils had led to failure of onsite sewage systems. To date, a fair amount of the older sewers in the downtown Olympia, Capitol

neighborhood and parts of northeast Olympia remain as combined sewer systems that carry wastewater and stormwater to LOTT. See the Central Basin section of Chapter 5 for more detail.

The original treatment facility was owned and operated by the City of Olympia. The cities of Tumwater and Lacey began contracting with Olympia for sanitary sewage treatment in 1954 and 1969 respectively, and the three cities and Thurston County formed the LOTT Partnership in 1976. Olympia continued to own and operate the treatment plant on behalf of the LOTT partnership until July 2001, when the LOTT Clean Water Alliance (as it is now called) was formalized as a separate organization.

See Chapter 3 for more information on the current LOTT Clean Water Alliance long-term management plan, facilities and programs.

Sewer System Planning

During the past 50 years, Olympia's wastewater infrastructure has grown substantially and has been extended into the UGA. In 1960, Olympia retained the Seattle consulting firm of Hill Ingman to complete the first comprehensive sewerage and drainage report. Olympia published its next Sanitary Sewer Comprehensive Plan in 1989, added Amendment No. 1 in 1992, and updated the Plan in 1997.

In the years 2002-2007, the City completed a thorough review and revision of the planning, design standards, operations and financing of the Wastewater Utility, which resulted in the 2007 Wastewater Management Plan.

These plans have guided development of the infrastructure for conveying sewage to the treatment plant with minimal risk to public and environmental health. Under these plans, publicly owned pipe systems have been funded, constructed, repaired and maintained.

As the City has grown in the 20th and into the 21st century, the gravity sewer system has gradually expanded to serve areas annexed to the City and into the outlying Urban Growth Area. Extensions have been prompted by the need to serve new subdivisions or commercial centers, with limited systematic planning. The focus has been on serving individual developments at the time of permitting rather than providing comprehensive regional service.

Extensions typically have adequate capacity for existing and future needs as well as high quality construction. However, these development-driven extensions have sometimes resulted in "leap-frog" service, and many gaps in service remain within the developed area. Areas not served by gravity sewers have utilized onsite sewage systems, and many of these properties are relatively close to sewer lines. Also, the focus on individual developments has resulted in the use of alternative technologies, such as STEP systems, that are cost effective on the development scale, but increase public costs and liability.

Appendix F

Outline and Accomplishments of the 2007 Wastewater Management Plan

Appendix F - Outline and Accomplishments of the 2007 Wastewater Management Plan

(Outline of Part 2 of the 2007 Wastewater Management Plan)

Goals for the Wastewater Utility

Goal 1 – Maximize the gravity sewer system as efficiently as possible (i.e. minimize the number of lift stations).

Goal 2 – Replace STEP systems in the City and its UGA by gravity sewer extensions.

Goal 3 – Replace onsite sewage systems (OSS) in the City and its UGA by gravity sewer extensions.

Goal 4 – Facilitate adoption of new technology and management systems.

Goal 5 – Ensure efficient and effective management of the wastewater system.

Goal 6 – Ensure equitable sharing of the costs of building, maintaining and operating the wastewater system.

Gravity Sewer Program

(Note that the in the 20007 Plan the terms "Strategy" and "Objective" were used in the same way that the 2013 Plan is using the terms "Objective" and "Strategy", respectively. In other words, the meanings have been reversed to be consistent with the current usage of these two terms in most Sustainable planning documents. See Chapter 1 of the 2013 Plan for the current definitions)

A. Strategies and 2007-2012 Objectives
   1. Strategy 1 – Repair or replace deteriorating infrastructure
      a. Objective 1 – Evaluate all major pipe systems
      b. Objective 2 – Complete prioritized repairs in a timely manner
   2. Strategy 2 – Provide system capacity for current and anticipated flow demands
      a. Objective 1 – Upsize pipe and pump systems based on risk during peak flows
      b. Objective 2 – Direct future flows to pipe systems with the greatest reserve capacity
   3. Strategy 3 – Extend gravity sewer to enable conversion of OSS and service to infill areas
      a. Objective 1 – Extend sewers to allow conversion of at least 15 OSS per year, with potential for full or partial cost recovery
   4. Strategy 4 – Extend sewers to outlying areas
      a. Objective 1 – Complete planning and conceptual design for privately funded extensions to major developing areas within one year of Plan adoption.
      b. Objective 2 – Provide City funding for extensions in some areas, e.g. NE and SE UGA, and pursue cost recovery off construction costs as feasible.
   5. Strategy 5 – Reduce I/I by separating combined sewer in conjunction with stormwater, road improvements, and residential repairs.
      a. Objective 1 – Undertake cost effective projects, potentially with LOTT support
      b. Objective 2 – Provide information and technical assistance to customers regarding leaking sewer service lines, downspouts, and other inflow sources.

B. Planned Actions
   1. Strategy 1 – Repair or replace deteriorating infrastructure
      a. Programs:
         i. Pipe televising, evaluation and condition rating
         ii. Monitoring STEP system discharges
         iii. Evaluating pump station condition and criticality
         iv. Tracking high maintenance systems

   v. Responding to emergencies
   b. Projects: 4 Collections and 3 Pump Stations
2. Strategy 2 – Provide system capacity for current and anticipated flow demands
   a. Programs:
      i. Capacity monitoring
      ii. Flow routing
      iii. SE Basin alternative routing
   b. Projects: 3 Collections, 8 Pump Stations
3. Strategy 3 – Extend gravity system to allow conversion of OSS, support infill
   a. Program – Evaluate neighborhoods with high concentrations of OSS and/or infill lots to ID and prioritize potential sewer extensions
   b. Projects – allocate at least $300K per year to fund projects, specifically mentioning Sleater Kinney Road (NE), Lilly Road (NE), 18th Avenue (SE), and Division Street (West Bay)
4. Strategy 4 – Extend sewers to outlying areas
   a. Policies – "refinements to existing Comprehensive Plan policies and development standards"
      i. Private financing expected to fund new development – growth pays for growth; however WW expertise, leadership and funding is needed in order to provide efficient and effective services
      ii. Future users to repay City through general facilities charges, latecomer fees or other cost recovery tools
      iii. City may participate in funding to upgrade existing line and extensions
      iv. Sewer extensions can best be constructed at the same time as a planned street or utility improvement
   b. Programs – "…Utility to play active role in planning, designing and potentially constructing regional gravity sewer systems, with the expectation of full or partial cost recovery."
   c. Projects – lists a number of projects in the different basins;
      i. West Olympia - they "will be development-driven and funded."
      ii. South Bay – "These projects require City leadership and financing, with a significant risk of not recouping costs since major development is not expected."
      iii. Lilly Road – "These projects will be funded jointly by the City and private developers."
      iv. Southeast – "These projects will be funded jointly by the City and private developers."
5. Strategy 5 – Reduce I/I
   a. Programs
      i. Pursue opportunities for I/I reduction during planning of street, stormwater and wastewater projects
      ii. Increase education efforts
   b. Projects – no projects are planned at this time

STEP System Program

A. Strategies, Objectives and Planned Actions
   1. Strategy 1 – No new STEP systems except "vested subdivisions" and infill lots in existing STEP neighborhoods.

a. 2007-20012 Objective – No new permits for developments with STEPS will be approved
b. Policy – Amend Comprehensive Plan policies to reflect the prohibition of additional STEP systems

2. Strategy 2 – Reduce maintenance costs by education and reducing frequency of planned maintenance.
   a. 2007-2012 Objective – Reduce per customer service cost by 20%
   b. Programs
      i. Improve educational materials and distribute periodically
      ii. Schedule inspections every other year instead of annually; evaluate procedures to reduce emergency call-outs

Onsite Sewage System (OSS) Program

A. Strategies and 2007-2012 Objectives
   1. Strategy 1 – Manage individual and community OSS to ensure proper function
      a. 2007-2012 Objectives:
         i. Beginning in 2007, send annual maintenance reminders to all OSS in City
         ii. By 2008, all OSS in drinking water protection areas will have been inspected
         iii. By 2009-2010, owners of OSS in City will be required to send an inspection report to Thurston County every 3 years
   2. Strategy 2 – Permit no new individual or community OSS within the City limits
      a. 2007-2012 Objective – adopt regulations and modify Interlocal agreements as needed to achieve this, coordinating with Thurston County Board of Health.
   3. Strategy 3 – Offer financial incentives to encourage conversion of OSS
      a. 2007-2012 Objectives:
         i. By 2012, at least 75 existing OSS will be connected to gravity sewers
         ii. By 2007, City Council will adopt appropriate financial incentives
   4. Strategy 4 – Require all new plats in the UGA to connect to public sewer; allow individual and community OSS only on an interim basis
      a. 2007-2012 Objective – By 2008, new approval criteria will be adopted
   5. Strategy 5 – Extend gravity sewer to allow OSS conversion
      a. 2007-2012 Objective – Each year, extend sewer to allow conversion of at least 15 OSS using capital facilities funding.

B. Planned Actions
   1. Strategy 1 – Manage individual and community OSS to ensure proper functioning
      a. Policies for individual OSS
         i. Require owners to submit inspection reports every 3 years
         ii. If OSS fails, require hookup if within 300 feet; allow grinder connection if site conditions warrant
         iii. Require hookup if within 300 feet for remodels and expansions effecting OSS operations (e.g. drainfield or tank size)
      b. Programs for individual OSS
         i. Beginning in 2007-2008, begin inspection program in wellhead and other risk areas
         ii. Coordinate implementation of inspection reporting with Thurston County
         iii. Mail annual maintenance reminders to all OSS owners
         iv. Use Thurston County database to assist in technical assistance and CFP planning
         v. Coordinate monitoring with City's Groundwater Protection Program

vi. Work with Thurston County to designate wellhead protection areas as areas of special concern
vii. Offer educational materials for OSS
viii. Provide technical assistance related to OSS maintenance and options for conversion

c. Programs for Community OSS
i. Develop a general maintenance program in accordance with Thurston County
ii. Ensure adequate maintenance agreements are in place
iii. Develop EDDS standards for design and installation of community OSS.

2. Strategy 2 – Permit no new individual or community OSS within City limits
a. Policies
i. Prohibit new OSS in City, coordinating with Thurston County
ii. Allow the use of grinder pump if there are topographic limitations

3. Strategy 3 – Offer incentives to encourage conversion of OSS
a. Programs
i. Expand City's Sewer Connection Loan Program (SCALP) for low and moderate-income OSS owners
ii. Initiate a sewer connection incentive program, neighborhood-based
iii. Provide technical assistance to ULIDs initiated by property owners

4. Strategy 4 – Require all new plats in the UGA to connect to sewer; Individual and community OSS only allowed on interim basis.
a. 2007-2012 Objective – all development within plats will be sewered or include long-term arrangements for conversion to gravity systems
b. Policies
i. Allow new individual OSS in UGA only if over 300 feet, for a parcel (not a plat), and with future connection agreement.
ii. Discourage community OSS in UGA; allow on interim basis only; encourage use of grinder pumps as alternative to OSS. Establish City as review (and denial) authority for community OSS in UGA.
iii. New systems must be designed for future connection to sewer

5. Strategy 5 – Extend gravity sewer to allow conversion of OSS and service to infill lots (same as Strategy 3 in Planned Actions section of Gravity Sewer Program above)
a. Program – Evaluate neighborhoods with a high concentration of OSS and/or undeveloped infill lots to identify and prioritize potential sewer extensions
b. Projects – same as Projects listed under Strategy 3 in Planned Actions section of Gravity Sewer Program above

Alternative Systems Program

A. Strategy and Planned Actions
1. Strategy 1 – Allow conditional use of alternative systems
a. Programs
i. Develop performance objectives for alternative technologies
ii. Establish policies outlining the City's roles and responsibilities for alternative systems
iii. Establish a structured process to evaluate alternative technologies and establish supporting activities. Reflect these in full life cycle cost analyses and determine impacts to connection fees and monthly rates.

iv. Develop an organizational structure to support the program
v. Develop a public education and owner training program for each acceptable technology

Planning and Program Implementation

Strategy – Organize and develop the Wastewater Utility to reflect the City's comprehensive approach to water resources management by implementing six core services:

A. Planning, Policy and Program Management – Planning for long term needs, developing policies, and managing programs; annual budgeting.
   1. 2007-2012 Objective – By 2008, these core services will be fully operational and adequately supporting wastewater decision-making processes.
   2. Actions:
      a. Manage implementation of the Plan
      b. Analyze existing policies and potential revisions, interpret regulations, and help implement necessary changes
      c. Provide policy and technical resources to proactively manage emerging issues and needs
      d. Establish supportive coordinating staff relationships with LOTT and neighboring jurisdictions
      e. Evaluate the effectiveness of all programs and projects, and prepare the Plan for update for 2013-2018.
   3. Staffing – Budgeted at 0.75 FTE, increase of 0.15 FTE
B. Capital Facilities – Planning, scoping, budgeting, tracking and monitoring construction of public infrastructure projects.
   1. 2007-2012 Objective – By mid-2007, this core service will be initiating and supporting construction of the projects indentified in the Plan.
   2. Actions:
      a. Manage capital facilities project planning, scoping, funding and tracking
   3. Staffing – Budgeted at 0.5 FTE
C. Operation and Maintenance – Maintaining pipes, pump stations, STEP systems and community OSS; responding to sewer overflows and other emergencies; constructing small-scale repair projects.
   1. 2007-2012 Objective – Improve efficiency and effectiveness of operations and maintenance by better allocation of resources to critical needs.
   2. Actions:
      a. Develop and maintain condition assessment and life cycle costing processes
      b. Continue STEP system and community OSS maintenance
      c. Increase capability for small-scale repairs
      d. Implement GIS technologies
      e. Continue developing the maintenance management system
      f. Implement systematic staff certification and training programs
      g. Better manage equipment inventory
      h. Complete risk assessment and implement emergency response plan
   3. Staffing – Budgeted for 8.83 FTE; increase to 10.08 FTE in 2008 to handle additional small repair projects.

D. Development Review, Code Enforcement and Technical Assistance – Implementing wastewater regulations for new and existing private development; giving technical support to staff, customers and developers.
   1. 2007-2012 Objective – By 2008, this core service will support private and public decisions about operation and expansion of the regional infrastructure.
   2. Actions:
      a. Review proposed new wastewater systems
      b. Enforce illicit discharge regulations
      c. Provide technical assistance to wastewater customers as needed
      d. GIS support
   3. Staffing – Budgeted at 0.5 FTE
E. Monitoring, Research and Evaluation – Tracking environmental health implications of wastewater management; Ensuring that the program incorporates new technologies as they become available.
   1. 2007-2012 Objective – By 2008, this core service will support the integration of wastewater practices with other water resources responsibilities.
   2. Actions:
      a. Provide resources for wastewater-related surface and groundwater monitoring
      b. Evaluate performance in meeting objectives in this Plan and recommend course correction as needed
      c. Develop and maintain information systems for onsite system management
      d. Explore and evaluate new and innovative wastewater technology
   3. Staffing – Budgeted at 0.5 FTE
F. Public Involvement and Education – Supporting community participation in OSS management, I/I reduction, and other community-based actions.
   1. 2007-2012 Objective – By 2008, this core service will have adequate capacity to support implementation of Plan priorities.
   2. Actions:
      a. Support implementation of Plan priorities, particularly increased City management of OSS and incentives for conversion to public sewer
      b. Keep customers informed about Utility activities, regulatory and rate changes
      c. Coordinate with regional partners in planning and implementing wastewater educational activities as feasible
      d. Inform and involve customers and other stakeholders in wastewater planning activities
   3. Staffing – currently not budgeted; Plan to increase to 0.1 FTE in 20007.

Administrative Support

A. Public Works Director's Office – provides accounting, strategic communications and gateway services.
B. City's Administrative Services Department – provides billing, payroll, financial planning and cash management.
C. Overhead expenses – Like other City departments and utilities, the Wastewater Utility is responsible for its share of overhead expenses. These include its portion of Public Works administration and other City departments' support (e.g. City manager, legal, administrative services, computer and telecommunications, building rental, vehicles, insurance, maintenance and janitorial services).
D. 8.5% State Utility Tax and Business & Occupation taxes, based on annual wastewater revenue.

Accomplishments of the 2007 Wastewater Management Plan

The following key Utility needs were successfully accomplished under the 2007 Plan:

- Completed the construction of four new lift stations and extensive sewer pipeline extensions linked to roadway improvements.
- Upgraded three existing lift stations and installed emergency generators at five lift stations.
- Implemented a sewer Pipeline Assessment and Certification Program. Pipe sections identified with structural deficiencies have been repaired, preferably using trenchless technologies such as internal repair bands and cured-in-place pipe methods.
- Implemented a GIS-based asset management program.
- Established a Neighborhood OSS Conversion Program. Provided technical assistance and financial incentives to OSS owners.
- Developed standard operating procedures for a number of maintenance activities, including the following:
- Implemented a Sewer Overflow Emergency Response Plan in coordination with LOTT Clean Water Alliance.
- Established stable financing and program management for the Utility.

In addition, a large number of capital projects identified in the 2007 Plan were completed. The table on the following page, adapted from Table 17.4 of the 2007 Plan, lists the capital projects, applicable basin, year of estimated completion, estimated cost at the time of the 2007 Plan implementation, the actual cost of the project, and the actual year completed.

For those projects that do not have a construction cost or completion date, they are either currently under design or being constructed, or the timing of the project has been changed to a later date than that listed in the 2007 Plan.

Capital Projects, including timing and cost, from the 2007 Plan

Project	Basin	Strategy[1]	Year	Est. Cost[2]	Actual Cost[3]	Year Constr.
Lilly Road Pipe Replacement (Part of funding went to S-K PS, see below)	Lilly Road	1, 4	2007	$3,600,000	$595,000	2007
Yelm Highway Sewer Extension	Southeast	4	2007	$3,075,000	$3,112,000	2011
East Bay Drive Pump Station Replacement	Northeast	1	2007	$721,000	$310,000	2008
West Bay Sewer Upgrade	West Bay	2	2007	$452,000	$676,000	2009
Percival Street Pipe Replacement (Combined w/West Bay in 2009)	West Bay	1	2007	$450,000	(see above)	2009
Decatur St. Sewer Extension	West Olympia	4	2007	$200,000	On hold	-
Motel 8 Pump Station Generator Replacement	Lilly Road	1	2007	$79,000	On hold	-
Division & Jackson Pump Station Replacement	West Bay	1, 2	2007	$76,000	$516,000	2008
18th Avenue Sewer Extension *(Ph3)*	Southeast	3	2008	$1,422,000	$522,000	2011
Black Lake Pump Station Replacement	West Olympia	2	2008	$646,000		2013-14
Spot Repairs	Citywide	1	2008	$280,000		2011,13
Boulevard Rd Carbon Scrubbers	Southeast	NA	2008		$68,000	2008
South Bay Road Extension	South Bay	4	2009	$2,840,000	On hold	-
West Bay Pump Station Replacement	West Bay	2	2009	$1,763,000		2013
Division and Farwell Pump Station Upgrade	West Bay	2	2009	$28,000	$25,000	2011
Sleater-Kinney Pump Station	Lily Road	3,4	2010		$1,305,000	2011
Henderson Blvd Sewer	Southeast	2,3	2010		$793,000	2011
Miller & Ann Pump Station Upgrade[4]	Northeast	2	2011	$48,000		
Water Street Pump Station Bar Screens[4]	Downtown	2	2012	$688,000		
Old Port 2 Pump Station Replacement[4]	West Bay	2	2012	$645,000		
Kempton Downs Pump Station Upgrade[4]	Southeast	2	2012	$50,000		
Ken Lake Pump Station Building	West Olympia	1	2013	$103,000		
Indian Creek Interceptor (LOTT-funded)	Southeast	2	2015	$532,000		
Woodcrest Pump Station Upgrade	Southeast	1	2015	$100,000		
Miller & Central Pump Station Replacement	Northeast	2	2020	$729,900		
Rossmoor Pump Station Replacement	Southeast	2	2020	$436,000		
Annual Repair Allocation	Citywide	2	Annual	$425,000		
Onsite System Conversions	Citywide	3	Annual	$300,000		
Street Project Upgrades	Citywide	1	Annual	$65,000		
Sewer Pipe Condition Rating	Citywide	1	Annual	$53,300		
Flow Measurement and Analysis *(SFE)*	Downtown	2	Annual	$50,000	$41,700	To 9/2011
Sewer Master Planning		4	Annual	$50,000		
Sewer Infrastructure Predesign and Planning		4	Annual	$30,000		

1. Strategy 1 (replace deteriorating infrastructure), 2 (upgrade capacity), 3 (extend sewers to replace onsite sewage systems and infill), 4 (extend sewer to serve developing areas), 5 (I&I reduction).
2. Costs include construction costs plus 42% allied costs, and are indexed based upon a 3% annual rate of inflation. From September 2007 Wastewater Management Plan.
3. If project is underway, this is the most current contract amount; some of these costs are estimated.
4. Project identified in the September 2007 Wastewater Management Plan, but not as a Capital Project planned for the 2007-2012 time frame.

Appendix G

Lift Station Inventory

City of Olympia Lift Stations Inventory

#		306	334	332	328	333	319
NAME		BLACK LAKE	BRIGGS	CEDRONA	COLONIAL ESTATES	COOPER CREST	DIVISION & FARWELL
ADDRESS	UNIT	2421 Black Lake Bvd. SW	4235 Magnolia Dr. SE	3007 Kaiser Rd. NW	3700 Elizabeth Ave. SE	3600 Cooper Crest Dr. NW	2100 Walnut Rd. NW
CONSTRUCTION YEAR		1966	2008	1997	1994	2005	1995
LATEST UPGRADE		unknown	no upgrade	no upgrade	no upgrade	no upgrade	no upgrade
STATION TYPE		Canned Station	Canned Station	Canned Station	Canned Station	Canned Station	Submersible - Duplex
SEWER TYPE		Separate	Separate	Separate	Separate	Separate	Separate
PUMP SERIES/MODEL NO.			4B2Y	960711	920978		4VCX 150M4-43
IMPELLER DIAMETER	IN		10-1/8	7 or 7 1/2?			9
PUMP MANUFACTURER		Fairbanks Morse	Smith & Loveless	Smith & Loveless	Smith & Loveless	Smith & Loveless	Myers
DESIGN PUMP FLOW	GPM	475	225	320	160	170	200
ELEVATION HEAD*	FT	20	18.5	38	11	120	25
TOTAL DYNAMIC HEAD	FT	67	40	50	24	148	93
MOTOR SERIES NO.				962877C-4	925539A-4		XXX
MOTOR MANUFACTURER		GE	Smith & Loveless	Smith & Loveless	Smith & Loveless	GE	Myers
MOTOR HP	HP	15	5	7.5	2	15	15
MOTOR VOLTAGE	V	220	460	208-230/460	230/460	220	460
MOTOR AMPERAGE	A			21.2-19.2/9.6	7.4/3.7		22
MAX SPEED	RPM	1750	1200	1760	875	1750	1750
PHASE		3	3	3	3	3	3
WET WELL DIAMETER	FT	6	8	8	5	10	6
WET WELL (W.W.) DEPTH	FT	18	14	24.75	14.7	12.4	23.6
OPERATING VOL/FT W.W.	GAL/FT.	211	376	376	147	587	211
FORCE MAIN LENGTH	LF	2200	643	2747	800	4600	2351
FORCE MAIN DIAMETER	IN	6	4	6	4	6	4
FORCE MAIN MATERIAL		AC	PVC C900	PVC	PVC (200psi)	PVC C900	PVC
ON-SITE GENERATOR		yes; in shed	yes	yes	no	yes; 2010	yes; 2012
GENERATOR PLUG		yes	yes	yes	yes	Yes	N/A
COMMENTS			X-pellers	X-peller added			

*Elevation Head = Approx. invert of FM pipe at high point in line - lowest gravity sewer invert into wet well

City of Olympia Lift Stations Inventory

#		302	305	325	307	322	309
NAME		DIVISION & JACKSON	EAST BAY DRIVE	EAST BAY MARINA	ENSIGN ROAD	GOLDCREST	HOLIDAY HILLS
ADDRESS	UNIT	335 Divison St. NW	1621 East Bay Dr. NE	1022 Marina Dr. NE	3200 Ensign Rd. NE	3338 14th Ave. NW	1931 Lakewood Dr. SE
CONSTRUCTION YEAR		2008	1963	1982	1989	1970	1969
LATEST UPGRADE		completely replaced 1957 one	2009	No upgrading	no upgrade	2012	no upgrade
STATION TYPE		Canned Station	Submersible - Duplex	Canned Station	Canned Station	Canned Station	Canned Station
SEWER TYPE		Separate	Separate	Separate	Separate	Separate	Separate
PUMP SERIES/MODEL NO.		4B2Y	NP3102SH-257	4B2A	903095	4BNY	4B2A
IMPELLER DIAMETER	IN	8-3/8	4.9	7 - 3/4		7?	9 - 1/2
PUMP MANUFACTURER		Smith & Loveless	Flygt	Smith & Loveless	Smith & Loveless	Smith&Loveless	Smith&Loveless
DESIGN PUMP FLOW	GPM	300	161	145	600	320	300
ELEVATION HEAD*	FT	13	40	7	17	23	52
TOTAL DYNAMIC HEAD	FT	23?	53?	55	32	39	82
MOTOR SERIES NO.			18-10-2AL	827041c-3	900820A-3		
MOTOR MANUFACTURER		Smith & Loveless	Flygt?	Smith & Loveless	Smith & Loveless	Revland	Revland
MOTOR HP	HP	5	6.5	7.5	7.5	5	15
MOTOR VOLTAGE	V	460	230	230	230/460	230	230
MOTOR AMPERAGE	A		8.2	21.6/10.8	23/11.5		
MAX SPEED	RPM	1200	3490	1760	1150	1760	1760
PHASE		3	3	3	3	3	3
WET WELL DIAMETER	FT	6	5	5	8	10	4
WET WELL (W.W.) DEPTH	FT	12.6	28.5	18.5	16	10	9
OPERATING VOL/FT W.W.	GAL/FT.	211	147	147	376	587	94
FORCE MAIN LENGTH	LF	145	135	3200	701	850	1500
FORCE MAIN DIAMETER	IN	6	4	4	10	6	6
FORCE MAIN MATERIAL		PVC	AC (CI on As-Builts)	AC	PVC (160psi)	HDPE	AC
ON-SITE GENERATOR		no	no	no	yes	yes with a building	yes
GENERATOR PLUG		yes	yes	yes	yes	N/A	N/A
COMMENTS			grinder systems only to East Bay Dr for new		X-pellers on both pumps	1. FM replaced with 6" HDPE (ID=5.65") 2. X-pellers installed 3. WW Diam. Is effective diameter of 6' & 8'	

***Elevation Head = Approx. invert of FM pipe at high point in line - lowest gravity sewer invert into wet well**

City of Olympia Lift Stations Inventory

#		317	329	318	316	312	324
NAME		JASPER	KEMPTON DOWNS	KEN LAKE	MILLER AND ANN	MILLER AND CENTRAL	MOTEL 8
ADDRESS	UNIT	2122 Eastside St. NW	3140 Fones Rd. SE	1800 Camdon Park Dr. SW	2011 Miller Ave. NE	1920 N. Central St. NE	480 College St. NE
CONSTRUCTION YEAR		1972	1993	1969	1995	1970	1979
LATEST UPGRADE		2010	2012	1982?	no upgrade	unknown	no upgrade
STATION TYPE		Submersible - Duplex	Canned Station	Submersible - Duplex	Canned Station	Canned Station	Canned Station
SEWER TYPE		Separate	Separate	Separate	Separate	Separate	Separate
PUMP SERIES/MODEL NO.		47015 NSC	4B2A	470-15 NSC	85177.8.19	6C3	4B2B
IMPELLER DIAMETER	IN		7 - 5/8	7		11 - 5/8	
PUMP MANUFACTURER		Paco	Smith & Loveless	Paco	Cornell Pump Co	Smith & Loveless	Smith & Loveless
DESIGN PUMP FLOW	GPM	100	340	150	300	1000	150
ELEVATION HEAD*	FT	6	20	10	19	24	20
TOTAL DYNAMIC HEAD	FT	15 (est.)	48	19	26	40	38.4
MOTOR SERIES NO.					XXX	0264804008	799186H-17
MOTOR MANUFACTURER		Reliance	Smith & Loveless	Reliance	Marathon Electric	Louis Allis Co.	Smith & Loveless
MOTOR HP	HP	1.5	7.5	3	5	15	5
MOTOR VOLTAGE	V	230	208-230/460	230	480	230/460	230/460
MOTOR AMPERAGE	A		21.5-20.9/10.1	10.4	7	39/19.5	15.2/7.6
MAX SPEED	RPM	1150	1760	1750	1170	1170	1200
PHASE		3	3	3	3	3	3
WET WELL DIAMETER	FT	4	6	4.5	6	6	4
WET WELL (W.W.) DEPTH	FT	11	17.5	18	20	20	8*
OPERATING VOL/FT W.W.	GAL/FT.	94	211	119	211	211	94
FORCE MAIN LENGTH	LF	755	503	163	494	738	692
FORCE MAIN DIAMETER	IN	4	6	4	6	8	4
FORCE MAIN MATERIAL		AC	PVC	AC	PVC	AC	PVC
ON-SITE GENERATOR		yes; 2009	yes	yes	no	yes	no
GENERATOR PLUG		Yes	no	yes	yes	n/a	yes
COMMENTS		no flow measuring device installed	1. Old 4" FM abandoned in place in 2012; physically disconnected. 2. New S&L Pumps in 2012	"pump assemblies replaced in 2009"? - verify	Actual pump capacity lower	Actual pump capacity lower	1. Contact: Mike Mann 943-8000 x114 2. * 8' from bottom of wet well to 6-inch overflow pipe (to ditch)

***Elevation Head = Approx. invert of FM pipe at high point in line - lowest gravity sewer invert into wet well**

City of Olympia Lift Stations Inventory

#		313	314	315	311	323	330
NAME		MUD BAY	OLD PORT I	OLD PORT II	ROOSEVELT & YEW	ROSSMOOR	SLEATER KINNEY
ADDRESS	UNIT	4000 Mud Bay Rd. SW	3110 Leward Ct. NW	3200 Archor Ln. NW	1904 Yew Ave. NE	2706 Grampin Ct. SE	940 Sleater Kinney Rd. NE
CONSTRUCTION YEAR		2008	1971	1971	1970	1978	2010
LATEST UPGRADE		none	unknown	unknown	None	none	none
STATION TYPE		Canned Station	Canned Station	Canned Station	Canned Station	Canned Station	Canned Station
SEWER TYPE		Separate	Separate	Separate	Separate	Separate	Separate
PUMP SERIES/MODEL NO.		6C3	4B2A	4B2A	4B2A	4B2A	4BNY
IMPELLER DIAMETER	IN	12	9 - 3/4	9 - 3/4	8	9 - 3/8?	8-3/4
PUMP MANUFACTURER		Smith & Loveless	Smith & Loveless	Smith & Loveless	Smith & Loveless	Smith & Loveless	Smith & Loveless
DESIGN PUMP FLOW	GPM	820	100	100	200	300	300
ELEVATION HEAD*	FT	22	89	59 or 64	29	20	28
TOTAL DYNAMIC HEAD	FT	47 (est.)	100?	100?	55	35	66
MOTOR SERIES NO.				EFJ513319	700243460		
MOTOR MANUFACTURER		Smith & Loveless	GE	GE	Lewis Allis		
MOTOR HP	HP	15	15	15	10	5	10
MOTOR VOLTAGE	V	460	230/460	230/460	230/460	230	460
MOTOR AMPERAGE	A		40.2/20.2 A	40.4/20.2a	24.8/12.4	18.2A	
MAX SPEED	RPM	1170	1760	1760	1760	1170	1800
PHASE		3	3	3	3	3	3
WET WELL DIAMETER	FT	12	4	4	6	6	6
WET WELL (W.W.) DEPTH	FT	19.6	12	9	11	14	28.7
OPERATING VOL/FT W.W.	GAL/FT.	846	94	94	211	211	211
FORCE MAIN LENGTH	LF	740	570	1935	1295	285	2370
FORCE MAIN DIAMETER	IN	8	4	4	6	6	6
FORCE MAIN MATERIAL		HDPE	AC	AC (class 150)	AC	PVC (160 psi)	HDPE
ON-SITE GENERATOR		yes	no	yes	yes	yes	no
GENERATOR PLUG		n/a	yes	yes	yes	yes	yes
COMMENTS		Need to field-confirm data	pumps with low efficiency	peak flow reaches capacity	generator installed in 2012	X-Pellers added	X-pellers

***Elevation Head = Approx. invert of FM pipe at high point in line - lowest gravity sewer invert into wet well**

City of Olympia Lift Stations Inventory

#		331	301(1)	301(2)	304	308	326
NAME		SPRINGER (26TH AVE)	WATER STREET (1)	WATER STREET (2)	WEST BAY	WOODCREST	WOODFIELD
ADDRESS	UNIT	1629 Springer Rd. NE	220 Water St. NW	220 Water St. NW	2049 West Bay Dr. NW	3014 Woodcrest Dr. SE	2333 Woodfield Loop SE
CONSTRUCTION YEAR		1996	1961	1961	1961	1967	1990
LATEST UPGRADE		No upgrade	1977	2008	1990; 2010; 2012 (FM)	no	no
STATION TYPE		Canned Station - Duplex	Concrete Wetwell/Drywell	Concrete Wetwell/Drywell	Concrete Wetwell/Drywell	Pneumatic Ejector	Canned Station
SEWER TYPE		Separate	Combined	Combined	Separate	Separate	Separate
PUMP SERIES/MODEL NO.		5432K	772001605-1	121207	740956971	N/A	4B2NY?
IMPELLER DIAMETER	IN					N/A	10 - 1/8?
PUMP MANUFACTURER		Fairbanks Morse	Worthington	American Marsh Pumps	Smith & Loveless	Quince	Smith & Loveless
DESIGN PUMP FLOW	GPM	280	13,000	1,400	750	100	150
ELEVATION HEAD*	FT	14				43	52
TOTAL DYNAMIC HEAD	FT	26	19.5		129	50?	88?
MOTOR SERIES NO.			DS3131-12	8VC 284TTFP8102DE L			
MOTOR MANUFACTURER		Marathon	Reliance	Marathon Electric	GE	GE	
MOTOR HP	HP	2	100		40	7.5	15
MOTOR VOLTAGE	V	480	480?	230/460	480	220	230/460
MOTOR AMPERAGE	A		107	31/15.5			40/20
MAX SPEED	RPM	1150	490	865	1760		1750
PHASE		3	3	3	3		3
WET WELL DIAMETER	FT	12	109.62 SF	109.62 SF	57.43 SF	4	6
WET WELL (W.W.) DEPTH	FT	20	16.6	16.6	12	11	17.3
OPERATING VOL/FT W.W.	GAL/FT.	846	820	820	430	72	211
FORCE MAIN LENGTH	LF	936	1928	90	6340	622	2121
FORCE MAIN DIAMETER	IN	6	30	18	12	4	4
FORCE MAIN MATERIAL		PVC	RCP	RCP	PVC	AC (class 150)	PVC (class 200)
ON-SITE GENERATOR		no	yes	yes	yes; 2010	no	no
GENERATOR PLUG		yes	yes	yes	yes	yes	yes
COMMENTS		no flow measuring device installed	no flow testing	no flow testing	All 12-inch PVC force main in 2012	No flow monitoring installed.	S&L pumps w/X-Pellers installed 2010; confirm size and impeller of S&L pumps installed

***Elevation Head = Approx. invert of FM pipe at high point in line - lowest gravity sewer invert into wet well**

City of Olympia Lift Stations Inventory

#		335	Private 320	Private 321	Private 310	LOTT 1	LOTT 2
NAME		YELM HIGHWAY	OVERHULSE	S.P.S.C.C	ST PETER HOSPITAL	CAPITOL LAKE	KAISER ROAD
ADDRESS	UNIT	2000 block Yelm Hwy SE	3138 Overhulse Rd. NW	2011 Mottman Rd. SW	3430 Ensign Rd. NE	1011 Deschutes Pkwy SW	2619 Kaiser Rd. NW
CONSTRUCTION YEAR		2011	1972	1988	1969	1970	1972
LATEST UPGRADE			no upgrade	no upgrade	no upgrade	1999	no upgrade
STATION TYPE		Canned Station	Canned Station	Canned Station	Canned Station	Drywell and Well station	Canned Station
SEWER TYPE		Separate	Separate	Separate	Separate	Separate	Separate
PUMP SERIES/MODEL NO.		6D3C	40MMCPC				
IMPELLER DIAMETER	IN	10-3/8	7				
PUMP MANUFACTURER		Smith & Loveless	Hydromatic	Smith & Loveless	Smith & Loveless		Smith & Loveless
DESIGN PUMP FLOW	GPM	1670	450	200	400		1000
ELEVATION HEAD*	FT		17				
TOTAL DYNAMIC HEAD	FT	60 (est.)	29	45	30		115
MOTOR SERIES NO.							
MOTOR MANUFACTURER			GE	GE	Smith & Loveless		Allis Chalmers
MOTOR HP	HP	50	7.5	7.5	10		50
MOTOR VOLTAGE	V	480	230	460	460		460
MOTOR AMPERAGE	A						
MAX SPEED	RPM	1800					
PHASE		3	3	3	3		3
WET WELL DIAMETER	FT	12	6	4.5	4		8.5
WET WELL (W.W.) DEPTH	FT	26.1	17.6	11.5	24		24.3
OPERATING VOL/FT W.W.	GAL/FT.	846	211	119	94		424
FORCE MAIN LENGTH	LF	1480	30		140	5750	6950
FORCE MAIN DIAMETER	IN	10	4?	8	8	20	10
FORCE MAIN MATERIAL		HDPE	AC	AC	AC	PVC	AC
ON-SITE GENERATOR		yes	yes	no	2nd Power Source	yes	yes
GENERATOR PLUG			yes	yes	yes	yes	yes
COMMENTS		VFDs	Kevin Bender (503) 645-5544; Bender Development LP, kevinbender1492@gmail.com	8-inch AC FM confirmed by contractor for SPSCC Aug. 2012	Jeff Glass 493-7722, Geoffrey.glass@providence.org		

*Elevation Head = Approx. invert of FM pipe at high point in line – lowest gravity sewer invert into wet well

Appendix H

Sewer Overflow Emergency Response Plan

February 2013

City of Olympia
Wastewater Utility

2013 Update
to the

Sewer Overflow
Emergency Response Plan

February 2013

Prepared by:

City of Olympia
Public Works Department
Water Resources
PO Box 1967
Olympia, WA 98507-1967

TABLE OF CONTENTS

APPENDICES

INTRODUCTION

The City of Olympia's Sewer Overflow Emergency Response Plan (ERP) is organized to ensure that the Wastewater Utility can maintain or return services to full operational condition in a timely manner, while minimizing any adverse impacts an overflow may have to people and the environment. Accordingly, this ERP is organized into three main sections, with several other supporting sections and appendices (see the Table of Contents above):

Section I – Field Response Procedures

Section II – Regulatory Agency Notification Procedures

Section III – Public Notification Procedures

Each and every response to a potential sewer overflow event should consider the three Procedures outlined in Sections I - III.

Note that the reporting requirements, as they relate to LOTT in Section II, are for sewer overflows only. While guidance from the Department of Ecology has indicated that reclaimed water spills in excess of 500 gallons should be reported in the same manner as sewer overflows, the City addresses these events under a separate spill response plan specifically set up for Reclaimed Water. See the City's Drinking Water Operations Supervisor for more information.

BACKGROUND

This ERP was prepared consistent with Lacey, Olympia, Tumwater, and Thurston County (LOTT) Clean Water Alliance's National Pollution Discharge Elimination System (NPDES) Permit # WA – 003706, issued by the Washington State Department of Ecology. While LOTT is the primary NPDES Permittee and has day-to-day responsibility for the treatment plant and all permit conditions, the Permit designates the City of Olympia, along with Lacey, Tumwater and Thurston County, as contributing jurisdictions collectively sharing the responsibility for permit issues involving the treatment plant and discharge, as well as being responsible for their respective collection systems and lift stations, and the discharge of waste from the systems to the LOTT system.

This ERP is designed to ensure that every report of a sewage overflow from a sanitary sewer in the City of Olympia service area will be immediately dispatched to the appropriate City staff for confirmation. Quick response will minimize the effects of the overflow with respect to impacts on public health, beneficial uses, and water quality of surface waters and on customer service. The ERP further includes provisions to ensure public safety pursuant to the directions provided by the Thurston County Public Health and Social Services Department (Environmental Health Division) and the Washington State Department of Health, ensuring that public notification is coordinated with the appropriate local and state authorities.

For the purposes of this ERP, "confirmed sewage spill" is also sometimes referred to as "sewer overflow," "overflow," or "SO." As the downtown Olympia area is characterized by a mix of combined and regular sewers, any overflow in that area will be regarded as an SO, with no distinction made between sewer overflows and combined sewer overflows. The policies and guidelines of this document will cover all overflows within the City's wastewater collection system.

The primary objectives of this ERP are to protect public health and the environment, and satisfy regulatory agencies and waste discharge permit conditions which address procedures for managing sewer overflows.

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SECTION I - FIELD RESPONSE PROCEDURES

The Field Response Procedures present a strategy for the City of Olympia to mobilize labor, materials, tools, and equipment to correct or repair any condition that may cause or contribute to a sewer overflow (SO). The procedure discusses general processes and practices for responding to a wide range of potential system failures that could create an overflow to surface waters, land, or buildings. **A checklist covering the basic features of the Field Response Procedures outlined in this Section is provided in Appendix A**.

A. Receipt of Information Regarding a Possible Sewer Overflow

The initial notification of a possible sewer overflow may come from a variety of sources, including the following:

- The general public
- Local police or fire departments
- Control systems, alarms or monitors
- City of Olympia staff performing their normal duties
- Other local jurisdictional staff

The City's Wastewater Utility is responsible for responding to phone calls or reports on possible sewer overflows from its wastewater collection and transmission system, and to provide immediate response to investigate and correct the reported sewer overflow. Generally, telephone calls from the public reporting possible sewer overflows are received Public Works Dispatch (24-hour number is 753-8333). In the case of pump or lift stations and commercial STEP systems, these are connected to the City's supervisory control and data acquisition (SCADA) system. The SCADA system notifies the on-call pump crew maintenance technician of pump station or commercial STEP system alarms including high-level conditions, power failure, or pump failure.

Internet and Intranet access to Spill Reporting:

- City external website Spill Reporting Webpage:
  http://www.ci.olympia.wa.us/city-utilities/storm-and-surface-water/Reporting%20Spills.aspx

- Intranet webpage for Public Works Dispatch:
  http://cityweb/Departments/ex/CustCareTeam/Dispatch.htm

- Email link to report a spill (link is on above webpage):
  spills@ci.olympia.wa.us

1. Reported by the General Public, Police, or Fire Department

Public Works Dispatch will communicate all relevant information to the Wastewater Utility and appropriate Water Resources staff. A list of suggested questions for the phone operator to ask is provided in **Appendix B**. Relevant information to be collected includes:

a. Time and date call was received.
b. *Specific* location of problem.
c. Description of problem.
d. Time possible overflow was noticed by the caller.
e. Caller's name, address, and contact phone number
f. Is the Caller still at the location?

g. Other relevant information or observations of the caller that may assist the responding investigator and crews, if required, to quickly locate, assess and stop the overflow.

The operator, after recording the initial information from the caller, will then notify the responsible Wastewater Utility contact listed in Table 1:

Table 1 - Wastewater Utility Operations Staff Contacts

Shift	Collection System	Pump Stations
Day 7:00AM – 4:30PM	Gary Franks (Operations Supervisor) Work 753-8108, Cell 507-5941 (Nextel #46) Adam Delaney (Operations Leadworker) Work 753-8034, Cell 507-7787 (Nextel #47)	Doug Floyd (Supervisor) Work 753-8157, Cell 507-5947 (Nextel #40)
Other 4:30PM - 7:00AM and weekends	Maintenance Worker II on call (refer to the PW Emergency Duty Roster, which is updated monthly)	Maintenance Technician on call (refer to the PW Emergency Duty Roster)

2. Reported by Pump Station SCADA

Pump station failures are monitored and received by the pump stations supervisory control and data acquisition (SCADA) system. The SCADA system notifies the on-call pump crew Maintenance Technician of all alarm conditions. Once notified, the on-call maintenance technician will respond and immediately investigate the potential overflow. See **Appendix A** for more information.

3. Observed by City Staff

A sewer overflow detected by any personnel in the course of their normal duties should be reported immediately to the Operations Supervisor or Leadworker. The reporting personnel should convey all relevant overflow information as summarized in the questions listed in **Appendix B**.

4. Reported or Observed by LOTT

Under the terms of the Memoranda of Understanding with the LOTT Alliance, the City has agreed to assist LOTT with the response and containment of a confirmed sewer overflow determined to arise from LOTT-owned property both within and outside the City's jurisdiction. The nature of assistance will vary depending upon the circumstances of the sewer overflow, but may include the provision of both manpower and equipment. The LOTT response supervisor will determine the extent of requested assistance, and be responsible for making the request to the City through the City's Operations Supervisor. The LOTT response supervisor should only request assistance for sewer overflows that are beyond the scope of LOTT's own response capability. The City has the right to prioritize its response to its own emergencies should multiple emergencies occur simultaneously. Coordination with LOTT is discussed further in Sections II and III below.

5. Notification of Overflow to LOTT and Sewer Overflow Report Form

After confirmation that a sewer overflow has occurred or is occurring, the Operations Supervisor will contact LOTT to notify them of the overflow, as outlined in Section II below. Alternately, the Supervisor or Leadworker will notify a Wastewater Engineer of the overflow, who will then notify LOTT of the overflow.

A Sewer Overflow Report Form (**Appendix C**) will be completed by the Operations Supervisor, Leadworker, or Wastewater Engineer within 24 hours of confirmation that a sewer overflow has occurred, summarizing pertinent information regarding the overflow.

The Operations Supervisor, Leadworker, or Wastewater Engineer is responsible for updating the Report with information through the end of the event, and submitting it to LOTT so that can finalize an Overflow Report that they will submit to the Department of Ecology. Information on this form can also be used to disseminate information to the public, and coordination posting and closure of water bodies, and public parks and access areas. See Section III for more information on Public Notification.

6. Summary of Individual Responsibilities

A matrix of emergency responsibilities is provided in the following Table:

Table 2 - Emergency Responsibilities

Source	Receipt of Call	Initial Responder	Confirmation	Response Coordinator	SO Form	SO Notification
Potential SO *is discovered by whom?*	*Who takes the initial call?*	*Who is tasked with confirming the SO?*	*Who does the 1st Responder call to confirm the SO?*	*Who manages the emergency response?*	*Who fills out the SO form?*	*Who notifies LOTT?*
Public	Public Works Dispatch	On-call storm/sewer	Supervisor or Leadworker	Supervisor or Lead	Supervisor, Leadworker or Wastewater Engineer	Supervisor, Leadworker or Wastewater EngineerLeadworker
Pump Station SCADA	On-call pump crew	On-call pump crew	Supervisor	Supervisor	Supervisor or Wastewater Engineer	Supervisor or Wastewater Engineer
City Staff	Supervisor or Leadworker	On-call storm/sewer	Supervisor or Leadworker	Supervisor or Leadworker	Supervisor, Leadworker, or Wastewater Engineer	Supervisor, Leadworker, or Wastewater Engineer

B. Dispatch of Appropriate Crews to Site of Sewer Overflow

Failure of any wastewater collection system asset that threatens to cause, or causes an SO, will trigger an immediate response by the City's operations staff to isolate and correct the problem. Crews and equipment shall be available to respond to any SO location, and will be dispatched immediately. Additional operations personnel shall be called in as needed. In circumstances where a crew is dispatched, the following procedures apply.

1. Dispatching Crews

The Public Works Dispatch operator receiving notification of a possible or confirmed sewer overflow shall notify the responsible Wastewater Utility staff in Table 1 to investigate.

After the overflow has been confirmed, the investigating personnel shall notify the Operations Supervisor regarding the sewer overflow. This contact shall be made by telephone, radio, or NexTel, as needed. The

Operations Supervisor shall then act as the project manager for containment, correction, and/or cleanup of the confirmed SO.

2. Crew Instructions and Work Orders

Responding crews should be dispatched by radio or telephone. Crews responding to a confirmed SO should receive instructions from the Operations Supervisor regarding appropriate crews, materials, supplies, and equipment needed.

Dispatchers will ensure that the entire message has been received and acknowledged by the crews that were dispatched. All standard communications procedures should be followed. All employees being dispatched to the site of an SO shall proceed immediately to the site of the overflow. Any delays or conflicts in assignments must be immediately reported to the Operations Supervisor for resolution.

Response crews should, in all cases, report their findings, including possible damage to private and public property, to the Operations Supervisor immediately upon completing their investigation. If the Operations Supervisor has not received findings from the field crew within one (l) hour, the Operations Supervisor shall contact the Response Crew to determine the status of their investigation.

A work order shall be opened for the sewer overflow response, and all tasks associated with the response shall be assigned to that work order with the appropriate asset identifier.

3. Additional Resources

If additional resources outside of those available within the City are needed or contemplated, the Operations Supervisor should convey requests for additional personnel, material, supplies, and equipment to LOTT or LOTT Alliance Partners. The terms of the 2012 Emergency Response Mutual Aid Interlocal Agreement (**Attachment H**) among the LOTT Alliance Partners should be consulted for how to proceed with sharing equipment and other resources. The following are contact information for these parties:

Table 3 – LOTT and Alliance Partner Phone Contact Information

Partner	Daytime	Night
LOTT Alliance	(360) 528-5700	(360) 528-5700
City of Lacey	(360) 491-5644	(360) 704-2740
City of Tumwater	(360) 754-4150	(360) 754-4150
Thurston County	(800) 926-7761	360-867-2661

Under certain circumstances, the City of Olympia may call upon contractors and equipment companies to assist with sewer overflow containment, correction, or cleanup. The Operations Supervisor shall determine whether such assistance is required, and will be responsible for conveying the request to the Water Resources Director for approval, as well as discussing the possible need to initiate the process of declaring an emergency if the normal contractor procurement process needs to be accelerated or bypassed. .

Typically, if a contractor is needed, the City will employ the Small Works Roster process, accessing the list of SWR contractors maintained by the Municipal Resources Services Center. Wastewater Operations also maintains a list of vendors, if equipment is needed that is not on hand or readily available from LOTT or one of the LOTT Alliance Partners.

If the scope of the overflow event is such that extensive outside resources are needed, and a coordinated effort among multiple agencies will be needed to manage the event over a period that may last several days, the Operations Supervisor, in consultation with the Water Resources Director, shall request that the City's

Emergency Operations Center be opened (contact Greg Wright at 753-8466), and institute the Incident Command Structure as shown in **Appendix E**.

4. Private Property and Preliminary Assessment of Damage

When responding to a call that likely involves private property, the Response Crew should conduct a preliminary damage assessment. Appropriate still photographs and video footage of the outdoor area of the sewer overflow and impacted area should be taken if possible. This information should be forwarded to the Operations Supervisor for filing with the Overflow Report.

City of Olympia staff may not enter private property without first attempting to obtain the consent of the property Owner. When the Owner is available, City staff should work with the property Owner, informing the Owner of the nature of work to be required within the Owner's property, and completing and signing a Private Property Waiver Form (**Appendix F**). A preliminary damage assessment should be conducted prior to initiating the work in order to protect the City of Olympia from liability for existing damages not caused by City personnel during the SO response.

When access to private property is required to clean, contain, or correct an SO, but the Owner is either uncooperative or unavailable, City of Olympia staff shall exhaust reasonable alternatives in terms of correcting the problem off-site, or locating the property Owner. When these measures fail to resolve the sewer overflow, the Police Department should be contacted at 704-2740. The Police can help to mediate disputes with uncooperative Owners, and can assist in locating absent Owners. Finally, the City of Olympia Risk Management Office (Connie Cobb at 753-8541) should be contacted to assist in obtaining legal assistance for the purpose of protecting public health and the environment.

5. Field Supervision and Inspection

The Operations Supervisor or Leadworker should visit the site of the overflow to ensure that provisions of this overflow response plan and other directives are met.

6. Coordination with Hazardous Material Response

Upon arrival at the scene of a sewer overflow, the responder or Response Crew should investigate for signs of hazardous materials. Should a suspicious substance (e.g., oil sheen, foamy residue) be found on the ground surface, or should a suspicious odor (e.g., gasoline) not common to the sewer system be detected, the responder or Response Crew should immediately contact the Operations Supervisor for guidance before taking further action.

Should the Operations Supervisor determine the need to alert the Hazardous Materials Response Team, the Responder or Response Crew shall await the arrival of the Hazardous Materials Response Team to take over the scene. Remember that any vehicle engine, portable pump, or open flame (e.g., cigarette lighter) can provide the ignition for an explosion or fire if flammable fluids or vapors are present. Keep a safe distance and observe caution until assistance arrives.

Call 911 *for Hazardous Materials Response Team*

There are two levels of Hazardous Materials Response Teams. The first team to respond will be the local fire department. Local fire departments are qualified to deal with containment of hazardous materials (Level B response). After an initial assessment, the fire department will determine whether the regional Level A response team from Fort Lewis is required. If the Operations Supervisor determines that a Hazardous Materials Response Team is required, a 911 call should be placed. The 911 operator will require details such as the exact location, estimated amount of hazardous materials, approximate description of hazardous

materials, and an assessment of whether anyone has been injured or otherwise affected by the hazardous materials.

Upon arrival of the Hazardous Materials Response Team, the First Responder or Response Crew will take direction from the person with the lead authority on that team. Only when that authority determines that it is safe and appropriate for the Response Crew to proceed can they move forward under the SORP with the containment, clean-up activities, and correction.

C. Overflow Correction, Containment, and Clean-Up

This section describes specific actions to be performed by the Response Crews during a sewer overflow. **A checklist covering the basic features of the Field Response Procedures outlined in this Section is provided in Appendix A.** The objectives of these actions are:

- To protect public health, environment and property from sewage overflows and restore the surrounding area back to normal as soon as possible.
- To establish perimeters and control zones with appropriate traffic cones and barricades, vehicles, or use of natural topography (e.g., ditches, hills, berms). If portions of the street need to be blocked off, the following contacts should be initiated. Public Works Dispatch will forward road closure information to Fire Departments, schools, and other emergency responders and public works departments if necessary.
- To promptly notify the appropriate agencies and individuals pursuant to this plan.
- To contain and recover the sewer overflow to the maximum extent possible including preventing the discharge of sewage into surface waters.

Under most circumstances, the City of Olympia will handle all response actions with its own operations staff. For circumstances beyond the City of Olympia's own response capability, Memoranda of Understanding are in place to obtain assistance from the LOTT Partners.

Coordination with LOTT is outlined in Sections II and III below. The City of Olympia staff and personnel from the Partner jurisdictions have the skills and experience to respond rapidly and in the most appropriate manner. An important issue with respect to an emergency response is to ensure that the temporary actions necessary to divert flows and repair the problem do not produce a problem elsewhere in the system. For example, repair of a force main could require the temporary shutdown of a pump station and diversion of the flow at an upstream location. If the closure is not handled properly, sewage system back-ups may create other overflows and property damage.

Circumstances may arise when the City of Olympia could benefit from the support of private sector construction assistance. This may be true in the case of large diameter pipes buried to depths requiring sheet piling and dewatering should excavation be required. The City of Olympia may also choose to use private contractors for open excavation operations that might exceed the equipment on hand, or which might take more than one day to complete.

If the sewer overflow involves underground pipe, particularly in locations where other utilities may be located, an emergency utilities locate should be called in. The 24-hour contact number for the Utilities Underground Location Center is 811 or 1-800-424-5555. Please press (1) at the appropriate prompt to indicate an emergency locate is required.

1. Responsibilities of Response Crew upon Arrival

It is the responsibility of the first personnel who arrive at the site of a sewer overflow to protect the health and safety of the public by mitigating the impact of the overflow to the extent possible. Should the overflow not be the responsibility of the City of Olympia but there is imminent danger to public health, public, or private property, or to the quality of waters of the state, then prudent emergency action should be taken until the

responsible party assumes responsibility and provides actions. Upon arrival at an SO, the Response Crew should do the following:

- Determine the cause of the overflow, e.g. sewer line blockage, pump station mechanical or electrical failure, sewer line break, etc.;
- Identify and request, if necessary, assistance or additional resources to correct the overflow or to assist in the determination of its cause;
- Determine if private property is impacted. If yes, the Response Crew should inform the Operations Supervisor so the Thurston County Public Health and Social Services Department may be advised. \
- Take immediate steps to stop the overflow, e.g. relieve pipeline blockage, manually operate pump station controls, repair pipe, etc. Extraordinary steps such as shutting down a pump station or diverting flow may be considered where overflows from private property threaten public health and safety (e.g., an overflow running off private property into the public right-of-way).
- Request additional personnel, materials, supplies, or equipment that will expedite and minimize the impact of the overflow.

2. Initial Measures for Containment

- Initiate measures to contain the overflowing sewage and, where possible, recover sewage that has already been discharged.
- Determine the ultimate destination of the overflow, e.g. storm drain, street curb gutter, body of water, creek bed, etc.
- Identify and request the necessary materials and equipment to contain or isolate the overflow, if not readily available; and
- Take immediate steps to contain the overflow, e.g., block or bag storm drains, recover through vacuum truck, divert into downstream manhole, etc.

3. Additional Measures under Potentially Prolonged Overflow Conditions

- Under prolonged overflow conditions, additional measures may be required to correct or contain the event.
- In the event of a prolonged sewer line blockage or a sewer line collapse, a determination should be made to set up a portable by-pass pumping operation around the obstruction.
- Appropriate measures shall be taken to determine the proper size and number of pumps required to effectively handle the sewage flow.
- Continuous or periodic monitoring of the by-pass pumping operation shall be implemented as required.
- Issues raised by regulatory agencies (such as advice from the Department of Fish and Wildlife Biologist) shall be addressed in conjunction with emergency repairs.

4. Cleanup

- Sewer overflow sites are to be thoroughly cleaned after an overflow. No readily identified residue (e.g., sewage solids, papers, rags, plastics, rubber products) is to remain.
- Where practical, the area is to be thoroughly flushed and cleaned of any sewage or wash-down water. Solids and debris are to be flushed, swept, raked, picked up, and transported for proper disposal. Wash water should be collected using a vacuum truck or other means of recovery.
- The overflow site is to be secured to prevent contact by members of the public until the site has been thoroughly cleaned. Posting if required should be undertaken pursuant to Section III below.
- Where appropriate, the overflow site is to be disinfected and/or deodorized.
- Where sewage has resulted in ponding, the area should be pumped dry and the residue disposed in accordance with applicable regulations and policies.

- If a ponded area contains sewage that cannot be pumped dry, it may be treated with bleach. If sewage has discharged into a body of water that may contain fish or other aquatic life, bleach or other appropriate disinfectant should not be applied and the Department of Ecology and Department of Fish and Wildlife should be contacted for specific instructions.
- Use of portable aerators may be required where complete recovery of sewage is not practical and where severe oxygen depletion in existing surface waters is expected.
- If the spill has reached the street and is in danger of entering or has entered the storm system, the Response Crew shall make every effort to track and block the flow to isolate and contain the spill.
- After isolation of the spill has been accomplished, removal of the material may begin. Fresh water may be introduced at the beginning of the spill in the street or storm system to aid in pickup. This may be done with an available hydrant in coordination with Drinking Water Operations. The area will be flushed and vacuumed until all visible sewerage is removed from the street or storm system.

D. Customer Satisfaction

Public Works Dispatch should ensure that, once a sewer overflow is confirmed and fully addressed, there is a follow-up by telephone with the citizen(s) reporting the overflow. The cause of the overflow, if known, and its resolution can be disclosed at that time.

End of Section

SECTION II - REGULATORY AGENCY NOTIFICATION PROCEDURES

As a requirement of LOTT's NPDES Permit, the Washington State Departments of Ecology and Health shall be notified immediately of any Sewer Overflow. This will be done by LOTT. **Therefore, once a sewer overflow is known to have occurred or is occurring, LOTT is to be notified immediately by calling 528-5700.** The person calling LOTT shall confirm that the call has been received by LOTT, and note the date and time the call was made. LOTT's Spill Reporting Requirements, as detailed in **Appendix G**, shall then be followed.

In addition, if there is a need to intentionally bypass a pump station or the collection system to a waterway, this must be reported to LOTT immediately, so that LOTT can provide assistance in this effort and request Department of Ecology (DOE) or other agency involvement if necessary.

LOTT, besides notifying DOE immediately of an overflow event, will submit a detailed written report regarding the overflow to the Department of Ecology within 30 days, unless the report is requested earlier by the Department Ecology. Information regarding the City's response to the sewer overflow shall be submitted to LOTT as outlined below in a timely manner.

Sewer Overflow Report

After the initial notification of an overflow is made to LOTT, a Sewer Overflow Report form (see **Appendix C**) shall be submitted to LOTT, for their submission to the Department of Ecology. The form shall be completed by the Operations Supervisor. Information regarding the sewer overflow shall include the following:

- Indication that the sewage overflow had reached surface waters, i.e., all overflows where sewage was observed running to surface waters, or there was obvious indication (e.g. sewage residue) that sewage flowed to surface waters. The crew shall identify the surface water if known.
- Indication that the sewage overflow had not reached surface waters. Guidance in characterizing these overflows to include:
    - Sewage overflows to covered storm drains (with no public access) where personnel verify, by inspection, that the entire volume is contained in a sump or impoundment and where complete clean up occurs leaving no residue.
    - Preplanned or emergency maintenance jobs involving bypass pumping if access by the public to a bypass channel is restricted and subsequent complete clean up occurs leaving no residue (Any preplanned bypass under these circumstances will not be considered an SO).
    - An overflow where observation or on-site evidence clearly indicates all sewage was retained on land and did not reach surface water and where complete cleanup occurs leaving no residue.
- Location of overflow;
    - The address where the overflow occurred, including cross street. Preferably, a map of the affected area will be included.
    - If a sump pump is discharging to the street, the address of each house that is pumping sewerage.
    - The structure number(s) where the sewerage is overflowing from the system.
- Photos of the overflow and response to overflow if available; email representative photos to addresses listed in Appendix F.
- Cause of the overflow
    - The upstream and downstream structure number shall be given identifying the line section of the cause of the overflow.
    - If the overflow is caused by a blockage, the material causing the blockage shall be identified.
    - A failure analysis of the affected line should be performed using CCTV to help determine the extent of the problem.
- Determination of the start time of the sewer overflows by one of the following methods:

    - Date and time information received and/or reported to have begun and later substantiated by a sewer Investigator or Response Crew.
    - Visual observation.
    - Pump station and lift station SCADA system, flow charts and other recorded data.
- Determination of the stop time of the sewer overflows by one of the following methods:
    - When the blockage is cleared or flow is controlled or contained.
    - The arrival time of the sewer Investigator or Response Crew, if the overflow stopped between the time it was reported and the time of arrival.
- Determination of the volume of the sewer overflows, when possible:
    - When the rate of overflow is known, multiply the duration of the overflow by the overflow rate.
    - An estimation of the rate of sewer overflow in gallons per minute (GPM) can be obtained through one of the following methods:
        - Direct observations of the overflow
        - Measurement of actual overflow
        - When the rate of overflow is not known, investigate the surrounding area for evidence of ponding or other indications of overflow volume.
        - Photographs of the event, when possible.
        - Assessment of any damage to the exterior areas of public or private property. Personnel shall enter private property when possible for the purpose of estimating damage to structures, floor and wall coverings, and personal property.

End of Section

SECTION III - PUBLIC NOTIFICATION PROCEDURES

This section describes the actions the City of Olympia will take, in cooperation with LOTT, Thurston County Environmental Health Division, and Washington State Departments of Health and Ecology, to limit public access and exposure to areas potentially impacted by sewer overflows. If any of the following conditions are relevant to the overflow, the City will initiate discussions regarding a Health Advisory/Public Notice as outlines in this section:

- The overflow has or will reach a surface water
- The overflow has occurred in a public park or similar area of public use
- There may be exposure to a vulnerable population, such as a hospital, school or day care center
- The overflow is in a wellhead protection area

Accordingly, the Operations Supervisor or Leadworker will contact either the Engineering/Planning Manager or Water Resources Engineer listed in Table 4, who will then coordinate the Public Notifications activities described below.

Table 4 – List of Water Resources Personnel to Coordinate Public Notification

Contact Name	Title	Email	Work Phone	Cell/home
Clark Halvorson	Director, Water Resources	chalvors@ci.olympia.wa.us	753-8426	628-9333
Andy Haub	Engineering/Planning Mgr	ahaub@ci.olympia.wa.us	753-8475	239-1407
Steve Sperr	Water Resources Engineer	ssperr@ci.olympia.wa.us	743-8739	507-7618(c) 705-3566(h)

A. Coordination with Thurston County Environmental Health Division

Once it is confirmed that a Public Notification of the Sewer Overflow is necessary, the Engineering/Planning Manager or Water Resources Engineer will contact Public Works Dispatch (753-8333) and give them enough information regarding the location and magnitude of the overflow so that they can initiate the Public Notification Process. Public Works Dispatch, with support from the Engineering/Planning Manager or Water Resources Engineer, will then contact Sue Davis at the Thurston County Environmental Health Division (867-2643) and LOTT to coordinate the Public Notice to be issued jointly.

B. Public Notice/Health Advisory

The Thurston County Health Officer has the authority to issue a health advisory. Accordingly, the City of Olympia will work with Thurston County Environmental Health Division and LOTT to ensure a coordinated public health message. Notify the following individuals if a public health/notice advisory is being issued:

- Public Works Director
- Water Resources Director
- Public Works and/or City Public Information Office (PIO)

The City's PIO will coordinate messages and tools with Thurston County and LOTT to ensure consistent and accurate information is communicated to the public. The PIO will work with program staff for updates and any emerging needs that may occur.

Table 5 – List of Agency Contacts to Coordinate Health Advisory

Contact Name	Title	Email	Work Phone	Cell
City of Olympia:				
Clark Halvorson	Director, Water Resources	chalvors@ci.olympia.wa.us	753-8426	628-9333
Bonnie Herrington	City PIO/Spokesperson	bherring@ci.olympia.wa.us	753-8498 24 hr dispatcher # 753-8333	239 -3004 work Nextel
Thurston County Environmental Health Division:				
Sue Davis	(during normal working hours)	daviss@co.thurston.wa.us	867-2626	
Administrative On-Call Number	(after hours, holidays and weekends)		867-2661	867-2661
Contact one of the following at LOTT:				
Mark Petrie		Mark Petrie@lottcleanwater.org	528-5749	
Dennis O'Connell			480-3069	
Ken Butti		KenButti@lottcleanwater.org	791-7942	

Communication tools available and to consider include (but not limited to):

- Website notification
- TCTV reader board
- Door to door
- Fact sheets
- Media interviews
- Signs

Questions received by Public Works Dispatch that cannot be answered by the information they have can be referred to one of the Water Resources personnel (listed in Table 4) for follow-up.

C. Other Public Notices

Although media notifications will be the primary means of getting information out to the general public, some additional steps may be required depending upon the nature and location of the overflow and the potential threat to public health. Water Resources personnel, in consultation with Thurston County, LOTT, and Washington State personnel, shall determine the need for further public notification through measures that may include:

- Follow-up news releases
- Pre-scripted public service announcements
- Door hangers for distribution in the vicinity of the SO, and/or
- Other measures.

As with initial media contacts, Public Works Dispatch will coordinate the release of messages and communications strategies with public communication personnel from any affected Partner jurisdiction.

D. Temporary Public Access Closure and Signage

In cooperation and coordination with the Thurston County Public Health and Social Services Department, the City should take steps to limit public access to areas potentially impacted by a sewer overflow. After consultation with LOTT and the County, if posting is deemed necessary, the Thurston County Public Health and Social Services Department shall be notified and posting of the site(s) coordinated with them, LOTT, and relevant State agencies. The City shall assist in the posting of the site and Public Notification of such posting.

End of Section

SAFETY PLAN

Emergency response tasks carry a higher degree of personal risk to City and private contractor staff. Risks are increased by the following factors:

- Lack of everyday familiarity with work.
- Working outside of usual shifts, or multiple shifts.
- Remote or difficult to access locations.
- Inclement weather and flooding.
- Heavy traffic at work site.
- Coordination between staff lacking familiarity.
- High degree of stress associated with containment and control.
- High degree of public exposure.

One purpose of implementing an ERP is to prepare City staff for working under the conditions noted above. This preparation will include ERP training, which should be conducted on an annual basis using example case studies. Public Works Water Resources staff shall be made aware of the ERP as part of new employee orientation, and the Checklist for Field Response to a Sewer Overflow (Appendix A) shall be distributed to all maintenance and operations staff.

DISTRIBUTION AND MAINTENANCE OF ERP

Annual updates to the ERP should be made to reflect all changes in policies and procedures as may be required to achieve its objectives. In addition, the emergency contact information listed in **Appendix D** shall be updated no less than once every six months.

A. Submittal and Availability of ERP

Copies of the ERP and any amendments shall be distributed to the following departments and functional positions:

- Washington Department of Ecology
- Thurston County Public Health and Social Services Department
- Washington State Department of Health
- City of Olympia Emergency Operations Center
- City of Olympia Public Works Director
- City of Olympia Water Resources Director
- City of Olympia Wastewater Operations Supervisor
- City of Olympia Pump Stations Supervisor
- LOTT Clean Water Alliance and Alliance Partners

B. Review and Update of ERP

The ERP shall be reviewed annually and amended as appropriate. The City of Olympia should also:

- Update the ERP with the issuance of a revised or new NPDES permit.
- Conduct annual training sessions with appropriate personnel. These would typically take the form of a round-table discussion, exploring case studies and location-specific emergency scenarios

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APPENDICES

INTRODUCTION

The City of Olympia's Sewer Overflow Emergency Response Plan (ERP) is organized to ensure that the Wastewater Utility can maintain or return services to full operational condition in a timely manner, while minimizing any adverse impacts an overflow may have to people and the environment. Accordingly, this ERP is organized into three main sections, with several other supporting sections and appendices (see the Table of Contents above):

Section I – Field Response Procedures

Section II – Regulatory Agency Notification Procedures

Section III – Public Notification Procedures

Each and every response to a potential sewer overflow event should consider the three Procedures outlined in Sections I - III.

Note that the reporting requirements, as they relate to LOTT in Section II, are for sewer overflows only. While guidance from the Department of Ecology has indicated that reclaimed water spills in excess of 500 gallons should be reported in the same manner as sewer overflows, the City addresses these events under a separate spill response plan specifically set up for Reclaimed Water. See the City's Drinking Water Operations Supervisor for more information.

BACKGROUND

This ERP was prepared consistent with Lacey, Olympia, Tumwater, and Thurston County (LOTT) Clean Water Alliance's National Pollution Discharge Elimination System (NPDES) Permit # WA – 003706, issued by the Washington State Department of Ecology. While LOTT is the primary NPDES Permittee and has day-to-day responsibility for the treatment plant and all permit conditions, the Permit designates the City of Olympia, along with Lacey, Tumwater and Thurston County, as contributing jurisdictions collectively sharing the responsibility for permit issues involving the treatment plant and discharge, as well as being responsible for their respective collection systems and lift stations, and the discharge of waste from the systems to the LOTT system.

This ERP is designed to ensure that every report of a sewage overflow from a sanitary sewer in the City of Olympia service area will be immediately dispatched to the appropriate City staff for confirmation. Quick response will minimize the effects of the overflow with respect to impacts on public health, beneficial uses, and water quality of surface waters and on customer service. The ERP further includes provisions to ensure public safety pursuant to the directions provided by the Thurston County Public Health and Social Services Department (Environmental Health Division) and the Washington State Department of Health, ensuring that public notification is coordinated with the appropriate local and state authorities.

For the purposes of this ERP, "confirmed sewage spill" is also sometimes referred to as "sewer overflow," "overflow," or "SO." As the downtown Olympia area is characterized by a mix of combined and regular sewers, any overflow in that area will be regarded as an SO, with no distinction made between sewer overflows and combined sewer overflows. The policies and guidelines of this document will cover all overflows within the City's wastewater collection system.

The primary objectives of this ERP are to protect public health and the environment, and satisfy regulatory agencies and waste discharge permit conditions which address procedures for managing sewer overflows.

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SECTION I - FIELD RESPONSE PROCEDURES

The Field Response Procedures present a strategy for the City of Olympia to mobilize labor, materials, tools, and equipment to correct or repair any condition that may cause or contribute to a sewer overflow (SO). The procedure discusses general processes and practices for responding to a wide range of potential system failures that could create an overflow to surface waters, land, or buildings. **A checklist covering the basic features of the Field Response Procedures outlined in this Section is provided in Appendix A**.

A. Receipt of Information Regarding a Possible Sewer Overflow

The initial notification of a possible sewer overflow may come from a variety of sources, including the following:

- The general public
- Local police or fire departments
- Control systems, alarms or monitors
- City of Olympia staff performing their normal duties
- Other local jurisdictional staff

The City's Wastewater Utility is responsible for responding to phone calls or reports on possible sewer overflows from its wastewater collection and transmission system, and to provide immediate response to investigate and correct the reported sewer overflow. Generally, telephone calls from the public reporting possible sewer overflows are received Public Works Dispatch (24-hour number is 753-8333). In the case of pump or lift stations and commercial STEP systems, these are connected to the City's supervisory control and data acquisition (SCADA) system. The SCADA system notifies the on-call pump crew maintenance technician of pump station or commercial STEP system alarms including high-level conditions, power failure, or pump failure.

Internet and Intranet access to Spill Reporting:

- City external website Spill Reporting Webpage:
  http://www.ci.olympia.wa.us/city-utilities/storm-and-surface-water/Reporting%20Spills.aspx

- Intranet webpage for Public Works Dispatch:
  http://cityweb/Departments/ex/CustCareTeam/Dispatch.htm

- Email link to report a spill (link is on above webpage):
  spills@ci.olympia.wa.us

1. Reported by the General Public, Police, or Fire Department

Public Works Dispatch will communicate all relevant information to the Wastewater Utility and appropriate Water Resources staff. A list of suggested questions for the phone operator to ask is provided in **Appendix B**. Relevant information to be collected includes:

a. Time and date call was received.
b. *Specific* location of problem.
c. Description of problem.
d. Time possible overflow was noticed by the caller.
e. Caller's name, address, and contact phone number
f. Is the Caller still at the location?

g. Other relevant information or observations of the caller that may assist the responding investigator and crews, if required, to quickly locate, assess and stop the overflow.

The operator, after recording the initial information from the caller, will then notify the responsible Wastewater Utility contact listed in Table 1:

Table 1 - Wastewater Utility Operations Staff Contacts

Shift	Collection System	Pump Stations
Day 7:00AM – 4:30PM	Gary Franks (Operations Supervisor) Work 753-8108, Cell 507-5941 (Nextel #46) Adam Delaney (Operations Leadworker) Work 753-8034, Cell 507-7787 (Nextel #47)	Doug Floyd (Supervisor) Work 753-8157, Cell 507-5947 (Nextel #40)
Other 4:30PM - 7:00AM and weekends	Maintenance Worker II on call (refer to the PW Emergency Duty Roster, which is updated monthly)	Maintenance Technician on call (refer to the PW Emergency Duty Roster)

2. Reported by Pump Station SCADA

Pump station failures are monitored and received by the pump stations supervisory control and data acquisition (SCADA) system. The SCADA system notifies the on-call pump crew Maintenance Technician of all alarm conditions. Once notified, the on-call maintenance technician will respond and immediately investigate the potential overflow. See **Appendix A** for more information.

3. Observed by City Staff

A sewer overflow detected by any personnel in the course of their normal duties should be reported immediately to the Operations Supervisor or Leadworker. The reporting personnel should convey all relevant overflow information as summarized in the questions listed in **Appendix B**.

4. Reported or Observed by LOTT

Under the terms of the Memoranda of Understanding with the LOTT Alliance, the City has agreed to assist LOTT with the response and containment of a confirmed sewer overflow determined to arise from LOTT-owned property both within and outside the City's jurisdiction. The nature of assistance will vary depending upon the circumstances of the sewer overflow, but may include the provision of both manpower and equipment. The LOTT response supervisor will determine the extent of requested assistance, and be responsible for making the request to the City through the City's Operations Supervisor. The LOTT response supervisor should only request assistance for sewer overflows that are beyond the scope of LOTT's own response capability. The City has the right to prioritize its response to its own emergencies should multiple emergencies occur simultaneously. Coordination with LOTT is discussed further in Sections II and III below.

5. Notification of Overflow to LOTT and Sewer Overflow Report Form

After confirmation that a sewer overflow has occurred or is occurring, the Operations Supervisor will contact LOTT to notify them of the overflow, as outlined in Section II below. Alternately, the Supervisor or Leadworker will notify a Wastewater Engineer of the overflow, who will then notify LOTT of the overflow.

A Sewer Overflow Report Form (**Appendix C**) will be completed by the Operations Supervisor, Leadworker, or Wastewater Engineer within 24 hours of confirmation that a sewer overflow has occurred, summarizing pertinent information regarding the overflow.

The Operations Supervisor, Leadworker, or Wastewater Engineer is responsible for updating the Report with information through the end of the event, and submitting it to LOTT so that can finalize an Overflow Report that they will submit to the Department of Ecology. Information on this form can also be used to disseminate information to the public, and coordination posting and closure of water bodies, and public parks and access areas. See Section III for more information on Public Notification.

6. Summary of Individual Responsibilities

A matrix of emergency responsibilities is provided in the following Table:

Table 2 - Emergency Responsibilities

Source	Receipt of Call	Initial Responder	Confirmation	Response Coordinator	SO Form	SO Notification
Potential SO *is discovered by whom?*	*Who takes the initial call?*	*Who is tasked with confirming the SO?*	*Who does the 1st Responder call to confirm the SO?*	*Who manages the emergency response?*	*Who fills out the SO form?*	*Who notifies LOTT?*
Public	Public Works Dispatch	On-call storm/sewer	Supervisor or Leadworker	Supervisor or Lead	Supervisor, Leadworker or Wastewater Engineer	Supervisor, Leadworker or Wastewater EngineerLeadworker
Pump Station SCADA	On-call pump crew	On-call pump crew	Supervisor	Supervisor	Supervisor or Wastewater Engineer	Supervisor or Wastewater Engineer
City Staff	Supervisor or Leadworker	On-call storm/sewer	Supervisor or Leadworker	Supervisor or Leadworker	Supervisor, Leadworker, or Wastewater Engineer	Supervisor, Leadworker, or Wastewater Engineer

B. Dispatch of Appropriate Crews to Site of Sewer Overflow

Failure of any wastewater collection system asset that threatens to cause, or causes an SO, will trigger an immediate response by the City's operations staff to isolate and correct the problem. Crews and equipment shall be available to respond to any SO location, and will be dispatched immediately. Additional operations personnel shall be called in as needed. In circumstances where a crew is dispatched, the following procedures apply.

1. Dispatching Crews

The Public Works Dispatch operator receiving notification of a possible or confirmed sewer overflow shall notify the responsible Wastewater Utility staff in Table 1 to investigate.

After the overflow has been confirmed, the investigating personnel shall notify the Operations Supervisor regarding the sewer overflow. This contact shall be made by telephone, radio, or NexTel, as needed. The

Operations Supervisor shall then act as the project manager for containment, correction, and/or cleanup of the confirmed SO.

2. Crew Instructions and Work Orders

Responding crews should be dispatched by radio or telephone. Crews responding to a confirmed SO should receive instructions from the Operations Supervisor regarding appropriate crews, materials, supplies, and equipment needed.

Dispatchers will ensure that the entire message has been received and acknowledged by the crews that were dispatched. All standard communications procedures should be followed. All employees being dispatched to the site of an SO shall proceed immediately to the site of the overflow. Any delays or conflicts in assignments must be immediately reported to the Operations Supervisor for resolution.

Response crews should, in all cases, report their findings, including possible damage to private and public property, to the Operations Supervisor immediately upon completing their investigation. If the Operations Supervisor has not received findings from the field crew within one (l) hour, the Operations Supervisor shall contact the Response Crew to determine the status of their investigation.

A work order shall be opened for the sewer overflow response, and all tasks associated with the response shall be assigned to that work order with the appropriate asset identifier.

3. Additional Resources

If additional resources outside of those available within the City are needed or contemplated, the Operations Supervisor should convey requests for additional personnel, material, supplies, and equipment to LOTT or LOTT Alliance Partners. The terms of the 2012 Emergency Response Mutual Aid Interlocal Agreement (**Attachment H**) among the LOTT Alliance Partners should be consulted for how to proceed with sharing equipment and other resources. The following are contact information for these parties:

Table 3 – LOTT and Alliance Partner Phone Contact Information

Partner	Daytime	Night
LOTT Alliance	(360) 528-5700	(360) 528-5700
City of Lacey	(360) 491-5644	(360) 704-2740
City of Tumwater	(360) 754-4150	(360) 754-4150
Thurston County	(800) 926-7761	360-867-2661

Under certain circumstances, the City of Olympia may call upon contractors and equipment companies to assist with sewer overflow containment, correction, or cleanup. The Operations Supervisor shall determine whether such assistance is required, and will be responsible for conveying the request to the Water Resources Director for approval, as well as discussing the possible need to initiate the process of declaring an emergency if the normal contractor procurement process needs to be accelerated or bypassed. .

Typically, if a contractor is needed, the City will employ the Small Works Roster process, accessing the list of SWR contractors maintained by the Municipal Resources Services Center. Wastewater Operations also maintains a list of vendors, if equipment is needed that is not on hand or readily available from LOTT or one of the LOTT Alliance Partners.

If the scope of the overflow event is such that extensive outside resources are needed, and a coordinated effort among multiple agencies will be needed to manage the event over a period that may last several days, the Operations Supervisor, in consultation with the Water Resources Director, shall request that the City's

Emergency Operations Center be opened (contact Greg Wright at 753-8466), and institute the Incident Command Structure as shown in **Appendix E**.

4. Private Property and Preliminary Assessment of Damage

When responding to a call that likely involves private property, the Response Crew should conduct a preliminary damage assessment. Appropriate still photographs and video footage of the outdoor area of the sewer overflow and impacted area should be taken if possible. This information should be forwarded to the Operations Supervisor for filing with the Overflow Report.

City of Olympia staff may not enter private property without first attempting to obtain the consent of the property Owner. When the Owner is available, City staff should work with the property Owner, informing the Owner of the nature of work to be required within the Owner's property, and completing and signing a Private Property Waiver Form (**Appendix F**). A preliminary damage assessment should be conducted prior to initiating the work in order to protect the City of Olympia from liability for existing damages not caused by City personnel during the SO response.

When access to private property is required to clean, contain, or correct an SO, but the Owner is either uncooperative or unavailable, City of Olympia staff shall exhaust reasonable alternatives in terms of correcting the problem off-site, or locating the property Owner. When these measures fail to resolve the sewer overflow, the Police Department should be contacted at 704-2740. The Police can help to mediate disputes with uncooperative Owners, and can assist in locating absent Owners. Finally, the City of Olympia Risk Management Office (Connie Cobb at 753-8541) should be contacted to assist in obtaining legal assistance for the purpose of protecting public health and the environment.

5. Field Supervision and Inspection

The Operations Supervisor or Leadworker should visit the site of the overflow to ensure that provisions of this overflow response plan and other directives are met.

6. Coordination with Hazardous Material Response

Upon arrival at the scene of a sewer overflow, the responder or Response Crew should investigate for signs of hazardous materials. Should a suspicious substance (e.g., oil sheen, foamy residue) be found on the ground surface, or should a suspicious odor (e.g., gasoline) not common to the sewer system be detected, the responder or Response Crew should immediately contact the Operations Supervisor for guidance before taking further action.

Should the Operations Supervisor determine the need to alert the Hazardous Materials Response Team, the Responder or Response Crew shall await the arrival of the Hazardous Materials Response Team to take over the scene. Remember that any vehicle engine, portable pump, or open flame (e.g., cigarette lighter) can provide the ignition for an explosion or fire if flammable fluids or vapors are present. Keep a safe distance and observe caution until assistance arrives.

Call 911 *for Hazardous Materials Response Team*

There are two levels of Hazardous Materials Response Teams. The first team to respond will be the local fire department. Local fire departments are qualified to deal with containment of hazardous materials (Level B response). After an initial assessment, the fire department will determine whether the regional Level A response team from Fort Lewis is required. If the Operations Supervisor determines that a Hazardous Materials Response Team is required, a 911 call should be placed. The 911 operator will require details such as the exact location, estimated amount of hazardous materials, approximate description of hazardous

materials, and an assessment of whether anyone has been injured or otherwise affected by the hazardous materials.

Upon arrival of the Hazardous Materials Response Team, the First Responder or Response Crew will take direction from the person with the lead authority on that team. Only when that authority determines that it is safe and appropriate for the Response Crew to proceed can they move forward under the SORP with the containment, clean-up activities, and correction.

C. Overflow Correction, Containment, and Clean-Up

This section describes specific actions to be performed by the Response Crews during a sewer overflow. **A checklist covering the basic features of the Field Response Procedures outlined in this Section is provided in Appendix A.** The objectives of these actions are:

- To protect public health, environment and property from sewage overflows and restore the surrounding area back to normal as soon as possible.
- To establish perimeters and control zones with appropriate traffic cones and barricades, vehicles, or use of natural topography (e.g., ditches, hills, berms). If portions of the street need to be blocked off, the following contacts should be initiated. Public Works Dispatch will forward road closure information to Fire Departments, schools, and other emergency responders and public works departments if necessary.
- To promptly notify the appropriate agencies and individuals pursuant to this plan.
- To contain and recover the sewer overflow to the maximum extent possible including preventing the discharge of sewage into surface waters.

Under most circumstances, the City of Olympia will handle all response actions with its own operations staff. For circumstances beyond the City of Olympia's own response capability, Memoranda of Understanding are in place to obtain assistance from the LOTT Partners.

Coordination with LOTT is outlined in Sections II and III below. The City of Olympia staff and personnel from the Partner jurisdictions have the skills and experience to respond rapidly and in the most appropriate manner. An important issue with respect to an emergency response is to ensure that the temporary actions necessary to divert flows and repair the problem do not produce a problem elsewhere in the system. For example, repair of a force main could require the temporary shutdown of a pump station and diversion of the flow at an upstream location. If the closure is not handled properly, sewage system back-ups may create other overflows and property damage.

Circumstances may arise when the City of Olympia could benefit from the support of private sector construction assistance. This may be true in the case of large diameter pipes buried to depths requiring sheet piling and dewatering should excavation be required. The City of Olympia may also choose to use private contractors for open excavation operations that might exceed the equipment on hand, or which might take more than one day to complete.

If the sewer overflow involves underground pipe, particularly in locations where other utilities may be located, an emergency utilities locate should be called in. The 24-hour contact number for the Utilities Underground Location Center is 811 or 1-800-424-5555. Please press (1) at the appropriate prompt to indicate an emergency locate is required.

1. Responsibilities of Response Crew upon Arrival

It is the responsibility of the first personnel who arrive at the site of a sewer overflow to protect the health and safety of the public by mitigating the impact of the overflow to the extent possible. Should the overflow not be the responsibility of the City of Olympia but there is imminent danger to public health, public, or private property, or to the quality of waters of the state, then prudent emergency action should be taken until the

responsible party assumes responsibility and provides actions. Upon arrival at an SO, the Response Crew should do the following:

- Determine the cause of the overflow, e.g. sewer line blockage, pump station mechanical or electrical failure, sewer line break, etc.;
- Identify and request, if necessary, assistance or additional resources to correct the overflow or to assist in the determination of its cause;
- Determine if private property is impacted. If yes, the Response Crew should inform the Operations Supervisor so the Thurston County Public Health and Social Services Department may be advised. \
- Take immediate steps to stop the overflow, e.g. relieve pipeline blockage, manually operate pump station controls, repair pipe, etc. Extraordinary steps such as shutting down a pump station or diverting flow may be considered where overflows from private property threaten public health and safety (e.g., an overflow running off private property into the public right-of-way).
- Request additional personnel, materials, supplies, or equipment that will expedite and minimize the impact of the overflow.

2. Initial Measures for Containment

- Initiate measures to contain the overflowing sewage and, where possible, recover sewage that has already been discharged.
- Determine the ultimate destination of the overflow, e.g. storm drain, street curb gutter, body of water, creek bed, etc.
- Identify and request the necessary materials and equipment to contain or isolate the overflow, if not readily available; and
- Take immediate steps to contain the overflow, e.g., block or bag storm drains, recover through vacuum truck, divert into downstream manhole, etc.

3. Additional Measures under Potentially Prolonged Overflow Conditions

- Under prolonged overflow conditions, additional measures may be required to correct or contain the event.
- In the event of a prolonged sewer line blockage or a sewer line collapse, a determination should be made to set up a portable by-pass pumping operation around the obstruction.
- Appropriate measures shall be taken to determine the proper size and number of pumps required to effectively handle the sewage flow.
- Continuous or periodic monitoring of the by-pass pumping operation shall be implemented as required.
- Issues raised by regulatory agencies (such as advice from the Department of Fish and Wildlife Biologist) shall be addressed in conjunction with emergency repairs.

4. Cleanup

- Sewer overflow sites are to be thoroughly cleaned after an overflow. No readily identified residue (e.g., sewage solids, papers, rags, plastics, rubber products) is to remain.
- Where practical, the area is to be thoroughly flushed and cleaned of any sewage or wash-down water. Solids and debris are to be flushed, swept, raked, picked up, and transported for proper disposal. Wash water should be collected using a vacuum truck or other means of recovery.
- The overflow site is to be secured to prevent contact by members of the public until the site has been thoroughly cleaned. Posting if required should be undertaken pursuant to Section III below.
- Where appropriate, the overflow site is to be disinfected and/or deodorized.
- Where sewage has resulted in ponding, the area should be pumped dry and the residue disposed in accordance with applicable regulations and policies.

- If a ponded area contains sewage that cannot be pumped dry, it may be treated with bleach. If sewage has discharged into a body of water that may contain fish or other aquatic life, bleach or other appropriate disinfectant should not be applied and the Department of Ecology and Department of Fish and Wildlife should be contacted for specific instructions.
- Use of portable aerators may be required where complete recovery of sewage is not practical and where severe oxygen depletion in existing surface waters is expected.
- If the spill has reached the street and is in danger of entering or has entered the storm system, the Response Crew shall make every effort to track and block the flow to isolate and contain the spill.
- After isolation of the spill has been accomplished, removal of the material may begin. Fresh water may be introduced at the beginning of the spill in the street or storm system to aid in pickup. This may be done with an available hydrant in coordination with Drinking Water Operations. The area will be flushed and vacuumed until all visible sewerage is removed from the street or storm system.

D. Customer Satisfaction

Public Works Dispatch should ensure that, once a sewer overflow is confirmed and fully addressed, there is a follow-up by telephone with the citizen(s) reporting the overflow. The cause of the overflow, if known, and its resolution can be disclosed at that time.

End of Section

SECTION II - REGULATORY AGENCY NOTIFICATION PROCEDURES

As a requirement of LOTT's NPDES Permit, the Washington State Departments of Ecology and Health shall be notified immediately of any Sewer Overflow. This will be done by LOTT. **Therefore, once a sewer overflow is known to have occurred or is occurring, LOTT is to be notified immediately by calling 528-5700.** The person calling LOTT shall confirm that the call has been received by LOTT, and note the date and time the call was made. LOTT's Spill Reporting Requirements, as detailed in **Appendix G**, shall then be followed.

In addition, if there is a need to intentionally bypass a pump station or the collection system to a waterway, this must be reported to LOTT immediately, so that LOTT can provide assistance in this effort and request Department of Ecology (DOE) or other agency involvement if necessary.

LOTT, besides notifying DOE immediately of an overflow event, will submit a detailed written report regarding the overflow to the Department of Ecology within 30 days, unless the report is requested earlier by the Department Ecology. Information regarding the City's response to the sewer overflow shall be submitted to LOTT as outlined below in a timely manner.

Sewer Overflow Report

After the initial notification of an overflow is made to LOTT, a Sewer Overflow Report form (see **Appendix C**) shall be submitted to LOTT, for their submission to the Department of Ecology. The form shall be completed by the Operations Supervisor. Information regarding the sewer overflow shall include the following:

- Indication that the sewage overflow had reached surface waters, i.e., all overflows where sewage was observed running to surface waters, or there was obvious indication (e.g. sewage residue) that sewage flowed to surface waters. The crew shall identify the surface water if known.
- Indication that the sewage overflow had not reached surface waters. Guidance in characterizing these overflows to include:
    - Sewage overflows to covered storm drains (with no public access) where personnel verify, by inspection, that the entire volume is contained in a sump or impoundment and where complete clean up occurs leaving no residue.
    - Preplanned or emergency maintenance jobs involving bypass pumping if access by the public to a bypass channel is restricted and subsequent complete clean up occurs leaving no residue (Any preplanned bypass under these circumstances will not be considered an SO).
    - An overflow where observation or on-site evidence clearly indicates all sewage was retained on land and did not reach surface water and where complete cleanup occurs leaving no residue.
- Location of overflow;
    - The address where the overflow occurred, including cross street. Preferably, a map of the affected area will be included.
    - If a sump pump is discharging to the street, the address of each house that is pumping sewerage.
    - The structure number(s) where the sewerage is overflowing from the system.
- Photos of the overflow and response to overflow if available; email representative photos to addresses listed in Appendix F.
- Cause of the overflow
    - The upstream and downstream structure number shall be given identifying the line section of the cause of the overflow.
    - If the overflow is caused by a blockage, the material causing the blockage shall be identified.
    - A failure analysis of the affected line should be performed using CCTV to help determine the extent of the problem.
- Determination of the start time of the sewer overflows by one of the following methods:

    - Date and time information received and/or reported to have begun and later substantiated by a sewer Investigator or Response Crew.
    - Visual observation.
    - Pump station and lift station SCADA system, flow charts and other recorded data.
- Determination of the stop time of the sewer overflows by one of the following methods:
    - When the blockage is cleared or flow is controlled or contained.
    - The arrival time of the sewer Investigator or Response Crew, if the overflow stopped between the time it was reported and the time of arrival.
- Determination of the volume of the sewer overflows, when possible:
    - When the rate of overflow is known, multiply the duration of the overflow by the overflow rate.
    - An estimation of the rate of sewer overflow in gallons per minute (GPM) can be obtained through one of the following methods:
        - Direct observations of the overflow
        - Measurement of actual overflow
        - When the rate of overflow is not known, investigate the surrounding area for evidence of ponding or other indications of overflow volume.
        - Photographs of the event, when possible.
        - Assessment of any damage to the exterior areas of public or private property. Personnel shall enter private property when possible for the purpose of estimating damage to structures, floor and wall coverings, and personal property.

End of Section

SECTION III - PUBLIC NOTIFICATION PROCEDURES

This section describes the actions the City of Olympia will take, in cooperation with LOTT, Thurston County Environmental Health Division, and Washington State Departments of Health and Ecology, to limit public access and exposure to areas potentially impacted by sewer overflows. If any of the following conditions are relevant to the overflow, the City will initiate discussions regarding a Health Advisory/Public Notice as outlines in this section:

- The overflow has or will reach a surface water
- The overflow has occurred in a public park or similar area of public use
- There may be exposure to a vulnerable population, such as a hospital, school or day care center
- The overflow is in a wellhead protection area

Accordingly, the Operations Supervisor or Leadworker will contact either the Engineering/Planning Manager or Water Resources Engineer listed in Table 4, who will then coordinate the Public Notifications activities described below.

Table 4 – List of Water Resources Personnel to Coordinate Public Notification

Contact Name	Title	Email	Work Phone	Cell/home
Clark Halvorson	Director, Water Resources	chalvors@ci.olympia.wa.us	753-8426	628-9333
Andy Haub	Engineering/Planning Mgr	ahaub@ci.olympia.wa.us	753-8475	239-1407
Steve Sperr	Water Resources Engineer	ssperr@ci.olympia.wa.us	743-8739	507-7618(c) 705-3566(h)

A. Coordination with Thurston County Environmental Health Division

Once it is confirmed that a Public Notification of the Sewer Overflow is necessary, the Engineering/Planning Manager or Water Resources Engineer will contact Public Works Dispatch (753-8333) and give them enough information regarding the location and magnitude of the overflow so that they can initiate the Public Notification Process. Public Works Dispatch, with support from the Engineering/Planning Manager or Water Resources Engineer, will then contact Sue Davis at the Thurston County Environmental Health Division (867-2643) and LOTT to coordinate the Public Notice to be issued jointly.

B. Public Notice/Health Advisory

The Thurston County Health Officer has the authority to issue a health advisory. Accordingly, the City of Olympia will work with Thurston County Environmental Health Division and LOTT to ensure a coordinated public health message. Notify the following individuals if a public health/notice advisory is being issued:

- Public Works Director
- Water Resources Director
- Public Works and/or City Public Information Office (PIO)

The City's PIO will coordinate messages and tools with Thurston County and LOTT to ensure consistent and accurate information is communicated to the public. The PIO will work with program staff for updates and any emerging needs that may occur.

Table 5 – List of Agency Contacts to Coordinate Health Advisory

Contact Name	Title	Email	Work Phone	Cell
City of Olympia:				
Clark Halvorson	Director, Water Resources	chalvors@ci.olympia.wa.us	753-8426	628-9333
Bonnie Herrington	City PIO/Spokesperson	bherring@ci.olympia.wa.us	753-8498 24 hr dispatcher # 753-8333	239 -3004 work Nextel
Thurston County Environmental Health Division:				
Sue Davis	(during normal working hours)	daviss@co.thurston.wa.us	867-2626	
Administrative On-Call Number	(after hours, holidays and weekends)		867-2661	867-2661
Contact one of the following at LOTT:				
Mark Petrie		Mark Petrie@lottcleanwater.org	528-5749	
Dennis O'Connell			480-3069	
Ken Butti		KenButti@lottcleanwater.org	791-7942	

Communication tools available and to consider include (but not limited to):

- Website notification
- TCTV reader board
- Door to door
- Fact sheets
- Media interviews
- Signs

Questions received by Public Works Dispatch that cannot be answered by the information they have can be referred to one of the Water Resources personnel (listed in Table 4) for follow-up.

C. Other Public Notices

Although media notifications will be the primary means of getting information out to the general public, some additional steps may be required depending upon the nature and location of the overflow and the potential threat to public health. Water Resources personnel, in consultation with Thurston County, LOTT, and Washington State personnel, shall determine the need for further public notification through measures that may include:

- Follow-up news releases
- Pre-scripted public service announcements
- Door hangers for distribution in the vicinity of the SO, and/or
- Other measures.

As with initial media contacts, Public Works Dispatch will coordinate the release of messages and communications strategies with public communication personnel from any affected Partner jurisdiction.

D. Temporary Public Access Closure and Signage

In cooperation and coordination with the Thurston County Public Health and Social Services Department, the City should take steps to limit public access to areas potentially impacted by a sewer overflow. After consultation with LOTT and the County, if posting is deemed necessary, the Thurston County Public Health and Social Services Department shall be notified and posting of the site(s) coordinated with them, LOTT, and relevant State agencies. The City shall assist in the posting of the site and Public Notification of such posting.

End of Section

SAFETY PLAN

Emergency response tasks carry a higher degree of personal risk to City and private contractor staff. Risks are increased by the following factors:

- Lack of everyday familiarity with work.
- Working outside of usual shifts, or multiple shifts.
- Remote or difficult to access locations.
- Inclement weather and flooding.
- Heavy traffic at work site.
- Coordination between staff lacking familiarity.
- High degree of stress associated with containment and control.
- High degree of public exposure.

One purpose of implementing an ERP is to prepare City staff for working under the conditions noted above. This preparation will include ERP training, which should be conducted on an annual basis using example case studies. Public Works Water Resources staff shall be made aware of the ERP as part of new employee orientation, and the Checklist for Field Response to a Sewer Overflow (Appendix A) shall be distributed to all maintenance and operations staff.

DISTRIBUTION AND MAINTENANCE OF ERP

Annual updates to the ERP should be made to reflect all changes in policies and procedures as may be required to achieve its objectives. In addition, the emergency contact information listed in **Appendix D** shall be updated no less than once every six months.

A. Submittal and Availability of ERP

Copies of the ERP and any amendments shall be distributed to the following departments and functional positions:

- Washington Department of Ecology
- Thurston County Public Health and Social Services Department
- Washington State Department of Health
- Washington State Department of Fish and Wildlife
- City of Olympia Emergency Operations Center
- City of Olympia Public Works Director
- City of Olympia Water Resources Director
- City of Olympia Wastewater Operations Supervisor
- City of Olympia Pump Stations Supervisor
- LOTT Clean Water Alliance and Alliance Partners

B. Review and Update of ERP

The ERP shall be reviewed annually and amended as appropriate. The City of Olympia should also:

- Update the ERP with the issuance of a revised or new NPDES permit.
- Conduct annual training sessions with appropriate personnel. These would typically take the form of a round-table discussion, exploring case studies and location-specific emergency scenarios

Appendix A – Checklist for Field Response to Sewer Overflow

Initial Response

- □ **DETERMINE THE CAUSE** - Determine the cause of the overflow, e.g. sewer line blockage, pump station mechanical or electrical failure, sewer line break, etc.
- □ **NOTIFY YOUR SUPERVISOR** - Notify your Operations Supervisor immediately if the overflow has reached a surface water or has the potential for broad public contact.
- □ **SAFELY SECURE THE SITE** – Block public access to the spill if possible, and ensure that spill responders are wearing Personal Protective Equipment appropriate for the conditions.
- □ **REQUEST MORE RESOURCES** - If necessary, request additional resources to contain and minimize the impact of the overflow or to assist in determining its cause.
- □ **STOP, CONTAIN AND/OR DIVERT** - Take immediate steps to stop and contain the overflow, e.g. relieve pipeline blockage, manually operate lift station controls, repair pipe, bagging storm drains, blocking stormwater discharge point into receiving water, etc. Extraordinary steps such as shutting down lift stations, setting up temporary bypassing or diverting flow should be considered where overflows threaten public health and safety. Consult with Supervisor or Wastewater staff.
- □ **PRIVATE PROPERTY** - Get Private Property Waiver Form signed if incident is on private property and needs to be addressed by City forces.

Cleanup

- □ After the spill has been isolated, begin removing the material. Fresh water may be introduced at the beginning of the spill in the street or storm system to aid in cleanup. This may be done with an available hydrant in coordination with the Water Utility.
- □ Flush and vacuum the area until all visible sewage or wash-down water is removed from the street or storm system.
- □ Where sewage has resulted in ponding, pump the area dry and dispose of the contaminated soil in accordance with applicable regulations and policies.
- □ Sweep, rake and/or pick up all solids and debris and transport to proper disposal.
- □ Secure the overflow site to prevent contact by the public until the site has been thoroughly cleaned. If required, post the site.
- □ Where appropriate, disinfect and/or deodorize the site using lime.
- □ If sewage has discharged into a body of water that may contain fish or other aquatic life, do not apply bleach or other disinfectant.
- □ Use portable aerators if required when complete recovery of sewage is not practical and where severe oxygen depletion in existing surface waters is expected. Consult with Thurston County Environmental Health and Department of Ecology if this is a possibility.

Appendix B –

Questions for Public Works Dispatch- Potential Sewer Overflow

SPILL/OVERFLOW TRACKING FORM	
Date: Click here to enter a date.	Time: Click here to enter text.
Received by: Click here to enter text.	
Routed to: Click here to enter text.	
CALLER INFORMATION	
Name or Agency: Click here to enter text.	
Phone Number: Click here to enter text.	
Does caller want follow-up – yes, no; has caller notified anyone else of spill? Click here to enter text.	
SPILL INFORMATION	
Where is the spill – street, curb, parking lot, private property, out of manhole or pipe, other: Click here to enter text.	
Location – address, intersection, other: Click here to enter text.	
What spilled? Sewage, oil or oily sheen; other? Click here to enter text.	Is the spill currently discharging? Click here to enter text.
How much? Ponding up, flowing down street or to a ditch, pipe, or stream? Choose an item.	
Any other information? Any odor, how long has it been occurring, any dizziness or shortness of breath? Click here to enter text.	

Appendix C - 2013 Sewer Overflow ERP

City of OLYMPIA

Ecology ERTS #: _____
(LOTT to fill in)
LOTT Incident #: _____

SEWER OVERFLOW/SPILL REPORT FORM

Call received at Olympia by: _____

Time call received: _____

Today's Date: _____

☐ **INITIAL REPORT**
☐ **FOLLOW-UP REPORT**
☐ **ON-GOING INCIDENT**
☐ **OTHER**_____

Name: _____ Phone: _____
Person reporting the spill to LOTT

Spill began: _____ at _____ Spill stopped: _____ at _____
Date Time Date Time

Gallons spilled: _____ Material spilled: _____

Spill Location: _____
Address, manhole, nearest intersection or other identifiable location

Spilled to: ☐ ground, no run-off ☐ Run-off to: _____
includes storm ponds street, catch basin, storm sewer, stream or water body

Cause of spill: _____
Line blockage, CSO, STEP system malfunction, etc.

Clean-up & disposal: _____
Actions taken & by whom

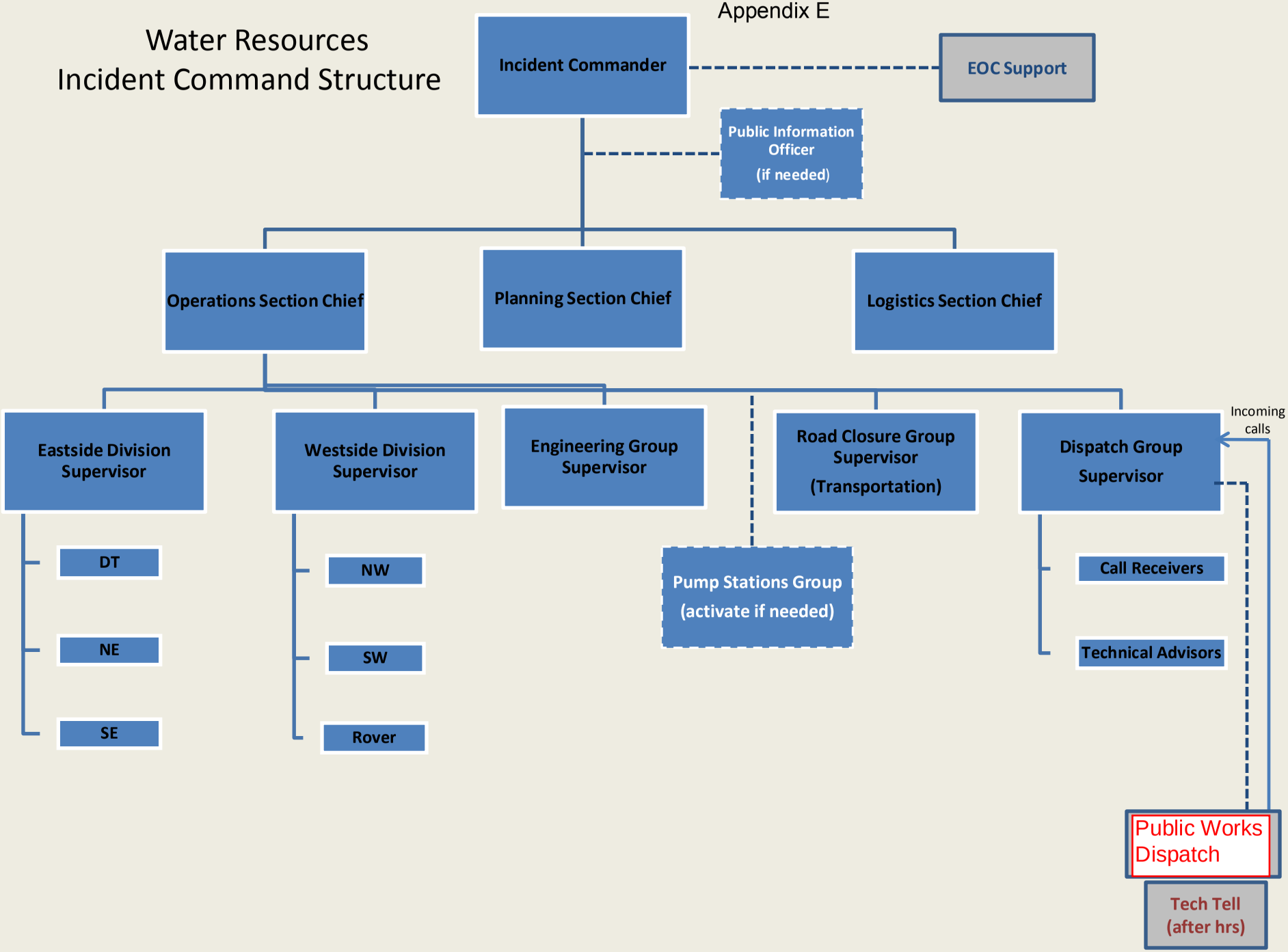
Prevention: _____
Actions taken to prevent re-ocurrance (clean line, replace equipment, etc.)

Notifications by EMAIL or PHONE

NAME	**CALLED** (TIME, DATE & INITIALS)	**EMAILED** (TIME, DATE & INITIALS)
LOTT Clean Water Alliance 528-5700		
LOTT Contact for Questions: MarkPetrie@lottcleanwater.org 528-5749		
City of Olympia Public Works, Water Resources - Contacts for Inter-Agency Coordination:		
Andy Haub - 753-8475		
Steve Sperr - 753-8739		
Clark Halvorson - 753-8426		
Thurston County Environmental Health's Contact Information:		
Sue Davis -867-2626		
After Hours Administrator On Call Number: 867-2661		

Appendix E

Water Resources Incident Command Structure



ACKNOWLEDGEMENT OF RISKS, RELEASE AND WAIVER, AND HOLD HARMLESS AGREEMENT PERTAINING TO SEWER/STORMWATER CREW ASSISTANCE ACTIONS

I, the undersigned, do hereby acknowledge that I have asked and agreed to allow a City of Olympia employee to enter the following address in order to assist me in locating the cause of a sewer backup, sewer spill or stormwater flooding issue at the following address:

_____

(address of property)

I understand that while the City of Olympia has offered assistance in identifying the source of the problem on my property **it is not an admission of negligence or liability on the part of the City and** I am responsible for maintenance and repair of the line up to and including the connection point at the sewer or water main. I agree that the City cannot assume responsibility for damages on private property resulting from side lateral, invasive tree root, or other pipe/connection issues beyond the City sewer or water main.

I hereby waive and release any and all rights and causes of action for damages or injury against the City of Olympia, its officers and employees, for any and all loss, damage, injury, claim, or legal action arising out of or in connection with sewer backup or stormwater flooding events resulting from sources beyond the City sewer or water main.

I HAVE FULLY READ THE ABOVE DOCUMENT, UNDERSTAND ITS CONTENTS FULLY, CERTIFY THAT I AM THE OWNER OF THE PROPERTY STATED ABOVE, AND AGREE TO ITS TERMS AND CONDITIONS ENTIRELY.

_____	_____
Property Owner Signature	City of Olympia Employee
_____	_____
Printed Name	Printed Name City Section/Work Group
_____	_____
Date Signed	Date Signed

Appendix G

LOTT Clean Water Alliance
Lacey • Olympia • Tumwater • Thurston County

Spill Reporting Requirements
For Partner Jurisdictions

The LOTT Alliance's NPDES permit requires that all sanitary sewer collection system spills, including those occurring from STEP systems, and reclaimed water spills are reported to the Washington State Department of Ecology and, in most cases, the Department of Health. The cities of Lacey, Olympia, and Tumwater are required to report sewage and reclaimed water spills (reclaimed water spills greater than 500 gallons) to LOTT, which in turn notifies the state agencies. The following reporting requirements need to be followed by partner jurisdiction staff to ensure timely reporting:

1. All spills need to be reported to the LOTT Clean Water Alliance at **360.528.5700** as soon as practical by the responding jurisdiction, but never later than **20** hours after the spill is discovered. LOTT must report spills verbally to Ecology within 24 hours.
   Exceptions:
   a. If the spill enters any type of waterway – pond, creek, river, or Puget Sound – it must be reported immediately to LOTT at the number listed above.
   b. If there is a need to directly bypass a lift station or collection line to a waterway this must be reported to LOTT as soon as the decision is made – preferably prior to initiating the bypass as Ecology must be immediately notified.

2. Provide as much information and detail as possible during the report:

   a. Name of person reporting spill and contact phone number
   b. Name of person in charge of spill management and cleanup
   c. Location by address or nearest street and cross-street
   d. Start & stop times of the spill
   e. Volume of the spill (estimate is ok)
   f. Cause of the spill and type of water (raw sewage, step system effluent, reclaimed water in amounts greater than 500 gallons, etc…)
   g. Clean up actions (diverted, vactored, lime to ground area, etc…)
   h. Actions taken to prevent reoccurrence of the spill
   i. If photos were taken of the spill, email a representative sample of the spill photos to markpetrie@lottcleanwater.org and kenbutti@lottcleanwater.org.

3. If the spill does enter a receiving water body it is likely that the jurisdiction will need to make two or more reports – the initial report with information available at the time and follow-up report(s) with all the details listed above.

4. The point of contact for questions concerning these requirements is Mark Petrie at 360.528.5749 or markpetrie@lottcleanwater.org.

When recorded return to:
City of Olympia
PO Box 1967
Olympia, WA 98507-1967

INTERLOCAL AGREEMENT
BETWEEN
THE CITIES OF OLYMPIA, LACEY, TUMWATER AND THE LOTT ALLIANCE
FOR
SANITARY SEWER EMERGENCY RESPONSE MUTUAL AID

Whereas, RCW 39.34.010 permits local governmental units to make the most efficient use of their powers by enabling them to cooperate with other localities on a basis of mutual advantage and thereby to provide services and facilities in a manner and pursuant to forms of governmental organization that will accord best with geographic, economic, population and other factors influencing the needs and development of local communities; and

Whereas, pursuant to RCW 39.34.080, each party is authorized to contract with any one or more other public agencies to perform any governmental service, activity, or undertaking which each public agency entering into the contract is authorized by law to perform: provided, that such contract shall be authorized by the governing body of each party to the contract and shall set forth its purposes, powers, rights, objectives and responsibilities of the contracting parties;

Whereas, LOTT Clean Water Alliance (Hereafter "LOTT") owns and operates the Budd Inlet Wastewater Treatment facility, permitted under Chapter 90.48 RCW as a Publicly Owned Treatment Works (POTW); and

Whereas, LOTT owns, operates, and maintains a system of sewers, pump stations, and pressure mains tributary to the POTW; and

Whereas, Tumwater, Olympia, and Lacey (Hereafter "Cities") own, operate, and maintain systems of sewers, pump stations, and pressure mains tributary to the LOTT system and POTW; and

Whereas, the LOTT and Cities systems are interconnected, with the Cities' sewers, pump stations, and pressure mains feeding the LOTT sewers, pump stations, and pressure mains en route to the POTW, and

Whereas, in January 2001, the U.S. Environmental Protection Agency (USEPA) prepared a notice of proposed rulemaking which would have required LOTT to develop a Sanitary Sewer Overflow Emergency Response Plan (SSOERP) as one of the major components of the Capacity, Management, Operation and Maintenance (CMOM) standard permit condition. Although the proposed rulemaking was later withdrawn from the Federal Register, the USEPA has continued to incorporate CMOM in its permitting guidance. In January 2005 the USEPA published a Guide for Evaluating CMOM at Sanitary Sewer Collection Systems which reiterates the requirement for SSOERP; and

Whereas, in both the 2001 rulemaking proposal and the 2005 Guide, the USEPA has stressed coordination and cooperation between neighboring jurisdictions. The 2001 proposal includes a requirement for satellite communities to either be covered by the rules and regulations of the POTW National Pollutant Discharge Elimination System (NPDES) permit, or to obtain individual NPDES permits of their own. This would require each of the LOTT partner jurisdictions to develop and maintain SSOERP's, or integrate their system into the LOTT SSOERP; and

Whereas, mutual assistance and cooperation among LOTT and LOTT's three City partners will provide a higher level of service to all the customers in each respective service area. It will help limit the extent and potentially damaging effects of sanitary sewer overflows to property and human health. It will allow for a coordinated response to the adverse impact of natural disasters and events, such as earthquake and storms, on the proper function of either party's sewer collection and transmission system. In particularly sensitive areas, the team approach can make a difference in limiting sanitary sewer overflow impacts on wildlife, natural resources, and the local economy. Finally, an increased level of assistance and cooperation will limit reliance on Contractor support during the initial containment phase of a sanitary sewer overflow, allowing a measured allocation of financial resources.

NOW, THEREFORE, in consideration of the mutual promises contained herein, the CITIES and THE LOTT ALLIANCE (LOTT) agree as follows:

I. Purpose/Objective

The purpose of this Agreement is to allow CITIES and LOTT to share resources and provide mutual aid in the event of a sanitary sewer overflow emergency, or other Major Disruption of sewer service, in either party's jurisdiction.

II. Definitions

In this Agreement, the following words shall have the meanings set forth below:

Capacity, Management, Operation and Maintenance (CMOM): The use of widely accepted wastewater industry practices to manage, operate, and maintain collection systems, including the investigation of capacity-constrained areas of the collection system and responding to sanitary sewer overflow (SSO) events.

Major Disruption: An event or disaster, such as a power outage, earthquake, storm, tsunami, or flood, that results or could result in the collapse, breakdown, and/or inability of the sewer collection and transmission system to function as designed without the use of significant additional equipment and labor not normally allocated to the routine operation and maintenance of the system.

National Pollutant Discharge Elimination System (NPDES): A provision of the Clean Water Act which prohibits discharge of pollutants into waters of the United States unless a special permit is issued by EPA, a state, or, where delegated, a tribal government on an Indian reservation.

Requesting Party: Party requesting assistance with a sanitary sewer overflow event arising in that party's jurisdiction.

Responding Party: Party to whom a request for assistance with a sanitary sewer overflow event is made.

Sanitary Sewer Overflow Event (or Emergency):While there is no industry-accepted or USEPA-approved definition of a sanitary sewer overflow event, for the purposes of this agreement it is generally accepted to be the imminent or actual occurrence of sewage overflows from any part of a wastewater collection and transmission system operated by either party that discharges sewage onto the ground, and/or into a surface water or storm water system.

Sanitary Sewer Overflow Emergency Response Plan (SSOERP): The most current Plan each party has in place to address sanitary sewer overflow events.

III. Scope of Agreement/Work

Any party to this Agreement may request mutual aid from any other party to this Agreement to assist in response and containment of sanitary sewer overflow events, or a Major Disruption, including efforts to avoid such an event from occurring, arising in either party's respective jurisdiction. The nature of assistance will vary depending on the

circumstances of the event, but may include mutual aid in the form of personnel and/or equipment. In the event mutual aid is desired, the following process shall generally be followed:

A. Requests for Mutual Aid. All requests for aid shall be directed to staff of the respective jurisdictions pursuant to the "Notice" section (Section XV) of this agreement.

B. Response to a Request for Mutual Aid. Participation in responding to the other party's Major Disruption is voluntary and at the sole discretion of the Responding Party. Each party is responsible for protecting its own constituency and jurisdiction. The parties to this Agreement shall not be liable to any other party, or be considered to be in breach of or default under this Agreement, for denying a request to respond.

Upon receiving a request for aid, the Responding Party shall:

1. Determine whether or not personnel and/or equipment is available to respond and let the Requesting Party know, as soon as possible, if they will respond;
2. Assign personnel and apparatus in accordance with availability;
3. Dispatch the designated apparatus with instructions to report to the person designated and authorized by the party requesting such aid to supervise the response effort.

C. Operational Command and Control. Overall responsibility for operational command and control of the event remains at all times with the Requesting Party. The Responding Party is responsible for the care and custody of its own personnel and equipment.

IV. Request for Loan of Vehicles and/or Equipment

Any party (borrowing party) may make a request to borrow vehicles and/or equipment from another party, when appropriate for that party to provide services, subject to the terms of this Agreement. This Agreement creates no obligations. Loaning vehicles and/or equipment is entirely voluntary.

The parties to this Agreement recognize that the responsibility of each party is to serve its own jurisdiction. If, during the loan period, the vehicle and/or equipment is needed by the party from whom equipment and/or vehicles have been loaned (loaning party), the borrowing party shall immediately relinquish custody back to the loaning party.

Training

The loaning party shall provide training on how to properly use the vehicle and/or equipment by a person qualified to provide such training. Necessary training over one

hour in duration will be paid by the borrowing party at the rate of the salary and benefits of the person providing the training.

Transfer of Custody

Transfer of custody occurs when the loaning party relinquishes physical control of the vehicle and/or equipment to the borrowing party, without an operator provided by loaning party.

No Representations/Warranties

The loaning party makes no representations or warranties about the vehicle and/or equipment to the borrowing party. The borrowing party is solely responsible for inspecting the vehicle and/or equipment and determining that it is fit for the purpose for which it is to be used.

Routine Maintenance

Loans of up to thirty (30) days in duration: The loaning party will remain responsible for the cost of any routine maintenance of the vehicle and/or equipment during this period. The borrowing party and loaning party will coordinate to ensure that all necessary maintenance is performed while the vehicle and/or equipment is in the custody of the borrowing party.

Loans of thirty (30) days or more in duration: The borrowing party will be responsible for the cost of any routine maintenance of the vehicle and/or equipment during this period. The borrowing party and loaning party will coordinate to ensure that all necessary maintenance is performed while the vehicle and/or equipment is in the custody of the borrowing party.

V. **Information Sharing & Public Records Requests.** CITIES and LOTT agree to provide each other with the latest maps of each others' sewer systems in a mutually acceptable electronic format at least once each year. In addition, each party agrees to provide the other with any SSOERP within ninety (90) days of adoption and/or amendment.

The parties mutually agree that documents shared between them may be sensitive and that certain records may be exempt from public disclosure under RCW 42.56.420 or other applicable law. The parties, therefore, agree to take all appropriate steps to ensure that such information and records are not shared beyond the parties to this Agreement. In the event LOTT or CITIES receives a public records request for documents that could reasonably be exempt from disclosure, the party receiving the request agrees to consult with the other party about how best to respond, prior to releasing records. If the parties

disagree about disclosure, the party responding to the public disclosure request will provide notice adequate to allow the other party time to seek an injunction prohibiting release of the records, should the other party wish to do so.

VI. Reimbursement for Assistance

The Responding Party shall track and account for all labor, equipment and other direct costs associated with such assistance, and submit its expenses to the Requesting party within 30 days of the event.

Equipment Damage. Each party shall be responsible for any repair and/or damage done to its own vehicles or equipment as a result of participation in a mutual aid incident, except when damage is as a result of the other party's negligence.

VII. Method of Payment

Payment will be made by the Requesting Party within thirty (30) days of receipt of a properly detailed expense invoice from the Responding Party.

VIII. Indemnification

LOTT and the CITIES each agree to defend, indemnify and hold the other, their officers, officials, employees and volunteers harmless from any and all claims, injuries, damages, losses or suits including reasonable attorney fees, arising out of or in connection with each entity's respective performance of its responsibilities under the Agreement, except to the extent such injuries and damages are caused by the negligence of the other.

IX. Dispute Resolution

In the event of any dispute, the parties shall first attempt to resolve the issues through mediation prior to filing any action in court.

X. Joint Board

This Agreement creates no Joint Board and no separate legal entity.

XI. Duration of Agreement

This Agreement shall be effective for five (5) years unless otherwise terminated in the manner described under the termination section of this Agreement.

XII. Termination of Agreement

This Agreement may be terminated upon sixty (60) days notice to the other parties using the method of notice provided for in this Agreement.

XIII. Entire Agreement

This Agreement sets forth all terms and conditions agreed upon by CITIES and LOTT and supercedes any and all prior agreements, oral or otherwise, with respect to the subject matter addressed herein.

XIV. Recording

Prior to its entry into force, this Agreement shall be filed with the Thurston County Auditor's Office or posted upon the websites or other electronically retrievable public source as required by RCW 39.34.040.

XV. Notice

Any notice required under this Agreement shall be to the party at the address listed below and shall become effective three days following the date of deposit in the United States Postal Service.

CITY OF OLYMPIA
Attn: Water Resources Director
PO Box 1967
Olympia, WA 98507-1967

CITY OF TUMWATER
Attn: Director of Public Works
555 Israel Road S.W.
Tumwater, WA 98501

CITY OF LACEY
Attn: Water/Wastewater Supervisor
1200 College Street SE
Lacey, WA 98503

LOTT CLEAN WATER ALLIANCE:
Attn: Facilities Director
500 Adams Street NE
Olympia, WA 98501

XVI. Interpretation and Venue

This Agreement shall be governed by the laws of the State of Washington as to interpretation and performance. The parties hereby agree that venue for enforcement of this agreement shall be the Superior Court of Thurston County.

XVII. Effective Date

This Agreement shall take effect on the date of the last authorizing signature affixed hereto.

CITY OF OLYMPIA

Mayor (or Mayor Pro Tem)

Date: 8/14/12

Approved as to form:

City Attorney (ACA)

LOTT CLEAN WATER ALLIANCE

~~Board President~~ Executive Director

Date: 9/24/2012

Approved as to form:

General Counsel

CITY OF LACEY

City Manager

Date: 9/4/2012

Approved as to form:

Asst. City Attorney

CITY OF TUMWATER

Mayor (or Mayor Pro Tem)

Date: 9/11/12

Approved as to form:

City Attorney

Appendix I

LOTT Waste Discharge and Reclaimed Water NPDES Permit No. WA0037061

October 2011

DEPARTMENT OF
ECOLOGY
State of Washington

Issuance Date: August 26, 2011
Effective Date: October 1, 2011
Expiration Date: September 30, 2016

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
WASTE DISCHARGE AND RECLAIMED WATER PERMIT No. WA0037061

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
OLYMPIA, WASHINGTON 98504-7775

In compliance with the provisions of the
State of Washington Reclaimed Water Act, Chapter 90.46 Revised Code of Washington
and the
Water Pollution Control Law Chapter 90.48 Revised Code of Washington, as amended
and
The Federal Water Pollution Control Act
(The Clean Water Act)
Title 33 United States Code, Section 1251 et seq.
and
STATE OF WASHINGTON
DEPARTMENT OF HEALTH
In compliance with the provisions of Chapter 90.46 and 43.70 Revised Code of Washington
Authorizes

LOTT Clean Water Alliance
500 Adams Street Northeast
Olympia, Washington 98501-6911

and the
Contributing Jurisdictions[a]

City of Lacey P.O. Box 3400 Lacey, WA 98509	City of Olympia P.O. Box 1967 Olympia, WA 98507	City of Tumwater 555 Israel Rd SW Tumwater, WA 98501	Thurston County 2000 Lakeridge Dr SW Olympia, WA 98502

Plant Location: 500 Adams Street Northeast, Olympia, WA 98501	Receiving Water: Budd Inlet, South Puget Sound	
Water Body I.D. No.: 1224026474620	Plant Discharge Locations: 001 North Outfall Latitude: 47.05937 N Longitude: -122.90572 W	Reclaimed Water Location: 005 Reclaimed Water 47.0875 N -122.900556W
Plant Type: Activated Sludge/Advanced Treatment and Class A Reclaimed Water	002 Fiddlehead Outfall (Emergency use only) Latitude: 47.05103 N Longitude: -122.90567 W	

to discharge in accordance with the special and general conditions which follow.

Robert W. Bergquist, LEED® AP
Southwest Region Manager
Water Quality Program
Washington State Department of Ecology

[a]While the LOTT Alliance is the primary Permittee and has day-to-day responsibility for the treatment plant and all permit conditions, except as otherwise noted, the cities of Lacey, Olympia, and Tumwater and Thurston County as contributing jurisdictions collectively share responsibility for permit issues involving the treatment plant and discharge, as well as being responsible for their respective collection systems and lift stations, and the discharge of waste from their systems to the LOTT system.

TABLE OF CONTENTS

SPECIAL CONDITIONS

RECLAIMED WATER CONDITIONS

GENERAL CONDITIONS

SUMMARY OF PERMIT REPORT SUBMITTALS

Refer to the Special and General Conditions of this permit for additional submittal requirements.

Permit Section	Submittal	Frequency	First Submittal Date
S3.A. R3.A.	Discharge Monitoring Report	Monthly	November 15, 2011
S3.E.	Noncompliance Notification	As necessary	
S3.F.	Shellfish Protection	As necessary	
S4.B.	Plans for Maintaining Adequate Capacity	Annually	
S4.D.	Notification of New or Altered Sources	As necessary	
S4.E.	Infiltration and Inflow Evaluation	Annually	May 15, 2012
S4.F.	Wasteload Assessment	Annually	May 15, 2012
S5.G. R5.B.	Operations and Maintenance Manual Update	As necessary	
S6.A.5.	Pretreatment Report	1/year	March 1, 2012
S8.A.	Acute Toxicity Testing Results	1/permit cycle	March 1, 2016
S9.A.	Chronic Toxicity Testing Results	1/permit cycle	March 1, 2016
S10.D.	Combined Sewer Overflow Report	Annually	May 15, 2012
S11.	Outfall Evaluation	1/permit cycle	March 1, 2015
R3.B.3	Monthly Summary of Operating Records	Monthly with DMR	November 15, 2011
R3.B.4	Cross Connection Control Report	Annually	
R4.A.	Water Reuse Summary Plan	Annually	January 31, 2012
R4.H.	Service and Use Area Contract	As needed	
G1.	Notice of Change in Authorization	As necessary	
G4.	Permit Application for Substantive Changes to the Discharge	As necessary	
G5.	Engineering Report for Construction or Modification Activities	As necessary	
G7.	Application for Permit Renewal	1/permit cycle	March 1, 2016
G21	Notice of Planned Changes	As necessary	
G22	Reporting Anticipated Non-compliance	As necessary	

Submittals shall be sent to the following addresses:

1. Department of Ecology, Water Quality Program, Municipal Permit Coordinator, Southwest Regional Office, P.O. Box 47775, Olympia, Washington 98504-7775
2. Department of Health, Office of Shellfish and Water Protection, 16201 East Indiana Avenue, Suite 1500, Spokane Valley, WA 99216

SPECIAL CONDITIONS

S1. DISCHARGE LIMITS

A. Effluent Limits

Beginning on the effective date of this permit and lasting through the expiration date, the Permittee is authorized to discharge municipal wastewater at the permitted locations subject to complying with the following limitations:

	EFFLUENT LIMITS[a]: OUTFALLS # 001 & 002[b]	
Parameter	**Average Monthly**	**Average Weekly**
Winter Season Biochemical Oxygen Demand[c] (5 day) (November – March)	30 mg/L, 5640 lbs/day 85% Removal	45 mg/L, 8460 lbs/day
Spring/Fall Season Biochemical Oxygen Demand[c] (5 day) (April, May, & October)	8 mg/L, 900 lbs/day 85% Removal	12 mg/L, 1350 lbs/day
Summer Season Biochemical Oxygen Demand[c] (5 day) (June – September)	7 mg/L, 671 lbs/day 85% Removal	10.5 mg/L, 1006 lbs/day
Total Suspended Solids[c]	30 mg/L, 5265 lbs/day 85% Removal	45 mg/L, 7898 lbs/day
Fecal Coliform Bacteria	200/100 mL	400/100 mL
pH[d]	Daily minimum is equal to or greater than 6.0 and the daily maximum is less than or equal to 9.0	
Spring/Fall Season Total Inorganic Nitrogen (TIN)[e] (April, May, & October)	3 mg/L, 338 lbs/day	
Summer Season Total Inorganic Nitrogen (TIN)[e] (June – September)	3 mg/L, 288 lbs/day	
	EFFLUENT LIMITS[a]: OUTFALL # 001 ONLY	
Parameter	**Average Monthly**	**Maximum Daily[f]**
Winter Season Total Ammonia (as N)[g] (November – March)	26 mg/L	36 mg/L
	EFFLUENT LIMITS[a]: OUTFALL # 002[b] ONLY	
Parameter	**Average Monthly**	**Maximum Daily[f]**
Winter Season Total Ammonia (as N)[g] (November – March)	22 mg/L	31 mg/L
Total Recoverable Copper	6 µg/L	7.5 µg/L

EFFLUENT LIMITATIONS FOR CLASS A RECLAIMED WATER: SEE CONDITION R1
[a]The average monthly and weekly effluent limitations are based on the arithmetic mean of the samples taken with the exception of fecal coliform, which is based on the geometric mean.
[b]Outfall 002 (Fiddlehead) is to be used in emergency situations only, except as described in S13.E
[c]The average monthly effluent concentration for BOD_5 and Total Suspended Solids shall not exceed 30 mg/L or 15 percent of the respective monthly average influent concentrations, whichever is more stringent. The 85 percent removal requirement applies to the overall treatment system, including the Budd Inlet Treatment Plant, the Satellite Reclamation Plants, and STEP tanks in the collection system.
[d]Indicates the range of permitted values. When pH is continuously monitored, excursions between 5.0 and 6.0, or 9.0 and 10.0 shall not be considered violations provided no single excursion exceeds 60 minutes in length and total excursions do not exceed 7 hours and 30 minutes per month. Any excursions below 5.0 and above 10.0 are violations. The instantaneous maximum and minimum pH shall be reported monthly.
[e]Total Inorganic Nitrogen (TIN) is the sum of the inorganic forms of Nitrogen (Nitrate, Nitrite, and Ammonia) each reported as Nitrogen. The TIN limit shall be a seasonal limit and shall apply from April 1, through October 31, of each year, with higher Spring and Fall loading limits.
[f]The maximum daily effluent limitation is defined as the highest allowable daily discharge. The daily discharge means the discharge of a pollutant measured during a calendar day. For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For other units of measurement, the daily discharge is the average measurement of the pollutant over the day.
[g]The Winter Season Total Ammonia limit is a seasonal limit and shall apply from November 1, through March 31, of each year.

B. Mixing Zone Descriptions

The maximum boundaries of the mixing zones are defined as follows:

North Outfall (#001):

The chronic mixing zone extends 213.5 feet from the last discharge port at both ends of the diffuser section and 215 feet from the centerline of the diffuser section. The acute zone extends 21.4 feet from the ends of the diffuser and 21.5 feet from the centerline of the diffuser pipe.

Fiddlehead Outfall (#002):

The chronic mixing zone consists of that portion of a 201-foot circle centered over the discharge point that does not impinge upon the shoreline. The acute zone extends 20.1 feet in a circle centered over the discharge point.

S2. MONITORING REQUIREMENTS

A. Monitoring Schedule

Category	Parameter	Units	Sample Point	Minimum Sampling Frequency	Sample Type
Wastewater Influent	BOD_5	mg/L lbs/day	Plant Influent	3 days/week	24-hour composite

Category	Parameter	Units	Sample Point	Minimum Sampling Frequency	Sample Type
Wastewater Influent	TSS	mg/L lbs/day	Plant Influent	3 days/week	24-hour composite
Wastewater Influent	Flow	MGD	Plant Influent	Continuous[1]	Recording meter
Wastewater Influent	pH	Standard Units	Plant Influent	Daily	Grab
Wastewater Influent	Ammonia as (N)	mg/L lbs/day	Plant Influent	5 days/week from April 1 through October 31, 1 day/week otherwise	24-hour composite
Wastewater Influent	Nitrate & Nitrite Total as (N)	mg/L	Plant Influent	5 days/week from April 1 through October 31, 1 day/week otherwise	24-hour composite
Wastewater Influent	TKN	mg/L	Plant Influent	1 day/week	24-hour composite
Wastewater Effluent	Flow	MGD	Plant Effluent	Continuous[1]	Recording meter
Wastewater Effluent	BOD_5	mg/L lbs/day	Plant Effluent	3 days/week	24-hour composite
Wastewater Effluent	TSS	mg/L lbs/day	Plant Effluent	Daily	24-hour composite
Wastewater Effluent	pH	Standard Units	Plant Effluent	Daily	Grab
Wastewater Effluent	Fecal Coliform Bacteria	#/100 mL	Plant Effluent	Daily	Grab
Wastewater Effluent	Temperature	°C	Plant Effluent	Daily	Grab
Wastewater Effluent	Ammonia as (N)	mg/L	Plant Effluent	5 days/week from, April 1 through October 31, 1 day/week otherwise	24-hour composite

Category	Parameter	Units	Sample Point	Minimum Sampling Frequency	Sample Type
Wastewater Effluent	Nitrate & Nitrite Total as (N)	mg/L	Plant Effluent	5 days/week from April 1 through October 31, 1 day/week otherwise	24-hour composite
Wastewater Effluent	TKN	mg/L	Plant Effluent	1 day/week	24-hour composite
Wastewater Effluent	Total Recoverable Metals: Copper, Lead, Nickel, Silver, & Zinc	µg/L	Plant Effluent	Monthly	24-hour composite
Pretreatment	As specified in Permit Condition S6.				
Acute Toxicity Testing	As specified in Permit Condition S8.				
Chronic Toxicity Testing	As specified in Permit Condition S9.				
Outfall 002[2] during bypass of Outfall 001	Flow	Gallons discharged and duration	Outfall 002	Continuous[1]	Recording meter
Outfall 002[2] during bypass of Outfall 001	Total Ammonia as (N)	mg/L	Outfall 002	At least once during any discharge lasting an hour or longer	Composite
Outfall 002[2] during bypass of Outfall 001	Total Recoverable Copper	µg/L	Outfall 002	At least once during any discharge lasting an hour or longer	Composite

Category	Parameter	Units	Sample Point	Minimum Sampling Frequency	Sample Type
CSOs	Flow	Gallons discharged and duration of flow	Outfalls 002, 003, & 004	Continuous[1]	Recording meter
CSOs	Fecal Coliform Bacteria	#/100 mL	Outfalls 002, 003, & 004	At least once during any discharge lasting an hour or longer	Grab
CSOs	BOD_5	mg/L	Outfalls 002, 003, & 004	At least once during any discharge lasting an hour or longer	Composite over the duration of a CSO event
CSOs	TSS	mg/L	Outfalls 002, 003, & 004	At least once during any discharge lasting an hour or longer	Composite over the duration of a CSO event
Reclaimed Water	As specified in Permit Condition R2				

[1] Continuous means uninterrupted except for brief lengths of time for calibration, for power failure, or for unanticipated equipment repair or maintenance. Measurements shall be taken daily when continuous monitoring is not possible.

[2] These analyses are in addition to normal wastewater effluent sampling, and are to be taken anytime Outfall 002 (Fiddlehead) is used as a bypass of Outfall 001 for discharge of treated effluent for longer than an hour.

B. Sampling and Analytical Procedures

Samples and measurements taken to meet the requirements of this permit shall be representative of the volume and nature of the monitored parameters, including representative sampling of any unusual discharge or discharge condition, including bypasses, upsets and maintenance-related conditions affecting effluent quality.

Sampling and analytical methods used to meet the monitoring requirements specified in this permit shall conform to the latest revision of the *Guidelines Establishing Test Procedures for the Analysis of Pollutants* contained in 40 CFR Part 136 or to the latest revision of *Standard Methods for the Examination of Water and Wastewater* (APHA), unless otherwise specified in this permit or approved in writing by the Department of Ecology (Ecology).

C. Flow Measurement

Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the quantity of monitored flows. The devices shall be installed, calibrated, and maintained to ensure that the accuracy of the measurements are consistent with the accepted industry standard for that type of device. Frequency of calibration shall be in conformance with manufacturer's recommendations and at a minimum frequency of at least one calibration per year. Calibration records shall be maintained for at least three years.

D. Laboratory Accreditation

All monitoring data required by Ecology shall be prepared by a laboratory registered or accredited under the provisions of, *Accreditation of Environmental Laboratories*, Chapter 173-50 Washington Administrative Code (WAC). Flow, temperature, settleable solids, conductivity, pH, and internal process control parameters are exempt from this requirement. Conductivity and pH shall be accredited if the laboratory must otherwise be registered or accredited. Ecology exempts crops, soils, and hazardous waste data from this requirement pending accreditation of laboratories for analysis of these media.

S3. REPORTING AND RECORDKEEPING REQUIREMENTS

The Permittee must monitor and report in accordance with the following conditions. Falsification of information submitted to Ecology is a violation of the terms and conditions of this permit.

A. Reporting

The first monitoring period begins on the effective date of the permit. The Permittee must:

1. Submit monitoring results each month.

2. Summarize, report, and submit monitoring data obtained during each monitoring period on a Discharge Monitoring Report (DMR) form provided, or otherwise approved, by Ecology.

3. Submit DMR forms monthly whether or not the facility was discharging. If the facility did not discharge during a given monitoring period, submit the form as required with the words "NO DISCHARGE" entered in place of the monitoring results.

4. Ensure that DMR forms are postmarked or received by Ecology no later than the 15th day of the month following the completed monitoring period, unless otherwise specified in this permit.

5. Submit priority pollutant analysis data no later than forty-five (45) days following the monitoring.

6. Send report(s) to Ecology at:

Water Quality Permit Coordinator
Department of Ecology
Southwest Regional Office
P.O. Box 47775
Olympia, WA 98504-7775

All laboratory reports providing data for organic and metal parameters must include the following information: sampling date, sample location, date of analysis, parameter name, CAS number, analytical method/number, method detection limit (MDL), laboratory practical quantitation limit (PQL), reporting units, and concentration detected. Analytical results from samples sent to a contract laboratory must include information on the chain of custody, the analytical method, QA/QC results, and documentation of accreditation for the parameter.

B. Records Retention

The Permittee must retain records of all monitoring information for a minimum of three years. Such information must include all calibration and maintenance records and all original recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit. The Permittee must extend this period of retention during the course of any unresolved litigation regarding the discharge of pollutants by the Permittee or when requested by Ecology.

C. Recording of Results

For each measurement or sample taken, the Permittee must record the following information:

1. The date, exact place, method, and time of sampling or measurement.

2. The individual who performed the sampling or measurement.

3. The dates the analyses were performed.

4. The individual who performed the analyses.

5. The analytical techniques or methods used.

6. The results of all analyses.

D. Additional Monitoring by the Permittee

If the Permittee monitors any pollutant more frequently than required by Condition S2 of this permit, then the Permittee must include the results of such monitoring in the calculation and reporting of the data submitted in the Permittee's DMR.

E. Reporting Permit Violations

The Permittee must take the following actions when it violates or is unable to comply with any permit condition:

- Immediately take action to stop, contain, and cleanup unauthorized discharges or otherwise stop the noncompliance and correct the problem.

- If applicable, immediately repeat sampling and analysis. Submit the results of any repeat sampling to Ecology within 30 days of sampling.

1. Immediate Reporting

The Permittee must report any failure of the disinfection system immediately to the Department of Ecology's Regional Office 24-hour number listed below:

Southwest Regional Office 360-407-6300

The Permittee must report any failure of the disinfection system, any collection system overflows which may reach surface waters or any plant bypass discharging to a shellfish area immediately to the Department of Ecology and the Department of Health, Shellfish Program at the numbers listed below:

Southwest Regional Office	360-407-6300
Department of Health, Shellfish Program	360-236-3330 (business hours) 360-786-4183 (24 hours)

The Permittee must report any failure of the disinfection system, any collection system overflows, or any plant bypass discharging to a waterbody used as a source of drinking water immediately to the Department of Ecology and the Department of Health, Drinking Water Program at the numbers listed below:

Southwest Regional Office	360-407-6300
Department of Health Drinking Water Program	360-521-0323 (business hours) 360-481-4901 (after business hours)

2. Twenty-Four (24)-Hour Reporting

The Permittee must report the following occurrences of noncompliance by telephone, to Ecology at 360-407-6300, within 24 hours from the time the Permittee becomes aware of any of the following circumstances:

a. Any noncompliance that may endanger health or the environment, unless previously reported under subpart 1, above.

b. Any unanticipated **bypass** that exceeds any effluent limitation in the permit (See Part S5.F., "Bypass Procedures").

c. Any **upset** that exceeds any effluent limitation in the permit (See G.15, "Upset").

d. Any violation of a maximum daily or instantaneous maximum discharge limitation for any of the pollutants in Section S1.A of this permit.

e. Any overflow prior to the treatment works, whether or not such overflow endangers health or the environment or exceeds any effluent limitation in the permit.

3. Report Within Five Days

The Permittee must also provide a written submission within five days of the time that the Permittee becomes aware of any event required to be reported under subparts 1 or 2, above. The written submission must contain:

a. A description of the noncompliance and its cause.

b. The period of noncompliance, including exact dates and times.

c. The estimated time noncompliance is expected to continue if it has not been corrected.

d. Steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

e. If the noncompliance involves an overflow prior to the treatment works, an estimate of the quantity (in gallons) of untreated overflow.

4. Waiver of Written Reports

Ecology may waive the written report required in subpart 3, above, on a case-by-case basis upon request if a timely oral report has been received.

5. All Other Permit Violation Reporting

The Permittee must report all permit violations, which do not require immediate or within 24 hours reporting, when it submits monitoring reports for S3.A ("Reporting"). The reports must contain the information listed in paragraph E.3, above. Compliance with these requirements does not relieve the Permittee from responsibility to maintain continuous compliance with the terms and conditions of this permit or the resulting liability for failure to comply.

6. Report Submittal

The Permittee must submit reports to the address listed in S3.

F. Other Reporting

The Permittee must report a spill of oil or hazardous materials in accordance with the requirements of RCW 90.56.280 and chapter 173-303-145. You can obtain further instructions at the following website:
http://www.ecy.wa.gov/programs/spills/other/reportaspill.htm.

Where the Permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application, or in any report to Ecology, it must submit such facts or information promptly.

The Permittee must submit a new application or supplement at least 180 days prior to commencement of discharges, resulting from the activities listed below, which may result in permit violations. These activities include: any facility expansions, production increases, or other planned changes, such as process modifications, in the permitted facility.

G. Maintaining a Copy of This Permit

The Permittee must keep a copy of this permit at the facility and make it available upon request to Ecology inspectors.

S4. FACILITY LOADING

A. Design Criteria

Flows or waste loadings of the following design criteria for the permitted treatment facility shall not be exceeded:

FLOWS

Average flow for the maximum month:	28 MGD
Maximum Day:	55 MGD
Peak Hourly to Treatment Plant:	64 MGD

BIOCHEMICAL OXYGEN DEMAND (BOD_5)

Maximum Month Loading:	37,600 lbs/day
Annual Average Loading:	31,400 lbs/day
Peak Hourly Loading:	75,300 lbs/day

TOTAL SUSPENDED SOLIDS

Maximum Month Loading:	35,100 lbs/day
Annual Average Loading:	29,200 lbs/day
Peak Hourly Loading:	87,700 lbs/day

NITROGEN LOADING

Maximum Month Loading:	6,420 lbs/day
Annual Average Loading:	5,350 lbs/day
Peak Hourly Loading:	16,060 lbs/day

B. Plans for Maintaining Adequate Capacity

While pursuing the Highly Managed Plan as described in the 1998 LOTT Wastewater Resource Management Plan, the Permittee shall conduct annual capacity assessments. The Permittee shall submit to Ecology annual capacity assessment reports and Capital Improvements Plans (CIP), in accordance with the requirements set forth in the 1998 LOTT Wastewater Resource Management Plan. The CIP shall include a schedule for

continuing to maintain system capacity at the facilities sufficient to achieve the effluent limitations, reclaimed water standards, and other conditions of this permit. The CIP shall address any of items 1-5 below, and any other items necessary to meet this objective.

If the Permittee abandons the Highly Managed Plan, then when the actual flow or waste load reaches 85 percent of any one of the design criteria in S4.A for three consecutive months, or when the projected increase would reach design capacity within five years, whichever occurs first, the Permittee shall submit to Ecology, a plan and schedule for continuing to maintain system capacity at the facilities sufficient to achieve the effluent limitations, water reclamation standards, and other conditions of this permit. This plan shall address any of the following actions or any others necessary to meet this objective.

1. Analysis of the present design including the introduction of any process modifications that would establish the ability of the existing facility to achieve the effluent limits and other requirements of this permit at specific levels in excess of the existing design criteria specified in paragraph A above.

2. Reduction or elimination of excessive infiltration and inflow of uncontaminated ground and surface water into the sewer system and feasible reductions of per capita residential flows.

3. Limitation on future sewer extensions or connections or additional waste loads.

4. Modification or expansion of facilities necessary to accommodate increased flow or waste load.

5. Reduction of industrial or commercial flows or waste loads to allow for increasing sanitary flow or waste load.

Engineering documents associated with the plan must meet the requirements of WAC 173-240-060, "Engineering Report," and be approved by Ecology prior to any construction. The plan shall specify any contracts, ordinances, methods for financing, or other arrangements necessary to achieve this objective

C. Duty to Mitigate

The Permittee is required to take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit that has a reasonable likelihood of adversely affecting human health or the environment

D. Notification of New or Altered Sources

The Permittee shall submit written notice to Ecology whenever any new discharge or a substantial change in volume or character of an existing discharge into the Publicly Owned Treatment Works (POTW) is proposed which: (1) would interfere with the operation of, or exceed the design capacity of, any portion of the POTW; (2) is not part of an approved general sewer plan or approved plans and specifications; or (3) would be subject to pretreatment standards under 40 CFR Part 403 and Section 307(b) of the Clean Water Act. This notice shall include an evaluation of the POTW's ability to adequately transport and treat the added flow and/or waste load, the quality and volume of effluent to be discharged to the POTW, and the anticipated impact on the Permittee's effluent [40 CFR 122.42(b)].

E. Infiltration and Inflow Evaluation

1. The Permittee shall annually conduct an infiltration and inflow evaluation for sub-basins of the system such that the entire system is evaluated once every 7 years. Plant monitoring and system flow meter records may be used to assess measurable infiltration and inflow. Refer to the U.S. EPA publication, *I/I Analysis and Project Certification*, available as Publication No. 97-03 at: Publications Office, Department of Ecology, P.O. Box 47600, Olympia, Washington 98504-7600.

2. A report shall be prepared which summarizes any measurable infiltration and inflow. If infiltration and inflow have increased by more than 15 percent from that found in the 1995 LOTT Inflow and Infiltration Report, the report shall contain a plan and a schedule for: (1) locating the sources of infiltration and inflow; and (2) correcting the problem.

3. The report shall be submitted by **May 15, 2012**, and **annually** thereafter.

F. Wasteload Assessment

As part of the CIP identified in condition S4.B, the Permittee shall conduct an annual assessment of their flow and waste load and submit a report to Ecology by **May 15, 2012**, and **annually** thereafter. The report shall contain the following: an indication of compliance or noncompliance with the permit effluent limitations; a comparison between the existing and design monthly average dry weather and wet weather flows, peak flows, BOD, and total suspended solids loadings; and (except for the first report) the percentage increase in these parameters since the last annual report. The report shall also state the present and design population or population equivalent, projected population growth rate, and the estimated date upon which the design capacity is projected to be reached, according to the most restrictive of the parameters above. The interval for review and reporting may be modified if Ecology determines that a different frequency is sufficient.

S5. OPERATION AND MAINTENANCE

The Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems, which are installed by a Permittee only when the operation is necessary to achieve compliance with the conditions of this permit.

A. Certified Operator

An operator certified for at least a Class 4 plant by the state of Washington shall be in responsible charge of the day-to-day operation of the LOTT wastewater system of treatment and reclamation plants. An operator certified for at least a Class 3 plant shall be in charge during all regularly scheduled shifts when operational changes are made to the treatment process.

B. O & M Program

The Permittee shall institute an adequate operation and maintenance program for their entire sewage system. Maintenance records shall be maintained on all major electrical

and mechanical components of the treatment plant, as well as the sewage system and pumping stations. Such records shall clearly specify the frequency and type of maintenance recommended by the manufacturer and shall show the frequency and type of maintenance performed. These maintenance records shall be available for inspection at all times.

C. Short-term Reduction

If a Permittee contemplates a reduction in the level of treatment that would cause a violation of permit discharge limitations on a short-term basis for any reason, and such reduction cannot be avoided, the Permittee shall give written notification to Ecology, if possible, 30 days prior to such activities, detailing the reasons for, length of time of, and the potential effects of the reduced level of treatment. This notification does not relieve the Permittee of their obligations under this permit.

D. Electrical Power Failure

The Permittee is responsible for maintaining adequate safeguards to prevent the discharge of untreated wastes or wastes not treated in accordance with the requirements of this permit during electrical power failure at the treatment plant and/or sewage lift stations either by means of alternate power sources, standby generator, or retention of inadequately treated wastes. The Permittee shall maintain Reliability Class II (EPA 430-99-74-001) at the wastewater treatment plant, which requires primary sedimentation and disinfection.

E. Prevent Connection of Inflow

The Permittee and contributing jurisdictions shall strictly enforce their sewer ordinances and not allow the connection of inflow (roof drains, foundation drains, etc.) to the sanitary sewer system.

F. Bypass Procedures

Bypass, which is the intentional diversion of waste streams from any portion of a treatment facility, is prohibited, and Ecology may take enforcement action against a Permittee for bypass unless one of the following circumstances (1, 2, or 3) is applicable.

1. Bypass for essential maintenance without the potential to cause violation of permit limits or conditions.

   Bypass is authorized if it is for essential maintenance and does not have the potential to cause violations of limitations or other conditions of this permit, or adversely impact public health as determined by Ecology prior to the bypass. The Permittee shall submit prior notice, if possible at least ten days before the date of the bypass.

2. Bypass which is unavoidable, unanticipated and results in noncompliance of this permit.

   This bypass is permitted only if:

   a. Bypass is unavoidable to prevent loss of life, personal injury, or severe property damage. "Severe property damage" means substantial physical

damage to property, damage to the treatment facilities which would cause them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass.

b. There are no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, stopping production, maintenance during normal periods of equipment downtime (but not if adequate backup equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance), or transport of untreated wastes to another treatment facility.

c. Ecology is properly notified of the bypass as required in Condition S3E of this permit.

3. Bypass which is anticipated and has the potential to result in noncompliance of this permit

The Permittee shall notify Ecology at least 30 days before the planned date of bypass. The notice shall contain: (1) a description of the bypass and its cause; (2) an analysis of all known alternatives which would eliminate, reduce, or mitigate the need for bypassing; (3) a cost-effectiveness analysis of alternatives including comparative resource damage assessment; (4) the minimum and maximum duration of bypass under each alternative; (5) a recommendation as to the preferred alternative for conducting the bypass; (6) the projected date of bypass initiation; (7) a statement of compliance with State Environmental Policy Act (SEPA); (8) a request for modification of water quality standards as provided for in WAC 173-201A-110, if an exceedance of any water quality standard is anticipated; and (9) steps taken or planned to reduce, eliminate, and prevent reoccurrence of the bypass.

For probable construction bypasses, the need to bypass is to be identified as early in the planning process as possible. The analysis required above shall be considered during preparation of the engineering report or facilities plan and plans and specifications and shall be included to the extent practical. In cases where the probable need to bypass is determined early, continued analysis is necessary up to and including the construction period in an effort to minimize or eliminate the bypass.

Ecology will consider the following prior to issuing an administrative order for this type bypass:

a. If the bypass is necessary to perform construction or maintenance-related activities essential to meet the requirements of this permit.

b. If there are feasible alternatives to bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, stopping production, maintenance during normal periods of equipment down time, or transport of untreated wastes to another treatment facility.

c. If the bypass is planned and scheduled to minimize adverse effects on the public and the environment.

After consideration of the above and the adverse effects of the proposed bypass and any other relevant factors, Ecology will approve or deny the request. The public shall be notified and given an opportunity to comment on bypass incidents of significant duration, to the extent feasible. Approval of a request to bypass will be by administrative order issued by Ecology under Revised Code of Washington (RCW) 90.48.120.

G. Operations and Maintenance Manual

The approved Operations and Maintenance Manual shall be kept available at the treatment plant and all operators shall follow the instructions and procedures of this manual. An electronic equivalent of a paper manual is an acceptable alternative.

The Operations and Maintenance (O&M) Manual shall be updated by the Permittee in accordance with WAC 173-240-080 and be submitted to Ecology for approval prior to start-up of any reclaimed water system. This update shall include the O&M procedures for the reclaimed water system at the Budd Inlet plant. Substantial changes or updates to the O&M Manual shall be submitted to Ecology whenever they are incorporated into the manual.

The updated O&M Manual shall include:

1. Emergency procedures for plant shutdown and cleanup in event of wastewater system upset or failure.

2. Plant maintenance procedures.

3. The process control monitoring schedule.

4. Details on the reclaimed water system operation at the Budd Inlet plant.

S6. PRETREATMENT

A. General Requirements

1. The Permittee shall implement the Industrial Pretreatment Program in accordance with the legal authorities, policies, procedures, and financial provisions described in the Permittee's approved pretreatment program submittal entitled "Pretreatment Program Manual" and dated November 1999; any approved revisions thereto; and the General Pretreatment Regulations (40 CFR Part 403). At a minimum, the following pretreatment implementation activities shall be undertaken by the Permittee:

a. Enforce categorical pretreatment standards promulgated pursuant to Section 307(b) and (c) of the Federal Clean Water Act (hereinafter, the Act), prohibited discharge standards as set forth in 40 CFR 403.5, local limitations specified in Section 5 (the LOTT Discharge and Industrial Pretreatment Regulations, and as codified in the following enabling ordinances: Lacey Ordinance 994, Olympia Ordinance 5462, Tumwater Ordinance 094-032, and Thurston County Ordinance 10750 as exist at

the time of issuance of this permit), or state standards, which ever are most stringent or apply at the time of issuance or modification of a local industrial waste discharge permit. Locally derived limitations shall be defined as pretreatment standards under Section 307(d) of the Act and shall not be limited to categorical industrial facilities.

b. Issue industrial waste discharge permits to all significant industrial users [SIUs, as defined in 40 CFR 403.3(t)(i)(ii)] contributing to the treatment system, including those from other jurisdictions. Industrial waste discharge permits shall contain as a minimum, all the requirements of 40 CFR 403.8 (f)(l)(iii). The Permittee shall coordinate the permitting process with Ecology regarding any industrial facility, which may possess a state waste discharge permit issued by Ecology. Once issued, an industrial waste discharge permit will take precedence over a state-issued waste discharge permit.

c. Maintain and update, as necessary, records identifying the nature, character, and volume of pollutants contributed by industrial users to the POTW. Records shall be maintained for at least a three-year period.

d. Perform inspections, surveillance, and monitoring activities on industrial users to determine and/or confirm compliance with applicable pretreatment standards and requirements. A thorough inspection of SIUs shall be conducted annually. Frequency of regular local monitoring of SIU wastewaters shall normally be commensurate with the character and volume of the wastewater but shall not be less than once per year. Sample collection and analysis shall be performed in accordance with 40 CFR Part 403.12(b)(5)(ii)-(v) and 40 CFR Part 136.

e. Enforce and obtain remedies for noncompliance by any industrial users with applicable pretreatment standards and requirements. Once violations have been identified, the Permittee shall take timely and appropriate enforcement action to address the noncompliance. The Permittee's action shall follow its enforcement response procedures and any amendments, thereof.

f. Publish, at least annually in the largest daily newspaper in the Permittee's service area, a list of all nondomestic users which, at any time in the previous 12 months, were in significant noncompliance as defined in 40 CFR 403.8(f)(2)(vii).

g. If the Permittee elects to conduct sampling of a SIU's discharge in lieu of the user self-monitoring, it shall sample and analyze for all regulated pollutants in accordance with 40 CFR Part 403.12(b)(5)(ii)-(v), 40 CFR 403.12(g), and 40 CFR Part 136. The character and volume of the samples shall be representative of the discharge and shall provide adequate data to determine compliance, but in no case should sampling occur less than two times per year.

h. Develop and maintain a data management system designed to track the status of the Permittee's industrial user inventory, industrial user discharge characteristics, and compliance status.

i. Maintain adequate staff, funds, and equipment to implement its pretreatment program.

j. Establish, where necessary, contracts or legally binding agreements with contributing jurisdictions to ensure compliance with applicable pretreatment requirements by commercial or industrial users within these jurisdictions. These contracts or agreements shall identify the agency responsible for the various implementation and enforcement activities to be performed in the contributing jurisdiction. In addition, the Permittee shall be required to develop a Memorandum of Understanding (or Interlocal Agreement) that outlines the specific roles, responsibilities, and pretreatment activities of each jurisdiction.

2. The Permittee shall implement the Accidental Spill Prevention Program described in the approved Industrial Pretreatment Program dated November 1999, or any approved revisions thereto.

3. The Permittee shall evaluate, at least once every two years, whether each Significant Industrial User needs a plan to control slug discharges. For purposes of this subsection, a slug discharge is any discharge of a nonroutine, episodic nature, including but not limited to an accidental spill or noncustomary batch discharge. The results of such activities shall be available to Ecology upon request. If the Permittee decides that a slug control plan is needed, the plan shall contain, at a minimum, the following elements:

   a. Description of discharge practices, including nonroutine batch discharges.

   b. Description of stored chemicals.

   c. Procedures for immediately notifying the Permittee of slug discharges, including any discharge that would violate a prohibition under 40 CFR 403.5(b), with procedures for follow-up written notification within five days.

   d. If necessary, procedures to prevent adverse impact from accidental spills, including inspection and maintenance of storage areas, handling and transfer of materials, loading and unloading operations, control of plant site run-off, worker training, building of containment structures or equipment, measures for containing toxic organic pollutants (including solvents), and/or measures and equipment necessary for emergency response.

4. Whenever it has been determined, on the basis of information provided to or obtained by Ecology, that any waste source contributes pollutants to the Permittee's treatment works in violation of Subsection (b), (c), or (d) of Section 307 of the Act, and the Permittee has not taken adequate corrective action, Ecology shall notify the Permittee of this determination. Failure by the Permittee to commence an appropriate enforcement action within 30 days of this notification may result in appropriate enforcement action by Ecology against the source and/or the Permittee.

5. Pretreatment Report

The Permittee shall provide to Ecology an annual report that briefly describes its program activities during the previous calendar year. This report shall be submitted no later than **March 1, 2012**, and **annually** thereafter to: Washington Department of Ecology, Southwest Regional Office, P.O. Box 47775, Olympia, Washington 98504.

The report shall include the following information:

a. An updated nondomestic inventory.

b. Results of wastewater sampling at the treatment plant as specified in S6.B. The Permittee shall calculate removal rates for each pollutant and evaluate the adequacy of the existing local limitations in Section 5 of the LOTT Discharge and Industrial Pretreatment Regulations in prevention of treatment plant interference, pass through of pollutants that could affect receiving water quality, and sludge contamination. Potential interference or pass through at planned satellite plants should also be addressed.

c. Status of program implementation, including:

(1) Any substantial modifications to the pretreatment program as originally approved by Ecology, including staffing and funding levels.

(2) Any interference, upset, or permit violations experienced at the POTW that are directly attributable to wastes from industrial users.

(3) Listing of industrial users inspected and/or monitored, and a summary of the results.

(4) Listing of industrial users scheduled for inspection and/or monitoring for the next year, and expected frequencies.

(5) Listing of industrial users notified of promulgated pretreatment standards and/or local standards as required in 40 CFR 403.8(f)(2)(iii). Indicate which industrial users are on compliance schedules and the final date of compliance for each.

(6) Listing of industrial users issued industrial waste discharge permits.

(7) Planned changes in the pretreatment program implementation plan. (See subsection A.6. below.)

d. Status of compliance activities, including:

(1) Listing of industrial users that failed to submit baseline monitoring reports or any other reports required under 40 CFR 403.12 and in the most current approved version of the Permittee's pretreatment program.

(2) Listing of industrial users that were at any time during the reporting period not complying with federal, state, or local pretreatment standards or with applicable compliance schedules for achieving those standards, and the duration of such noncompliance.

(3) Summary of enforcement activities and other corrective actions taken or planned against noncomplying industrial users. The Permittee shall supply to Ecology a copy of the public notice of facilities that were in significant noncompliance.

6. The Permittee shall request and obtain approval from Ecology prior to implementing any significant changes to the local pretreatment program as approved. The procedure of 40 CFR 403.18 (b) & (c) shall be followed.

B. Monitoring Requirements

The Permittee shall monitor its influent, effluent, and sludge for the priority pollutants identified in Tables II and III of Appendix D of 40 CFR Part 122 as amended, any compounds identified as a result of Condition S6.B.4, and any other pollutants expected from nondomestic sources using U.S. EPA-approved procedures for collection, preservation, storage, and analysis. Influent, effluent, and sludge samples shall be tested for the priority pollutant metals (Table III, 40 CFR 122, Appendix D) on a quarterly basis throughout the term of this permit. Influent, effluent, and sludge samples shall be tested for the organic priority pollutants (Table II, 40 CFR 122, Appendix D) on an annual basis.

1. The POTW influent and effluent shall be sampled on a day when industrial discharges are occurring at normal to maximum levels. Samples for the analysis of acid and base/neutral extractable compounds and metals shall be 24-hour composites. Samples for the analysis of volatile organic compounds shall be collected using grab sampling techniques at equal intervals for the total of four grab samples per day.

A single analysis for volatile pollutants (Method 624) may be run for each monitoring day by compositing equal volumes of each grab sample directly in the GC purge and trap apparatus in the laboratory, with no less than 1 ml of each grab included in the composite.

Unless otherwise indicated, all reported test data for metals shall represent the total amount of the constituent present in all phases, whether solid, suspended, or dissolved, elemental or combined including all oxidation states.

Wastewater samples must be handled, prepared, and analyzed by GC/MS in accordance with the U.S. EPA Methods 624 and 625 (October 26, 1984).

2. A sludge sample shall be collected concurrent with a wastewater sample and may be taken as a single grab of residual sludge. Sampling and analysis shall conform to U.S. EPA Methods 624 and 625 unless the Permittee requests an alternate method and it has been approved by Ecology. Sludge metals priority pollutant sampling and analysis must conform to U.S. EPA SW 846 6000/7000 Series Methods unless the Permittee requests an alternate method and is approved by Ecology.

3. Cyanide, phenols, and oils shall be taken as grab samples. Oils shall be hexane soluble or equivalent, and should be measured in the influent and effluent only.

4. In addition to quantifying pH, oil and grease, and all priority pollutants, a reasonable attempt should be made to identify all other substances and quantify all pollutants shown to be present by gas chromatograph/mass spectrometer (GC/MS) analysis per 40 CFR 136, Appendix A, Methods 624 and 625. Determinations of pollutants should be attempted for each fraction, which produces identifiable spectra on total ion plots (reconstructed gas chromatograms). Determinations should be attempted from all peaks with responses 5 percent or greater than the nearest internal standard. The 5 percent value is based on internal standard concentrations of 30 µg/l, and must be adjusted downward if higher internal standard concentrations are used or adjusted upward if lower internal standard concentrations are used. Non-substituted aliphatic compounds may be expressed as total hydrocarbon content. Identification shall be attempted by a laboratory whose computer data processing programs are capable of comparing sample mass spectra to a computerized library of mass spectra, with visual confirmation by an experienced analyst. For all detected substances which are determined to be pollutants, additional sampling and appropriate testing shall be conducted to determine concentration and variability, and to evaluate trends.

C. Reporting of Monitoring Results

The Permittee shall include a summary of monitoring results in the Annual Pretreatment Report.

D. Local Limit Development

As sufficient data becomes available, the Permittee shall, in consultation with Ecology, reevaluate their local limits in order to prevent pass through or interference at the Budd Inlet plant and the satellite plants. Upon determination by Ecology that any pollutant present causes pass through or interference, or exceeds established sludge standards, the Permittee shall establish new local limits or revise existing local limits as required by 40 CFR 403.5. In addition, Ecology may require revision or establishment of local limits for any pollutant discharged from the POTW that has a reasonable potential to exceed the Water Quality Standards, Sediment Standards, or established effluent limits, or causes whole effluent toxicity. The determination by Ecology shall be in the form of an Administrative Order.

Ecology may modify this permit to incorporate additional requirements relating to the establishment and enforcement of local limits for pollutants of concern. Any permit modification is subject to formal due process procedures pursuant to state and federal law and regulation.

S7. RESIDUAL SOLIDS

Residual solids include screenings, grit, scum, primary sludge, waste activated sludge, and other solid waste. The Permittee shall store and handle all residual solids in such a manner so as to prevent their entry into state ground or surface waters. The Permittee shall not discharge leachate from residual solids to state surface or ground waters.

S8. ACUTE TOXICITY

A. Testing Requirements

The Permittee shall test final effluent once in the last summer and once in the last winter prior to submission of the application for permit renewal **(March 1, 2016)**. The two species listed below shall be used on each sample and the results submitted to Ecology as a part of the permit renewal application process. The Permittee shall conduct acute toxicity testing on a series of five concentrations of effluent and a control in order to be able to determine appropriate point estimates and an NOEC. The percent survival in 100 percent effluent shall also be reported.

Acute toxicity tests shall be conducted with the following species and protocols:

1) Fathead minnow, *Pimephales promelas* (96-hour static-renewal test, method: EPA/600/4-90/027F)

2) Daphnid, *Ceriodaphnia dubia*, *Daphnia pulex*, or *Daphnia magna* (48 hour static test, method: EPA/600/4-90/027F).

B. Sampling and Reporting Requirements

1. All reports for effluent characterization or compliance monitoring shall be submitted in accordance with the most recent version of Department of Ecology Publication # WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria* in regards to format and content. Reports shall contain bench sheets and reference toxicant results for test methods. If the lab provides the toxicity test data on floppy disk for electronic entry into Ecology's database, then the Permittee shall send the disk to Ecology along with the test report, bench sheets, and reference toxicant results.

2. Testing shall be conducted on 24-hour composite effluent samples. Samples taken for toxicity testing shall be cooled to 4 degrees Celsius while being collected and shall be sent to the lab immediately upon completion. The lab shall begin the toxicity testing as soon as possible but no later than 36 hours after sampling was ended.

3. All samples and test solutions for toxicity testing shall have water quality measurements as specified in Department of Ecology Publication # WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria* or most recent version thereof.

4. All toxicity tests shall meet quality assurance criteria and test conditions in the most recent versions of the EPA manual listed in subsection A. and the Department of Ecology Publication # WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria.* If test results are determined to be invalid or anomalous by Ecology, testing shall be repeated with freshly collected effluent.

5. Control water and dilution water shall be laboratory water meeting the requirements of the EPA manual listed in subsection A or pristine natural water of sufficient quality for good control performance.

6. The whole effluent toxicity tests shall be run on an unmodified sample of final effluent.

7. The Permittee may choose to conduct a full dilution series test during compliance monitoring in order to determine dose response. In this case, the series must have a minimum of five effluent concentrations and a control. The series of concentrations must include the ACEC.

8. All whole effluent toxicity tests, effluent screening tests, and rapid screening tests that involve hypothesis testing and do not comply with the acute statistical power standard of 29 percent as defined in WAC 173-205-020 must be repeated on a fresh sample with an increased number of replicates to increase the power.

S9. CHRONIC TOXICITY

A. Testing Requirements

The Permittee shall test final effluent once in the last summer and once in the last winter prior to submission of the application for permit renewal **(March 1, 2016)**. All of the chronic toxicity tests listed below shall be conducted on each sample. The results of this chronic toxicity testing shall be submitted to Ecology as a part of the permit renewal application process.

The Permittee shall conduct chronic toxicity testing on a series of at least five concentrations of effluent and a control in order to be able to determine appropriate point estimates and an NOEC. This series of dilutions shall include the acute critical effluent concentration (ACEC). The ACEC equals 5.46 percent effluent. The Permittee shall compare the ACEC to the control using hypothesis testing at the 0.05 level of significance as described in Appendix H, EPA/600/4-89/001.

Chronic toxicity tests shall be conducted with the following species and the most recent version of the following protocols:

Saltwater Chronic Toxicity Test Species		Method
Topsmelt	*Atherinops affinis*	EPA/600/R-95/136
Mysid shrimp	*Holmesimysis costata* or *Mysidopsis bahia*	EPA/600/R-95/136 or EPA/600/4-91/003
Pacific oyster/ Mussel	*Crassostrea giga Mytilus sp.*	EPA/600/R-95/136

The Permittee shall use the West Coast mysid (*Holmesimysis costata*) for toxicity testing unless the lab cannot obtain a sufficient quantity of a West Coast species in good condition in which case the East Coast mysid (*Mysidopsis bahia*) may be substituted.

The Pacific oyster and mussel tests shall be run in accordance with EPA/600/R-95/136 and the bivalve development test conditions in the Department of Ecology Publication # WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria* or most recent version thereof. The lab shall use whichever one of the two species that will give a valid result in each particular test.

B. Sampling and Reporting Requirements

1. All reports for effluent characterization or compliance monitoring shall be submitted in accordance with the most recent version of Department of Ecology Publication # WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria* in regards to format and content. Reports shall contain bench sheets and reference toxicant results for test methods. If the lab provides the toxicity test data on floppy disk for electronic entry into Ecology's database, then the Permittee shall send the disk to Ecology along with the test report, bench sheets, and reference toxicant results.

2. Testing shall be conducted on 24-hour composite effluent samples. Samples taken for toxicity testing shall be cooled to 4 degrees Celsius while being collected and shall be sent to the lab immediately upon completion. The lab shall begin the toxicity testing as soon as possible but no later than 36 hours after sampling was ended.

3. All samples and test solutions for toxicity testing shall have water quality measurements as specified in Department of Ecology Publication # WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria* or most recent version thereof.

4. All toxicity tests shall meet quality assurance criteria and test conditions in the most recent versions of the EPA manual listed in subsection A. and the Department of Ecology Publication # WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria.* If test results are determined to be invalid or anomalous by Ecology, testing shall be repeated with freshly collected effluent.

5. Control water and dilution water shall be laboratory water meeting the requirements of the EPA manual listed in subsection A or pristine natural water of sufficient quality for good control performance.

6. The whole effluent toxicity tests shall be run on an unmodified sample of final effluent.

7. The Permittee may choose to conduct a full dilution series test in order to determine dose response. In this case, the series must have a minimum of five effluent concentrations and a control. The series of concentrations must include the ACEC and the CCEC. The ACEC and CCEC may either substitute for the effluent concentration that is closest to it in the dilution series or be an extra effluent concentration.

8. All whole effluent toxicity tests that involve hypothesis testing and do not comply with the chronic statistical power standard of 39 percent as defined in WAC 173-205-020 must be repeated on a fresh sample with an increased number of replicates to increase the power.

S10. COMBINED SEWER OVERFLOWS

A. Discharge Locations

The following is a list of combined sewer overflows (CSOs), which are occasional point sources of pollutants as a result of precipitation events. Discharges from these sites are prohibited except as a result of and during precipitation events. No authorization is given by this permit for discharge from a CSO that causes adverse impacts that threaten characteristic uses of the receiving water as identified in the Water Quality Standards, Chapter 173-201A WAC.

DISCHARGE NO.	LOCATION	RECEIVING WATER
002	Fiddlehead Outfall	Budd Inlet
003[a]	State and Chestnut Streets	Budd Inlet
004[a]	Water Street Pump Station	Budd Inlet
[a] Contained in the city of Olympia collection system (not operated by the Permittee).		

B. Technology-based Requirements for CSOs

The Permittee shall comply with the following technology-based requirements:

1. The Permittee shall implement proper operation and maintenance programs for the sewer system and all CSO outfalls to reduce the magnitude, frequency, and duration of CSOs. The program shall consider regular sewer inspections; sewer, catch basin, and regulator cleaning; equipment and sewer collection system repair or replacement, where necessary; and disconnection of illegal connections.

2. The Permittee shall implement procedures that will maximize use of the collection system for wastewater storage that can be accommodated by the storage capacity of the collection system in order to reduce the magnitude, frequency, and duration of CSOs.

3. The Permittee shall review and modify, as appropriate, its existing pretreatment program to minimize CSO impacts from the discharges from nondomestic users.

4. The Permittee shall operate the POTW treatment plant at maximum treatable flow during all wet weather flow conditions to reduce the magnitude, frequency, and duration of CSOs. The Permittee shall deliver all flows to the treatment plant within the constraints of the treatment capacity of the POTW.

5. Dry weather overflows from CSOs outfalls are prohibited. Each dry weather overflow must be reported to the permitting authority as soon as the Permittee becomes aware of the overflow. When the Permittee detects a dry weather overflow, the Permittee shall begin corrective action immediately. The Permittee shall inspect the dry weather overflow each subsequent day until the overflow has been eliminated.

6. The Permittee shall implement measures to control solid and floatable materials in CSOs.

7. The Permittee shall implement a pollution prevention program focused on reducing the impact of CSOs on receiving waters.

8. The Permittee shall implement a public notification process to inform citizens of when and where CSOs occur. The process must include (a) a mechanism to alert persons of the occurrence of CSOs and (b) a system to determine the nature and duration of conditions that are potentially harmful for users of receiving waters due to CSOs.

9. The Permittee shall monitor CSO outfalls to characterize CSO impacts and the efficacy of CSO controls. This shall include collection of data that will be used to evaluate the efficacy of the technology-based controls. These data shall include:

   a. Total number of CSO events and frequency and duration of CSOs for a representative number of events

   b. Locations and designated uses of receiving water bodies

   c. Water quality impacts directly related to CSOs (e.g., beach closings, floatables wash-up episodes, fish kills).

C. Water Quality-based Requirements for CSOs

The Permittee shall not discharge any pollutant at a level that causes or contributes to a receiving water excursion above numeric or narrative criteria developed and adopted as part of state of Washington water quality standards.

D. Combined Sewer Overflow Report

By **May 15, 2012**, and **annually** thereafter, the Permittee shall submit a CSO Report to Ecology for review and approval, which complies with the requirements of WAC 173-245-090(1). The Permittee shall submit in this report, documentation that demonstrates implementation of each of the nine minimum controls (as listed in S10.B.1 to 9).

E. Emergency Bypass Maintenance (Outfall 002)

The Permittee shall be allowed one four-hour period every six months to discharge fully treated and disinfected secondary effluent through Outfall 002 for the purpose of exercising the associated pumping equipment. The Permittee shall notify Ecology at least ten days in advance of conducting this activity, as required by S5.F.1.

S11. OUTFALL EVALUATION

The Permittee shall inspect, once during the permit cycle, the submerged portion of the North outfall line and diffuser to document its integrity and continued function. If conditions allow for a photographic verification, it shall be included in the report. The inspection report shall be submitted to Ecology with the application for permit renewal by **March 1, 2015**.

S12. CONTRIBUTING JURISDICTIONS

A. Pretreatment Requirements

1. Each contributing jurisdiction shall ensure that within their jurisdiction, non-domestic wastes shall not be discharged to the sewerage system except in accordance with the requirements of Special Condition S6 pretreatment, including the requirements for such sources to receive a discharge permit.

2. Contributing jurisdictions shall strictly enforce their sewer ordinances and not allow connection to the sanitary sewers of nonpolluted waters including, but not limited to: stormwater, ground water, rain water, condensate, deionized water, non-contact cooling water, and drainage from street, yards, and roofs, unless the Permittee can show that these wastes require and are provided treatment by the POTW.

3. Contributing jurisdictions shall submit to the LOTT Wastewater Facility, the necessary information from their collection system to comply with the pretreatment requirements of Special Condition S6 of this permit.

B. Reporting

1. Unauthorized discharges such as collection system overflows or treatment plant bypasses shall be reported to the LOTT Wastewater facility. LOTT is responsible for immediately notifying Ecology and Thurston County Health per S3.E.

2. Unauthorized discharges to the collection system including discharges which are unpermitted or otherwise do not comply with pretreatment requirements shall be immediately reported to the LOTT wastewater facility. LOTT is responsible for notifying Ecology. (See Condition S6. of this permit.)

3. If LOTT is unavailable then it is the responsibility of the contributing jurisdiction to notify Ecology's Southwest Regional Office, Water Quality Inspector at the 24-hour Emergency Spill Response Number, (360) 407-6300.

C. Prevention of Facility Overloading

Contributing jurisdictions shall submit to the LOTT Wastewater Facility the necessary information from their collections system to comply with the reporting requirements of Special Condition S4.

D. Operation and Maintenance Program

1. Contributing jurisdictions shall institute an adequate operation and maintenance program for their entire sewerage system. This program shall, at a minimum, include:

   a. An analysis of the collection system identifying and prioritizing problem areas.

   b. A systematic method and schedule for resolving priority problems including, but not limited to, pump station upgrades and repair, line

surcharges, existing or potential overflows and bypasses, illegal sewer connections, and leaking service laterals.

c. A plan for preventative and routine maintenance.

2. Maintenance records shall be maintained on the collections system and pumping stations. Such records shall clearly show the frequency and type of maintenance performed. These maintenance records shall be available for inspection at all times.

E. Electrical Power Failure

Contributing jurisdictions are responsible to maintain adequate safeguards to prevent the discharge of untreated wastes or wastes not treated in accordance with the requirements of this permit during electrical power failure at the treatment plant and/or lift stations either by means of alternate power sources, standby generator, or retention of inadequately treated wastes.

RECLAIMED WATER CONDITIONS

Beginning on the effective date of this permit and lasting through its expiration date, all Class A reclaimed water produced at the Budd Inlet plant by the Permittee for reclamation under this permit shall comply with the Special Conditions (S) and General Conditions (G) as well as the Reclaimed Water Conditions (R) of this permit.

R1. RECLAIMED WATER LIMITATIONS

All discharges and activities authorized by this permit shall be consistent with the terms and conditions of this permit. The discharge of any of the following pollutants more frequently than, or at a concentration in excess of, that authorized by this permit shall constitute a violation of the terms and conditions of this permit.

The production and use of reclaimed water shall be in compliance with all specific conditions and requirements of the Washington State Water Reclamation and Reuse Standards, 1997, and is subject to the requirements listed below:

Beginning on the effective date and lasting through the expiration date of this permit, the Permittee is authorized to distribute Class A reclaimed water produced at the Budd Inlet plant to public and private entities for commercial and industrial uses and/or to apply reclaimed water to land for irrigation at agronomic rates at locations listed in Condition R4. The distribution and use of reclaimed water is subject to the following treatment and water quality limitations:

Reclaimed Water Limitations: Outfall #005		
Parameter	**Average Monthly[a]**	
Flow	1.5 MGD	Budd Inlet Plant Class A Effluent
Oxidized Wastewater – Secondary Effluent [c]		
Parameter	**Average Monthly[a]**	**Average Weekly [b]**
Dissolved Oxygen	Shall be measurably present in secondary effluent at all times	
Disinfected - Reclaimed Water		
Turbidity	**Average Monthly[a]** 2 NTU	**Sample Maximum [c]** 5 NTU
Total Nitrate (as N)[d]	**Average Monthly[a]** 10 mg/L	
Total Coliform	**7-day Median[e]** 2.2 MPN/ 100 ml	**Sample Maximum [f]** 23 MPN/100 ml
pH	Shall be between 6.0 and 9.0 standard units at all times	
Distribution System		
Chlorine Residual	Detectable[g]	

Reclaimed Water Limitations: Outfall #005
[a] The average monthly effluent limitation is defined as the highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.
[b] The average weekly effluent limitation is defined as the highest allowable average of daily discharges over a calendar week, calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.
[c] The sample maximum is defined as the value not to be exceeded by any single sample. When continuous monitoring is used, excursions of the sample maximum that last less than 5 minutes are not considered permit violations, as long as the excursion is not greater than 10 times the sample maximum and the excursions in any 24 hour period do not exceed 30 minutes total.
[d] The Total Nitrate limit only applies from April 1st through October 31st and any other time when the Reclaimed Water is used for irrigation or infiltration.
[e] The median number of total coliform organisms in the reclaimed water after disinfection does not exceed 2.2 per 100 milliliters, as determined from the bacteriological results of the last 7 days for which analyses have been completed.
[f] The number of total coliform organisms shall not exceed 23 per 100 milliliters in any single sample.
[g] A detectable amount of chlorine residual shall be maintained in the reclaimed water during conveyance to the use area, or the storage pond if reclaimed water is not directly piped to the use area.

R2. RECLAIMED WATER MONITORING REQUIREMENTS

A. Class A Reclaimed Water Monitoring

During the production of Class A reclaimed water, the Permittee shall monitor the reclaimed water according to the following schedule (This is in addition to sampling listed in S2):

Parameter	Units	Sample Point[a]	Sampling Frequency	Sample Type
Flow	MGD	Reclaimed water from distribution pumps	Continuous	Recording meter
pH	Standard Units	Disinfected reclaimed water	Daily	Grab[b]
Dissolved Oxygen	mg/L	Secondary effluent	Daily	Grab[b]

Parameter	Units	Sample Point[a]	Sampling Frequency	Sample Type
		Disinfected reclaimed water	Daily	Grab[b]
Temperature	Celsius	Disinfected reclaimed water	Daily	Grab[b]
Turbidity	NTU	Secondary effluent[a]	Daily	Grab[b]
	NTU	Filter Effluent	Continuous	Recording meter[c]
Coagulant	Lbs.	Coagulant feed	Daily	Metered usage
Coagulant Aid	Lbs.	Coagulant feed	Daily	Metered usage
Total Nitrate (as N)	mg/L	Disinfected reclaimed water	Weekly[e]	24-hour composite
Total Coliform[d]	No. of org. per 100 ml	Disinfected reclaimed water	Daily	Grab[b]
Total Chlorine Residual	mg/L	Water Reuse Distribution Line	Daily (when in use)	Grab[b]
[a] Secondary effluent shall be taken before coagulated and filtered. Disinfected reclaimed water samples shall be taken before distribution system.				
[b] Grab samples shall be taken at the same time daily when wastewater characteristics are the most demanding on the treatment facilities and disinfection processes.				
[c] Effluent turbidity analysis must be performed by a continuous recording turbidimeter. For each day, the Permittee must report the average value and the maximum value that exceeds five minutes. "Continuous" means uninterrupted except for brief periods of time for calibration, for power failure, or for unanticipated equipment repair or maintenance. The Permittee must sample every four hours when continuous monitoring is not possible.				
[d] As an alternate method, total coliform bacteria may be monitored using the ONPUG-MUG test (also called Autoanalysis Colilert System) per latest edition of standard methods.				
[e] May be calculated from final effluent monitoring (Condition S2)				

B. Reuse Instrumentation Calibration

Monitoring devices shall be installed, calibrated and maintained to ensure that the accuracy of the measurements are consistent with the accepted industry standard for that type of device. Frequency of calibration shall be in conformance with the manufacturer's recommendations. Calibration records shall be maintained for at least three years.

The Permittee shall also verify the accuracy of on-line turbidimeters at a minimum frequency of at least once every two weeks.

R3. REPORTING AND RECORDKEEPING REQUIREMENTS

The Permittee shall maintain records and report to the Departments of Ecology and Health in accordance with Special Condition S3, and the following conditions. All records shall be retained for a minimum of three years. The falsification of information submitted to the Departments shall constitute a violation of the terms of this permit.

A. Submittal Reporting

Monitoring results shall be submitted monthly. Monitoring data obtained during the previous month shall be summarized and reported on a form provided, or otherwise approved, by the Departments of Health and Ecology, and be received no later than the 15th day of the month following the completed reporting period, unless otherwise specified in this permit.

Monitoring Report forms must be submitted monthly whether or not the facility is reclaiming and distributing reclaimed water. If the reclamation facility was not operating during a given monitoring period, submit the form as required with the words "no reclamation or reuse" entered in place of the reclaimed water monitoring results.

Reclaimed water monitoring reports shall be submitted to the following addresses:

1. Department of Ecology, Municipal Permit Coordinator, Southwest Regional Office, P.O. Box 47775, Olympia, Washington 98504-7775

2. Department of Health, Office of Shellfish and Water Protection, 16201 East Indiana Avenue, Suite 1500, Spokane Valley, WA 99216

B. Reclaimed Water Operational Records

1. Operating records for the reclamation facility shall be maintained at the treatment plant or within a central depository within the Permittee's operating agency. These records shall include: records of all analyses performed, records of operational problems, unit process and equipment breakdowns, and diversions to emergency storage or disposal; and all corrective or preventative action taken

2. Process or equipment failures triggering an alarm that is key to maintaining reliability of reclaimed water quality shall be recorded and maintained as a separate record file. The recorded information shall include the time and cause of failure and corrective action taken.

3. A monthly summary of operating records as specified above shall be submitted with the Discharge Monitoring Report form to the Departments of Ecology and Health at that address listed under R3.A. above.

4. Cross Connection Control Report. An annual cross-connection control report shall be submitted to the Departments of Health by a certified Cross-Control Specialist identifying all devices tested and any cross-connection incidents which occurred in the reuse system. Where end users of the reclaimed water are the utilities or their customers, cross-connection requirements under this permit shall be consistent with or integrated into, existing cross-connection control programs

implemented by the utilities as required by the Department of Health under WAC 246-290.

R4. RECLAIMED WATER DISTRIBUTION AND USE

The Permittee shall monitor the reclamation facility loading and the following conditions.

A. Water Reuse Summary Plan

The Permittee shall prepare a water reuse summary plan, which contains a summary description of the proposed water reuse system from the approved Engineering Report (11/2000), as amended. The plan shall be submitted to the Departments of Health and Ecology before distribution of reclaimed water and updated annually. The **annual** updates shall be due **January 31st** each year, and cover the previous calendar year. A copy of the revised plan shall be submitted to the Departments of Ecology and Health. The plan shall contain, but not be limited to, the following:

1. Description of the reuse distribution system;

2. Identification and current list of all water purveyors, uses, users, and location of reuse sites.

3. Evaluation of reuse sites, estimated volume of reclaimed water use at reuse sites, means of application, and for irrigation or surface percolation uses, the application rates, water balance, expected agronomic uptake, potential to impact ground water or surface water at the site, background water quality and hydrogeological information necessary to evaluate potential water quality impacts.

4. Description of any additional treatment provided to the reclaimed water and any additional distribution system.

B. Authorized Uses and Locations

Beginning on the effective date of this permit and lasting through the expiration date of this permit, the Permittee is authorized to distribute reclaimed water in accordance with the terms and conditions of this permit for authorized uses.

The distribution by the Permittee of reclaimed water that does not meet the treatment, water quality and monitoring requirements established in this permit shall constitute a violation of the terms and conditions of this permit. The use of reclaimed water other than for authorized uses and locations that are listed or will be listed in the next update of a Department of Health and Ecology approved Water Reuse Summary Plan shall constitute a violation of the terms and conditions of this permit. No reclaimed water shall be used or discharged in a drainage basin such that the reclaimed water would cause or contribute to groundwater flooding in the basin.

The Permittee may produce and distribute Class A reclaimed water for the uses listed in the approved engineering report (11/2000), as amended at the locations listed in the approved Water Reuse Summary Plan, and for new locations as described in R4.C.

C. Authorization for New Direct Non-potable Uses of Reclaimed Water

The Permittee may provide reclaimed water for direct beneficial uses at locations not listed in the Water Reuse Summary Plan required by this permit in accordance with the terms and conditions of this permit provided the following conditions are met:

1. Direct beneficial uses and requirements for use are as listed in the Washington State Water Reclamation and Reuse Standards. The class of reclaimed water provided meets or exceeds the minimum requirements for the proposed use. Irrigation uses do not exceed agronomic rates of application.

2. The use area is located within Thurston County or other nearby counties. The water reclamation facility and use areas shall comply with local permitting and land use requirements.

3. The reclaimed water meets all applicable requirements of this permit for the approved class of reclaimed water including source control, treatment, water quality limitations, monitoring, recordkeeping, operation and maintenance, distribution and use.

4. The Permittee lists the new uses in the next annual Water Reuse Summary Plan and a copy of the revised plan is submitted to the Departments of Ecology and Health. The plan is described in R4.A.

D. Revocation of Authorization

Ecology may revoke authorization to provide service if the Permittee fails to comply with any requirement in this permit. Determination to revoke authorization shall be based on the risk to public health and safety or threat to waters of the state. Ecology may revoke the authorization for any or all reclamation facilities and use areas located within a specific geographic area if, due to a geologic or hydrologic condition, the cumulative effect of the reclamation facilities and use areas causes the violation of state water quality standards. Before revoking the authorization, Ecology shall notify the Permittee in writing and provide a reasonable opportunity and time frame to correct the noncompliance.

E. Bypass Prohibited

There shall be no bypassing of untreated or partially treated wastewater from the reclamation plant or any intermediate unit processes to the distribution system or point of use at any time. Diverting flows from the reclaimed water system to the North Outfall does not constitute a bypass provided such diversion does not cause an exceedance of the effluent limitations of Special Condition S1. All reclaimed water being distributed for beneficial use must meet Class A requirements at all times. Water not meeting Class A must be retained for additional treatment by diversion to a bypass storage lagoon or discharged to an authorized wastewater outfall.

The Departments of Ecology and Health shall be notified by telephone within 24 hours of any diversion to a bypass storage lagoon or authorized outfall due to failure of the reclaimed water system.

F. Reliability

The Permittee shall maintain the highest reliability class as described in the Water Reclamation and Reuse Standards which require one of the following features for each of the critical reclamation treatment unit processes of oxidation, coagulation, filtration, and disinfection:

1. Alarms and standby power source

2. Alarms and automatically actuated short-term (24-hour) storage or disposal provisions.

3. Automatically actuated long-term storage or disposal provisions for treated wastewater.

G. Use Area Responsibilities

1. A standard notification sign shall be developed by the Permittee using colors and verbiage approved by the state Department of Health. The signs shall be used in all reclaimed water use areas, consistent with the Water Reclamation and Reuse Standards.

2. Reclaimed water use, including runoff and spray shall be confined to the designated and approved use area.

3. The Permittee shall control industrial and toxic discharges to the sanitary sewer that may affect reclaimed water quality through the approved pretreatment program as listed in Special Condition S6.

4. Where the reclaimed water production, distribution and use areas are under direct control of the Permittee, the Permittee shall maintain control and be responsible for all facilities and activities inherent to the production, distribution and use of the reclaimed water. The Permittee shall ensure that the reuse system operates as approved by the Departments of Health and Ecology.

H. Service and Use Area Contract

Where the reclaimed water additional treatment, distribution system or use area is not under direct control of the Permittee:

1. No reclaimed water shall be distributed by the Permittee or water purveyor without a binding Service and Use Area Contract in place. The contract shall ensure that construction, operation, maintenance, use area responsibilities, and monitoring meet all requirements of the Departments of Health and Ecology. This Service and Use Area contract must be consistent with the requirements of the Water Reclamation and Reuse Standards, 1997.

2. If a standard contract has been approved by the Departments, the Permittee or the water purveyor may certify that the individual contract copies submitted comply with the terms and conditions of the approved standard contract. If no standard contract has been approved, a copy of each Service and Use Area contract must

be submitted to and approved by the Departments of Health and Ecology prior to implementation.

3. The Permittee or the water purveyor shall maintain all contracts for reclaimed water use for the duration of the permit. The Permittee shall inform the Departments of Health and Ecology in writing in the annual update to the Water Reuse Summary Plan of any proposed changes to existing agreements.

4. Unless expressly stated otherwise in an approved contract, the Permittee is responsible for all reuse facilities and activities inherent to the production, distribution and use of the reclaimed water.

5. Each individual Service and Use Area contract shall provide the Permittee and the water purveyor with the authority to regulate distribution, enter and inspect the site and to terminate service of reclaimed water to any customer violating the Washington State Water Reclamation and Reuse Standards. In lieu of specific language in each contract, the Permittee working in conjunction with the contributing jurisdictions, may complete and adopt local ordinances, to include policies and procedures, regulating the distribution and delivery of reclaimed water.

I. Reclaimed Water Ordinance

The Permittee shall complete interlocal agreements with the four contributing jurisdictions, and the contributing jurisdictions shall complete local ordinances to include policies and procedures for the distribution and delivery of reclaimed water. The interlocal agreements and ordinances shall provide the Permittee and jurisdictions with the authority to terminate service of reclaimed water from any jurisdiction or customer violating the Washington State Water Reclamation and Reuse Standards and restrictions outlined in the service and use agreement.

J. Irrigation Use

1. For any irrigation use of reclaimed water, the hydraulic loading rate of reclaimed water shall be determined.

2. Irrigation uses shall conform to all requirements of the Washington State Water Reclamation and Reuse Standards. The Permittee in coordination with contributing jurisdictions shall assure that all customers or authorized personnel using reclaimed water have completed training in the requirements for appropriate use of the water. Users of reclaimed water must ensure that their irrigation systems are in good working order, maintained regularly and kept free of leaks. They must further ensure that their irrigation controllers are set so that reclaimed water is applied appropriately to the landscape, to avoid excessive puddling or runoff of water. Sprinkler heads should be adjusted regularly to avoid application of water to impervious surfaces.

The Permittee or the water purveyor shall maintain all irrigation agreements for lands not owned for the duration of the permit. The Permittee shall inform the Departments of Health and Ecology in writing in the annual update to the Water Reuse Summary Plan of any proposed changes to existing agreements.

K. Wetlands Use

The Permittee or the water purveyor may use reclaimed water for natural wetland enhancement, as long as the following conditions are met and Ecology has granted written approval for the specific wetland to be enhanced:

1. Augmentation of wetland hydrologic regime is not to exceed an additional (above background) average annual hydraulic loading rate of 2 cm/day to Category II wetlands and 3 cm/day to Category III and IV wetlands, unless monitoring can demonstrate that a net ecological benefit can be maintained at a higher rate.

2. Average monthly water level elevations shall not increase by more than 10 cm above the pre-augmentation water level.

3. In Accordance with the Water Reclamation and Reuse Standards, the Permittee shall monitor the vegetation cover, plant diversity, macroinvertebrate biomass, amphibian species, fish biomass and species, bird density and species, threatened/endangered density and species once per year during the 1st, 2nd, 4th, 6th , 8th, and 10th growing season. There shall be no more the 25 percent reduction in parameter measurements over the wetland or 50 percent reduction at any one location in the wetland. The Permittee shall submit a report to Ecology on the results of the biological monitoring.

L. Other Uses of Reclaimed Water

Effluent used for sewage treatment plant purposes within the bounds of the wastewater treatment facility is not required to meet these standards, except in areas where there is potential public exposure as determined by the Departments of Health and Ecology.

The following uses require modification and public notice of this permit.

1. Groundwater recharge via surface percolation or direct injection.

2. Discharge of reclaimed water to surface waters, unless the discharge is covered by the Special Conditions of this permit.

3. The use of reclaimed water subsequent to its discharge to waters of the state.

4. Any reclamation facilities or uses that are not specifically authorized by this permit.

5. Any facilities or uses if determined necessary by the Department of Ecology or Health for public health or environmental protection.

R5. OPERATION AND MAINTENANCE

The Permittee shall operate and maintain the Budd Inlet treatment facility in accordance with Special Condition S5 and the following conditions.

A. Reclaimed Water System Maintenance

The Permittee and the water purveyors shall institute an adequate operation and maintenance (O&M) program for the entire reclamation system including all facilities and appurtenances owed and controlled by the Permittee, utilities or end users. Maintenance records shall be maintained by the Permittee, utilities or end user on all major electrical and mechanical components of the reclaimed water system, distribution system, and use areas. Such records shall clearly specify the frequency and type of maintenance recommended by the manufacturer and shall show the frequency and type of maintenance performed. These maintenance records shall be available for inspection at all times.

1. At all times, the reclamation system, distribution and use areas shall be maintained to ensure that all equipment is kept in a reliable operating condition.

2. A chlorine residual of at least 0.5 mg/L shall be maintained in the reclaimed water during conveyance from the reclamation system to the use area unless waived by the Departments of Health and Ecology.

3. Maintenance of a chlorine residual is not required in reclaimed water impoundments and storage ponds. At the discretion of the Departments of Health and Ecology, chlorine residual may not be required in reclaimed water distributed from storage ponds.

B. Operation and Maintenance Manual

Besides the items listed in S5.G, the Operation and Maintenance Manual for the Budd Inlet treatment facility shall include the following reclaimed water information:

1. An alarm condition response plan to ensure that no untreated or inadequately treated wastewater will be delivered to the use areas.

2. A discussion of the cross-connection control and inspection program, including who will be responsible for compliance and testing of cross connection control devices.

3. Operational strategies for the reclaimed water use areas that are under direct control of the Permittee.

C. Electrical Power Failure

The Permittee is responsible for maintaining adequate safeguards to prevent the discharge of untreated wastes or wastes not treated in accordance with the requirements of this permit during electrical power failure at the water reclamation plant and/or sewage lift stations either by means of alternate power sources, standby generator, or retention of inadequately treated wastes. The power supply shall be provided with one of the following reliability features to assure that inadequately treated wastewater is not discharged to distribution or use areas:

1. An alarm and a standby power source

2. An alarm and automatically actuated short-term storage or alternative disposal provisions All equipment other than pump-back equipment shall be either independent of the normal power supply or provided with a standby power supply.

3. Automatically actuated long-term storage or disposal provisions. All equipment other than pump-back equipment shall be either independent of the normal power supply or provided with a standby power supply.

GENERAL CONDITIONS

G1. SIGNATORY REQUIREMENTS

All applications, reports, or information submitted to Ecology shall be signed and certified.

A. All permit applications shall be signed by either a principal executive officer or a ranking elected official.

B. All reports required by this permit and other information requested by Ecology shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

1. The authorization is made in writing by a person described above and submitted to Ecology.

2. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.)

C. Changes to authorization. If an authorization under paragraph B.2 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph B.2 above must be submitted to Ecology prior to or together with any reports, information, or applications to be signed by an authorized representative.

D. Certification. Any person signing a document under this section shall make the following certification:

> I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

G2. RIGHT OF INSPECTION AND ENTRY

The Permittee shall allow an authorized representative of Ecology, upon the presentation of credentials and such other documents as may be required by law:

A. To enter upon the premises where a discharge is located or where any records must be kept under the terms and conditions of this permit.

B. To have access to and copy - at reasonable times and at reasonable cost - any records required to be kept under the terms and conditions of this permit.

C. To inspect - at reasonable times - any facilities, equipment (including monitoring and control equipment), practices, methods, or operations regulated or required under this permit.

D. To sample or monitor - at reasonable times - any substances or parameters at any location for purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act.

G3. PERMIT ACTIONS

This permit may be modified, revoked and reissued, or terminated either at the request of any interested person (including the permittee) or upon Ecology's initiative. However, the permit may only be modified, revoked and reissued, or terminated for the reasons specified in 40 CFR 122.62, 122.64 or WAC 173-220-150 according to the procedures of 40 CFR 124.5.

A. The following are causes for terminating this permit during its term, or for denying a permit renewal application:

1. Violation of any permit term or condition.

2. Obtaining a permit by misrepresentation or failure to disclose all relevant facts.

3. A material change in quantity or type of waste disposal.

4. A determination that the permitted activity endangers human health or the environment, or contributes to water quality standards violations and can only be regulated to acceptable levels by permit modification or termination [40 CFR Part 122.64(3)].

5. A change in any condition that requires either a temporary or permanent reduction, or elimination of any discharge or sludge use or disposal practice controlled by the permit [40 CFR Part 122.64(4)].

6. Nonpayment of fees assessed pursuant to RCW 90.48.465.

7. Failure or refusal of the permittee to allow entry as required in RCW 90.48.090.

B. The following are causes for modification but not revocation and reissuance except when the permittee requests or agrees:

1. A material change in the condition of the waters of the state.

2. New information not available at the time of permit issuance that would have justified the application of different permit conditions.

3. Material and substantial alterations or additions to the permitted facility or activities which occurred after this permit issuance.

4. Promulgation of new or amended standards or regulations having a direct bearing upon permit conditions, or requiring permit revision.

5. The Permittee has requested a modification based on other rationale meeting the criteria of 40 CFR Part 122.62.

6. Ecology has determined that good cause exists for modification of a compliance schedule, and the modification will not violate statutory deadlines.

7. Incorporation of an approved local pretreatment program into a municipality's permit.

C. The following are causes for modification or alternatively revocation and reissuance:

1. Cause exists for termination for reasons listed in A1 through A7 of this section, and Ecology determines that modification or revocation and reissuance is appropriate.

2. Ecology has received notification of a proposed transfer of the permit. A permit may also be modified to reflect a transfer after the effective date of an automatic transfer (General Condition G8) but will not be revoked and reissued after the effective date of the transfer except upon the request of the new permittee.

G4. REPORTING A CAUSE FOR MODIFICATION

The Permittee shall submit a new application, or a supplement to the previous application, along with required engineering plans and reports whenever a material change to the facility or in the quantity or type of discharge is anticipated which is not specifically authorized by this permit. This application shall be submitted at least 60 days prior to any proposed changes. The filing of a request by the Permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not relieve the Permittee of the duty to comply with the existing permit until it is modified or reissued.

G5. PLAN REVIEW REQUIRED

Prior to constructing or modifying any wastewater control facilities, an engineering report and detailed plans and specifications shall be submitted to Ecology for approval in accordance with Chapter 173-240 WAC. Engineering reports, plans, and specifications shall be submitted at least 180 days prior to the planned start of construction unless a shorter time is approved by Ecology. Facilities shall be constructed and operated in accordance with the approved plans.

G6. COMPLIANCE WITH OTHER LAWS AND STATUTES

Nothing in this permit shall be construed as excusing the Permittee from compliance with any applicable federal, state, or local statutes, ordinances, or regulations.

G7. DUTY TO REAPPLY

The Permittee shall apply for permit renewal by **March 1, 2016.**

G8. TRANSFER OF THIS PERMIT

In the event of any change in control or ownership of facilities from which the authorized discharge emanate, the Permittee shall notify the succeeding owner or controller of the existence of this permit by letter, a copy of which shall be forwarded to Ecology.

A. Transfers by Modification

Except as provided in paragraph (B) below, this permit may be transferred by the Permittee to a new owner or operator only if this permit has been modified or revoked and reissued under 40 CFR 122.62(b)(2), or a minor modification made under 40 CFR 122.63(d), to identify the new Permittee and incorporate such other requirements as may be necessary under the Clean Water Act.

B. Automatic Transfers

This permit may be automatically transferred to a new Permittee if:

1. The Permittee notifies Ecology at least 30 days in advance of the proposed transfer date.

2. The notice includes a written agreement between the existing and new Permittees containing a specific date transfer of permit responsibility, coverage, and liability between them.

3. Ecology does not notify the existing Permittee and the proposed new Permittee of its intent to modify or revoke and reissue this permit. A modification under this subparagraph may also be minor modification under 40 CFR 122.63. If this notice is not received, the transfer is effective on the date specified in the written agreement.

G9. REDUCED PRODUCTION FOR COMPLIANCE

The Permittee, in order to maintain compliance with its permit, shall control production and/or all discharges upon reduction, loss, failure, or bypass of the treatment facility until the facility is restored or an alternative method of treatment is provided. This requirement applies in the situation where, among other things, the primary source of power of the treatment facility is reduced, lost, or fails.

G10. REMOVED SUBSTANCES

Collected screenings, grit, solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters shall not be resuspended or reintroduced to the final effluent stream for discharge to state waters.

G11. DUTY TO PROVIDE INFORMATION

The Permittee shall submit to Ecology, within a reasonable time, all information which Ecology may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The Permittee shall also

submit to Ecology upon request, copies of records required to be kept by this permit [40 CFR 122.41(h)].

G12. OTHER REQUIREMENTS OF 40 CFR

All other requirements of 40 CFR 122.41 and 122.42 are incorporated in this permit by reference.

G13. ADDITIONAL MONITORING

Ecology may establish specific monitoring requirements in addition to those contained in this permit by administrative order or permit modification.

G14. PAYMENT OF FEES

The Permittee shall submit payment of fees associated with this permit as assessed by Ecology.

G15. PENALTIES FOR VIOLATING PERMIT CONDITIONS

Any person who is found guilty of willfully violating the terms and conditions of this permit shall be deemed guilty of a crime, and upon conviction thereof shall be punished by a fine of up to $10,000 and costs of prosecution, or by imprisonment in the discretion of the court. Each day upon which a willful violation occurs may be deemed a separate and additional violation.

Any person who violates the terms and conditions of a waste discharge permit shall incur, in addition to any other penalty as provided by law, a civil penalty in the amount of up to $10,000 for every such violation. Each and every such violation shall be a separate and distinct offense, and in case of a continuing violation, every day's continuance shall be deemed to be a separate and distinct violation.

G16. UPSET

Definition – "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of the following paragraph are met.

A Permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that: 1) an upset occurred and that the Permittee can identify the cause(s) of the upset; 2) the permitted facility was being properly operated at the time of the upset; 3) the Permittee submitted notice of the upset as required in Condition S3.E; and 4) the Permittee complied with any remedial measures required under S5 of this permit.

In any enforcement proceeding the Permittee seeking to establish the occurrence of an upset has the burden of proof.

G17. PROPERTY RIGHTS

This permit does not convey any property rights of any sort, or any exclusive privilege.

G18. DUTY TO COMPLY

The Permittee shall comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.

G19. TOXIC POLLUTANTS

The Permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if this permit has not yet been modified to incorporate the requirement.

G20. PENALTIES FOR TAMPERING

The Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than two years per violation, or by both. If a conviction of a person is for a violation committed after a first conviction of such person under this Condition, punishment shall be a fine of not more than $20,000 per day of violation, or by imprisonment of not more than four years, or by both.

G21. REPORTING PLANNED CHANGES

The Permittee shall, as soon as possible, give notice to Ecology of planned physical alterations or additions to the permitted facility, production increases, or process modification which will result in: 1) the permitted facility being determined to be a new source pursuant to 40 CFR 122.29(b); 2) a significant change in the nature or an increase in quantity of pollutants discharged; or 3) a significant change in the Permittee's sludge use or disposal practices. Following such notice, this permit may be modified, or revoked and reissued pursuant to 40 CFR 122.62(a) to specify and limit any pollutants not previously limited. Until such modification is effective, any new or increased discharge in excess of permit limits or not specifically authorized by this permit constitutes a violation of the terms and conditions of this permit.

G22. REPORTING ANTICIPATED NON-COMPLIANCE

The Permittee shall give advance notice to Ecology by submission of a new application or supplement thereto at least 180 days prior to commencement of such discharges, of any facility expansions, production increases, or other planned changes, such as process modifications, in the permitted facility or activity which may result in noncompliance with permit limits or conditions. Any maintenance of facilities, which might necessitate unavoidable interruption of operation and degradation of effluent quality, shall be scheduled during noncritical water quality periods and carried out in a manner approved by Ecology.

G23. REPORTING OTHER INFORMATION

Where the Permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application, or in any report to Ecology, it shall promptly submit such facts or information.

G24. REPORTING REQUIREMENTS APPLICABLE TO EXISTING MANUFACTURING, COMMERCIAL, MINING, AND SILVICULTURAL DISCHARGERS

The Permittee belonging to the categories of existing manufacturing, commercial, mining, or silviculture must notify Ecology as soon as they know or have reason to believe:

A. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in this permit, if that discharge will exceed the highest of the following "notification levels:"

1. One hundred micrograms per liter (100 µg/l).

2. Two hundred micrograms per liter (200 µg/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/l) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony.

3. Five times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR 122.21(g)(7).

4. The level established by the Director in accordance with 40 CFR 122.44(f).

B. That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in this permit, if that discharge will exceed the highest of the following "notification levels:"

1. Five hundred micrograms per liter (500µg/L).

2. One milligram per liter (1 mg/L).

3. Ten times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR 122.21(g)(7).

4. The level established by the Director in accordance with 40 CFR 122.44(f).

G25. COMPLIANCE SCHEDULES

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date.

APPENDIX A

EFFLUENT CHARACTERIZATION FOR POLLUTANTS
THIS LIST INCLUDES EPA REQUIRED POLLUTANTS (PRIORITY POLLUTANTS) AND SOME ECOLOGY PRIORITY TOXIC CHEMICALS (PBTs)

The following table specifies analytical methods and levels to be used for effluent characterization in NPDES and State waste discharge permits. This appendix specifies effluent characterization requirements of the Department of Ecology unless other methods are specified in the body of this permit.

This permit specifies the compounds and groups of compounds to be analyzed. Ecology may require additional pollutants to be analyzed within a group. The objective of this appendix is to reduce the number of analytical "non-detects" in permit-required monitoring and to measure effluent concentrations near or below criteria values where possible at a reasonable cost. If a Permittee knows that an alternate, less sensitive method (higher DL and QL) from 40 CFR Part 136 is sufficient to produce measurable results in their effluent, that method may be used for analysis.

Pollutant & CAS No. ***(if available)***	**Recommended Analytical Protocol**	**Detection (DL)[1]** ***µg/L unless specified***	**Quantitation Level (QL)[2]** ***µg/L unless specified***
CONVENTIONALS			
Biochemical Oxygen Demand	SM5210-B		2 mg/L
Chemical Oxygen Demand	SM5220-D		10 mg/L
Total Organic Carbon	SM5310-B/C/D		1 mg/L
Total Suspended Solids	SM2540-D		5 mg/L
Total Ammonia (as N)	SM4500-NH3- GH		0.3 mg/L
Flow	Calibrated device		
Dissolved oxygen	4500-OC/OG		0.2 mg/L
Temperature (max. 7-day avg.)	Analog recorder or Use micro-recording devices known as thermistors		0.2° C
pH	SM4500-H^+ B	N/A	N/A
NONCONVENTIONALS			
Total Alkalinity	SM2320-B		5 mg/L as CaCo3
Chlorine, Total Residual	4500 Cl G		50.0
Color	SM2120 B/C/E		10 color unit
Fecal Coliform	SM 9221D/E,9222	N/A	N/A
Fluoride (16984-48-8)	SM4500-F E	25	100
Nitrate-Nitrite (as N)	4500-NO3- E/F/H		100
Nitrogen, Total Kjeldahl (as N)	4500-NH3-C/E/FG		300
Ortho-Phosphate (PO_4 as P)	4500- PE/PF	3	10
Phosphorus, Total (as P)	4500-PE/PF	3	10
Oil and Grease (HEM)	1664A	1,400	5,000
Salinity	SM2520-B		3 PSS
Settleable Solids	SM2540 -F		100
Sulfate (as mg/L SO_4)	SM4110-B		200
Sulfide (as mg/L S)	4500-S^2F/D/E/G		200
Sulfite (as mg/L SO_3)	SM4500-SO3B		2000
Total dissolved solids	SM2540 C		20 mg/L

Pollutant & CAS No. *(if available)*	Recommended Analytical Protocol	Detection (DL)[1] *µg/L unless specified*	Quantitation Level (QL)[2] *µg/L unless specified*
Total Hardness	2340B		200 as CaCO3
Aluminum, Total (7429-90-5)	200.8	2.0	10
Barium Total (7440-39-3)	200.8	0.5	2.0
Boron Total (7440-42-8)	200.8	2.0	10.0
Cobalt, Total (7440-48-4)	200.8	0.05	0.25
Iron, Total (7439-89-6)	200.7	12.5	50
Magnesium, Total (7439-95-4)	200.7	10	50
Molybdenum, Total (7439-98-7)	200.8	0.1	0.5
Manganese, Total (7439-96-5)	200.8	0.1	0.5
Tin, Total (7440-31-5)	200.8	0.3	1.5
METALS, CYANIDE & TOTAL PHENOLS			
Antimony, Total (7440-36-0)	200.8	0.3	1.0
Arsenic, Total (7440-38-2)	200.8	0.1	0.5
Beryllium, Total (7440-41-7)	200.8	0.1	0.5
Cadmium, Total (7440-43-9)	200.8	0.05	0.25
Chromium (hex) dissolved (18540-29-9)	SM3500-Cr EC	0.3	1.2
Chromium, Total (7440-47-3)	200.8	0.2	1.0
Copper, Total (7440-50-8)	200.8	0.4	2.0
Lead, Total (7439-92-1)	200.8	0.1	0.5
Mercury, Total (7439-97-6)	1631E	0.0002	0.0005
Nickel, Total (7440-02-0)	200.8	0.1	0.5
Selenium, Total (7782-49-2)	200.8	1.0	1.0
Silver, Total (7440-22-4)	200.8	0.04	0.2
Thallium, Total (7440-28-0)	200.8	0.09	0.36
Zinc, Total (7440-66-6)	200.8	0.5	2.5
Cyanide, Total (57-12-5)	335.4	2	10
Cyanide, Weak Acid Dissociable	SM4500-CN I	2	10
Phenols, Total	EPA 420.1		50
DIOXIN			
2,3,7,8-Tetra-Chlorodibenzo-P-Dioxin (176-40-16)	1613B	1.3 pg/L	5 pg/L
VOLATILE COMPOUNDS			
Acrolein (107-02-8)	624	5	10
Acrylonitrile (107-13-1)	624	1.0	2.0
Benzene (71-43-2)	624	1.0	2.0
Bromoform (75-25-2)	624	1.0	2.0
Carbon tetrachloride (56-23-5)	624/601 or SM6230B	1.0	2.0
Chlorobenzene (108-90-7)	624	1.0	2.0
Chloroethane (75-00-3)	624/601	1.0	2.0
2-Chloroethylvinyl Ether (110-75-8)	624	1.0	2.0
Chloroform (67-66-3)	624 or SM6210B	1.0	2.0
Dibromochloromethane (124-48-1)	624	1.0	2.0
1,2-Dichlorobenzene (95-50-1)	624	1.9	7.6
1,3-Dichlorobenzene (541-73-1)	624	1.9	7.6

Pollutant & CAS No. *(if available)*	Recommended Analytical Protocol	Detection (DL)[1] *µg/L unless specified*	Quantitation Level (QL)[2] *µg/L unless specified*
1,4-Dichlorobenzene (106-46-7)	624	4.4	17.6
Dichlorobromomethane (75-27-4)	624	1.0	2.0
1,1-Dichloroethane (75-34-3)	624	1.0	2.0
1,2-Dichloroethane (107-06-2)	624	1.0	2.0
1,1-Dichloroethylene (75-35-4)	624	1.0	2.0
1,2-Dichloropropane (78-87-5)	624	1.0	2.0
1,3-dichloropropylene (mixed isomers) (542-75-6)	624	1.0	2.0
Ethylbenzene (100-41-4)	624	1.0	2.0
Methyl bromide (74-83-9) (Bromomethane)	624/601	5.0	10.0
Methyl chloride (74-87-3) (Chloromethane)	624	1.0	2.0
Methylene chloride (75-09-2)	624	5.0	10.0
1,1,2,2-Tetrachloroethane (79-34-5)	624	1.9	2.0
Tetrachloroethylene (127-18-4)	624	1.0	2.0
Toulene (108-88-3)	624	1.0	2.0
1,2-Trans-Dichloroethylene (156-60-5) (Ethylene dichloride)	624	1.0	2.0
1,1,1-Trichloroethane (71-55-6)	624	1.0	2.0
1,1,2-Trichloroethane (79-00-5)	624	1.0	2.0
Trichloroethylene (79-01-6)	624	1.0	2.0
Vinyl chloride (75-01-4)	624/SM6200B	1.0	2.0
ACID COMPOUNDS			
2-Chlorophenol (95-57-8)	625	1.0	2.0
2,4-Dichlorophenol (120-83-2)	625	0.5	1.0
2,4-Dimethylphenol (105-67-9)	625	0.5	1.0
4,6-dinitro-o-cresol (534-52-1) (2-methyl-4,6,-dinitrophenol)	625/1625B	1.0	2.0
2,4 dinitrophenol (51-28-5)	625	1.0	2.0
2-Nitrophenol (88-75-5)	625	0.5	1.0
4-nitrophenol (100-02-7)	625	0.5	1.0
Parachlorometa cresol (59-50-7) (4-chloro-3-methylphenol)	625	1.0	2.0
Pentachlorophenol (87-86-5)	625	0.5	1.0
Phenol (108-95-2)	625	2.0	4.0
2,4,6-Trichlorophenol (88-06-2)	625	2.0	4.0
BASE/NEUTRAL COMPOUNDS (compounds in bold are Ecology PBTs)			
Acenaphthene (83-32-9)	625	0.2	0.4
Acenaphthylene (208-96-8)	625	0.3	0.6
Anthracene (120-12-7)	625	0.3	0.6
Benzidine (92-87-5)	625	12	24
Benzyl butyl phthalate (85-68-7)	625	0.3	0.6
Benzo(*a*)anthracene (56-55-3)	625	0.3	0.6
Benzo(j)fluoranthene (205-82-3)	625	0.5	1.0
Benzo(r,s,t)pentaphene (189-55-9)	625	0.5	1.0

Pollutant & CAS No. *(if available)*	Recommended Analytical Protocol	Detection (DL)[1] *µg/L unless specified*	Quantitation Level (QL)[2] *µg/L unless specified*
Benzo(*a*)pyrene (50-32-8)	610/625	0.5	1.0
3,4-benzofluoranthene (Benzo(b)fluoranthene) (205-99-2)	610/625	0.8	1.6
11,12-benzofluoranthene (Benzo(k)fluoranthene) (207-08-9)	610/625	0.8	1.6
Benzo(*ghi*)Perylene (191-24-2)	610/625	0.5	1.0
Bis(*2-chloroethoxy)*methane (111-91-1)	625	5.3	21.2
Bis(*2-chloroethyl*)ether (111-44-4)	611/625	0.3	1.0
Bis(*2-chloroisopropyl*)ether (39638-32-9)	625	0.3	0.6
Bis(*2-ethylhexyl*)phthalate (117-81-7)	625	0.1	0.5
4-Bromophenyl phenyl ether (101-55-3)	625	0.2	0.4
2-Chloronaphthalene (91-58-7)	625	0.3	0.6
4-Chlorophenyl phenyl ether (7005-72-3)	625	0.3	0.5
Chrysene (218-01-9)	610/625	0.3	0.6
Dibenzo (a,j)acridine (224-42-0)	610M/625M	2.5	10.0
Dibenzo (a,h)acridine (226-36-8)	610M/625M	2.5	10.0
Dibenzo(a-*h*)anthracene (53-70-3)(1,2,5,6-dibenzanthracene)	625	0.8	1.6
Dibenzo(a,e)pyrene (192-65-4)	610M/625M	2.5	10.0
Dibenzo(a,h)pyrene (189-64-0)	625M	2.5	10.0
3,3-Dichlorobenzidine (91-94-1)	605/625	0.5	1.0
Diethyl phthalate (84-66-2)	625	1.9	7.6
Dimethyl phthalate (131-11-3)	625	1.6	6.4
Di-n-butyl phthalate (84-74-2)	625	0.5	1.0
2,4-dinitrotoluene (121-14-2)	609/625	0.2	0.4
2,6-dinitrotoluene (606-20-2)	609/625	0.2	0.4
Di-n-octyl phthalate (117-84-0)	625	0.3	0.6
1,2-Diphenylhydrazine (*as Azobenzene*) (122-66-7)	1625B	5.0	20
Fluoranthene (206-44-0)	625	0.3	0.6
Fluorene (86-73-7)	625	0.3	0.6
Hexachlorobenzene (118-74-1)	612/625	0.3	0.6
Hexachlorobutadiene (87-68-3)	625	0.5	1.0
Hexachlorocyclopentadiene (77-47-4)	1625B/625	0.5	1.0
Hexachloroethane (67-72-1)	625	0.5	1.0
Indeno(*1,2,3-cd*)Pyrene (193-39-5)	610/625	0.5	1.0
Isophorone (78-59-1)	625	0.5	1.0
3-Methyl cholanthrene (56-49-5)	625	2.0	8.0
Naphthalene (91-20-3)	625	0.3	0.6
Nitrobenzene (98-95-3)	625	0.5	1.0

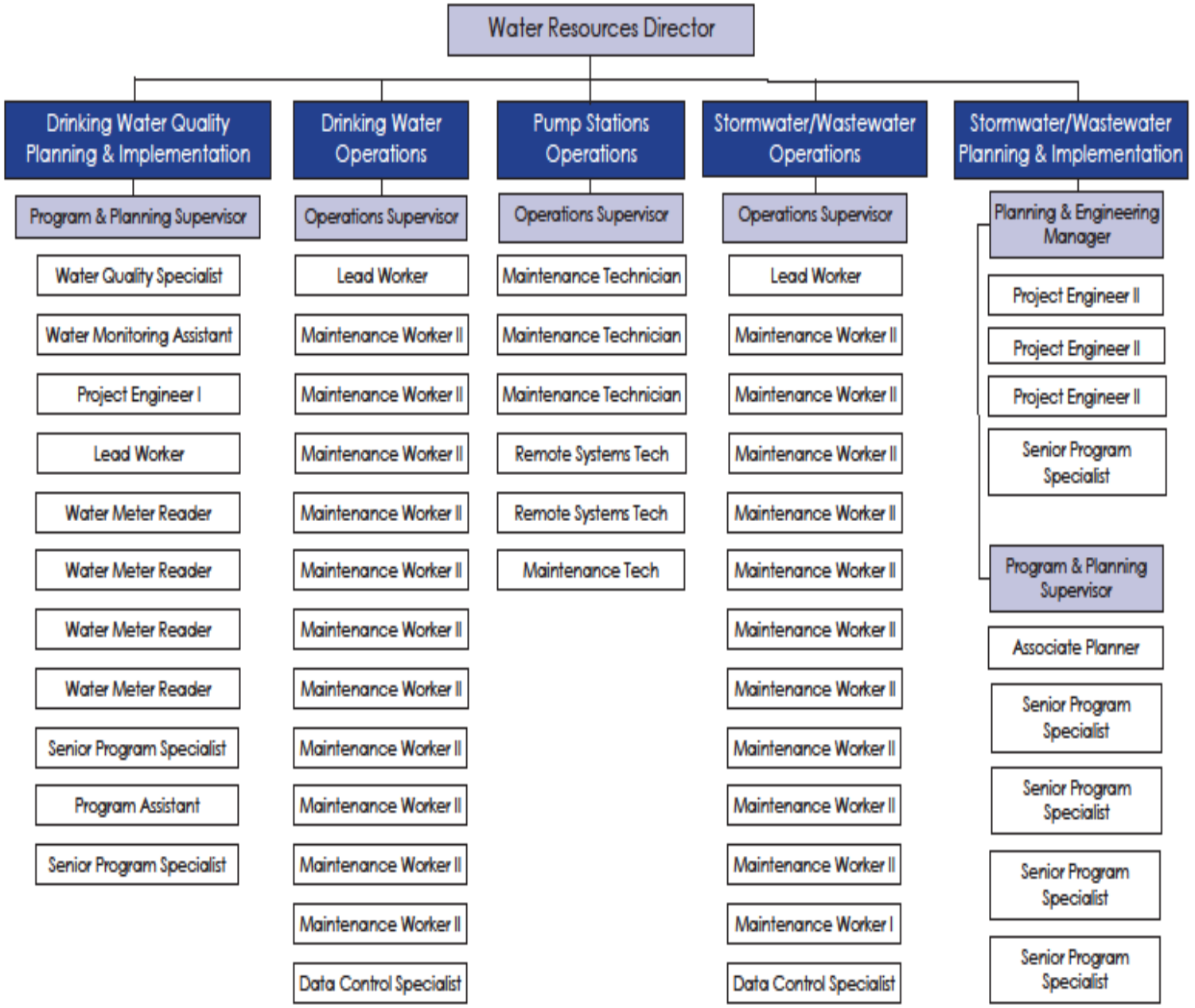
Pollutant & CAS No. *(if available)*	Recommended Analytical Protocol	Detection (DL)[1] *µg/L unless specified*	Quantitation Level (QL)[2] *µg/L unless specified*
N-Nitrosodimethylamine (62-75-9)	607/625	2.0	4.0
N-Nitrosodi-n-propylamine (621-64-7)	607/625	0.5	1.0
N-Nitrosodiphenylamine (86-30-6)	625	0.5	1.0
Perylene (198-55-0)	625	1.9	7.6
Phenanthrene (85-01-8)	625	0.3	0.6
Pyrene (129-00-0)	625	0.3	0.6
1,2,4-Trichlorobenzene (120-82-1)	625	0.3	0.6
PESTICIDES/PCBs			
Aldrin (309-00-2)	608	0.025	0.05
alpha-BHC (319-84-6)	608	0.025	0.05
beta-BHC (319-85-7)	608	0.025	0.05
gamma-BHC (58-89-9)	608	0.025	0.05
delta-BHC (319-86-8)	608	0.025	0.05
Chlordane (57-74-9)	608	0.025	0.05
4,4'-DDT (50-29-3)	608	0.025	0.05
4,4'-DDE (72-55-9)	608	0.025	0.05[10]
4,4' DDD (72-54-8)	608	0.025	0.05
Dieldrin (60-57-1)	608	0.025	0.05
alpha-Endosulfan (959-98-8)	608	0.025	0.05
beta-Endosulfan (33213-65-9)	608	0.025	0.05
Endosulfan Sulfate (1031-07-8)	608	0.025	0.05
Endrin (72-20-8)	608	0.025	0.05
Endrin Aldehyde (7421-93-4)	608	0.025	0.05
Heptachlor (76-44-8)	608	0.025	0.05
Heptachlor Epoxide (1024-57-3)	608	0.025	0.05
PCB-1242 (53469-21-9)	608	0.25	0.5
PCB-1254 (11097-69-1)	608	0.25	0.5
PCB-1221 (11104-28-2)	608	0.25	0.5
PCB-1232 (11141-16-5)	608	0.25	0.5
PCB-1248 (12672-29-6)	608	0.25	0.5
PCB-1260 (11096-82-5)	608	0.13	0.5
PCB-1016 (12674-11-2)	608	0.13	0.5
Toxaphene (8001-35-2)	608	0.24	0.5

1. Detection level (DL) or detection limit means the minimum concentration of an analyte (substance) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero as determined by the procedure given in 40 CFR part 136, Appendix B.

2. Quantitation Level (QL) is equivalent to EPA's Minimum Level (ML) which is defined in 40 CFR Part 136 as the minimum level at which the entire GC/MS system must give recognizable mass spectra (background corrected) and acceptable calibration points. These levels were published as proposed in the Federal Register on March 28, 1997.

Appendix J – Water Resources and Wastewater Organization Chart

WATER RESOURCES



Appendix K

Financial Analysis by FCS Group

July 2013

WASTEWATER MANAGEMENT PLAN FINANCIAL ANALYSIS

INTRODUCTION

The primary goal of the financial analysis is to develop a multi-year rate strategy that will provide stable revenue to meet the total operating and capital costs of providing wastewater service in the City of Olympia (City). The financial analysis focuses on the amount of revenue needed to meet the system's total financial obligations which include:

- Fiscal policies
- Operating and maintenance costs
- Administration and overhead
- Capital costs
- Existing and new debt service obligations

In particular, the financial analysis evaluates the financial impact related to the completion of the 20-year Capital Facilities Plan (CFP) and develops a rate strategy for meeting these future costs.

FINANCIAL STRUCTURE

The City's wastewater utility is responsible for funding all of its related costs through user fees. It does not depend on general tax revenues or general fund resources. The primary source of funding for the wastewater utility is wastewater rate revenue; miscellaneous operating revenues and investment earnings provide additional resources to fund the wastewater utility's revenue needs.

The City maintains a fund structure and implements financial policies targeting management of a financially viable utility enterprise. The following funds are relevant to this analysis.

- Wastewater Operating Fund (Fund 402): Includes unrestricted resources that are used to fund operation and maintenance (O&M) expenses and all other costs that are not covered by other funds. Wastewater rate revenue and other operating revenues go into this fund.

- Wastewater Capital Fund (Fund 462): Includes resources that are restricted or otherwise set aside for capital purposes, such as general facility charges (GFCs) and debt proceeds. The City funds its capital facilities plan (CFP) projects through this fund.

- Water / Sewer Bond Redemption Fund (Fund 417): Includes resources set aside to repay the water and wastewater utility's outstanding revenue-bond debt service. It may also include (as a restricted sub-account) the reserve account required by the City's outstanding bond covenants.

FISCAL POLICIES

This analysis is based on a framework of fiscal policies that promote the financial integrity and stability of the wastewater utility. A brief summary of the key financial policies employed by the wastewater utility, as well as those recommended and incorporated in the financial program are discussed below.

Reserve Funds

Like any business, a municipal utility requires certain minimum levels of cash reserves to operate – these reserves address variability and timing of expenditures and receipts, as well as occasional disruptions in activities, costs or revenues. Given the wastewater utility's responsibility to provide an essential service at a certain standard, protection against financial disruptions is even more important than it would be for a private sector or non-essential counterpart.

In addition to protecting the utility against financial disruption, a defined reserve structure serves to maintain appropriate segregations of funds and to promote the use of resources for their intended purposes. This analysis assumes the following policy requirements for the wastewater utility's reserves:

- The Operating Fund is assumed to maintain a minimum reserve balance equal to 10% of annual operating expenses, excluding payments to the Lacey, Olympia, Tumwater, and Thurston County Alliance (LOTT) for wastewater treatment service. This policy intends to provide liquid "working capital" to accommodate cash balance fluctuations associated with differences in revenue and expense cycles along with other unforeseen variations in revenues or costs.

- The Capital Fund is assumed to maintain a minimum reserve balance equal to 5% of active capital appropriations as a capital contingency reserve. This policy intends to provide a source of funding for unanticipated capital needs, such as project cost overruns.

- Assuming that it includes the reserve account specified in the City's bond covenants, the Water/Sewer Bond Redemption Fund has a minimum target balance defined by the covenants (equal to the lesser of 1.25 times total annual revenue bond debt service, maximum annual revenue bond debt service, and 10% of the bond principal issued). The 2010 Bond Official Statement indicates that the City has purchased insurance to meet the reserve account requirements for the 2001 and 2007 Water/Sewer Bonds, and has funded the requirement for the 2010 Bond through bond proceeds.

Capital Investment

The City has established two major policies related to capital investment.

- **Existing ratepayers should bear a cost commensurate with the full cost of providing service.** This "full cost" includes both cash outlays and the decline in useful life of existing infrastructure (which is not a direct cash expense until asset replacement is required). Existing customers benefit from a system of infrastructure that has been funded through a combination of sources; this infrastructure deteriorates over its useful life and will eventually fail, requiring replacement.

- **New development should make an equitable financial contribution to the wastewater utility.** The general facility charge (GFC) is a mechanism that promotes equity between existing and future customers, representing a pro rata share of system capital costs attributable to new

development. As provided for in Section 35.92.025 of the Revised Code of Washington (RCW), new customers pay the GFC as a condition of receiving utility service.

There are numerous approaches to defining a benchmark for appropriate reinvestment. In 1996, the City established a standard of requiring rates to fund capital investment at a level commensurate with the annual depreciation of existing wastewater infrastructure assets. This funding is first used to pay current wastewater utility debt principal repayment obligations and any remaining amount becomes a source of future capital project funding. This policy effectively results in the City funding annual replacement at an amount equal to annual depreciation expense, net of debt principal payments. While this approach does not ensure full cash funding of system replacements, it provides a reasonable basis for equitably charging current customers for the use and decline in value of the system. It is consistent with standard accounting practices and is a commonly used benchmark in the industry. In most cases, it provides a major source of capital reinvestment, which can be augmented with judicious use of debt financing to meet scheduling requirements.

Debt

It is prudent to consider policies related to debt management as part of the broader utility financial policy structure. Debt management policies should be evaluated and formalized including the level of acceptable outstanding debt, debt repayment, bond coverage and total debt coverage targets.

The wastewater utility's revenue bonds require a minimum annual debt service coverage ratio of 1.25. In other words, this requires that the City set wastewater rates so that "net revenues" (defined in the City's bond covenants, but can generally be thought of as operating revenues net of cash operating expenses) are equal to at least 1.25 times the annual revenue bond debt service. The wastewater utility must meet this coverage requirement annually. Because the coverage test is an evaluation of annual performance, use of reserves generally does not count toward coverage – as an exception, the 2010 Bond covenants discuss a Rate Stabilization Account from which the City may draw funds to meet coverage requirements (for consistency, deposits into the Rate Stabilization Account are considered to be expenses in the calculation of bond coverage).

In this revenue bond coverage test, all subordinate debt is excluded from the calculation on the premise that such debt would hold a junior position and would only be repaid after revenue bond payments are satisfied. In practice, a revenue bond coverage factor of 1.25 could actually result in negative cash flow after all debt service is paid. However, the City's wastewater utility has consistently exceeded its test threshold and is projected to continue to adjust its wastewater rates as needed to meet current and future debt service coverage obligations.

OPERATING REVENUE & EXPENSE FORECAST

The financial analysis establishes the required revenue to meet the total system costs of providing wastewater services, both operating and capital. The operating costs identify ongoing annual non-capital costs associated with the operating, maintenance and administration of the wastewater system. Operating costs are initially based on the 2013 Budget, and are generally projected for future years based on assumed inflation rates.

- Most operating costs are increased with anticipated inflation in the Seattle Consumer Price Index (CPI), which is assumed to vary between 1.8% to 2.1% per year based on the March 2013 forecast published by the State Economic and Revenue Forecast Council. Beyond the five-year period covered in the State's forecast, this analysis assumes an annual CPI inflation

rate of 3.0%. Because LOTT's 2013 Budget indicates that inflation-based rate adjustments are planned through 2018, the City's payments to LOTT are assumed to increase with inflation.

- Variable operating costs such as electricity are assumed to change over time with both CPI inflation and assumed changes in water demand. Consistent with the planning efforts underlying the City's water rates, this analysis assumes that per-capita water demands will continue to decrease by 1.0% – 2.0% per year for the next few years – given that the Thurston Regional Planning Council has projected comparable increases in the population during the study period, this assumption results in a forecast of water demand (as a proxy to wastewater flows) that declines slightly over the next several years.

- Taxes are calculated based on projected revenues and applicable tax rates.

  State excise taxes are computed based on projected revenues and the methodology developed as part of the excise tax refund claim that FCS GROUP completed for the City in 2005. Most operating revenues (net of payments to LOTT) are taxed at an effective rate of roughly 3% (assuming that 34.65% is allocable to transmission and taxed at 1.8%, and the remainder is allocable to collection and taxed at 3.852%). GFC revenues and miscellaneous operating revenues are taxed at the business and occupation (B&O) tax rate of 1.8%. The B&O tax rate is currently at 1.8% due to a temporary increase that is supposed to expire effective July 1, 2013 – beyond that date, this analysis assumes that the B&O tax rate decreases to its historical level of 1.5%.

  Olympia utility taxes are computed as 10% of rate revenue (under City and LOTT rates) and other operating revenue. Consistent with the 2013 Budget, this analysis projects about $1.6 million per year in City utility taxes given budgeted revenues at current rates.

  Tumwater utility taxes are based on 6% of rate revenue received from customers that are within Tumwater's corporate boundaries. The 2013 Budget projects about $100 for these taxes, suggesting that the City collects about $1,700 per year from these customers.

- Rate revenues are assumed to increase with growth in the customer base. Rate revenue from fixed charges (estimated to be roughly 80% of total rate revenue) is assumed to increase with population growth, which based on the Thurston Regional Planning Council's forecast is expected to occur at a rate of 1.2% – 1.9% per year. Rate revenue from volume charges is assumed to grow with water demands, which as discussed above are actually expected to decline over the next few years.

- LOTT rate revenues are assumed to be equal to projected LOTT expenses.

- Investment earnings are calculated from projected fund balances, assuming a near-term earnings rate of 0.5% – 1.0% per year.

CAPITAL REVENUE AND EXPENSE FORECAST

Capital Facilities Plan (CFP) project costs are typically funded through a mix of existing cash balances, GFC revenues, grants, and new debt proceeds. Given the timing and magnitude of these costs, utility rates are more commonly used to pay for annual debt service associated with these projects (though certain projects or portions of project costs can be funded through rates).

Table 1 summarizes the 20-year CFP:

Table 1: CFP Project Cost Summary ($ Thousands)

Project	2013	2014	2015	2016	2017	2018	2019 - 2033	Total
9021 - Asphalt Overlays	$ 10	$ 11	$ 11	$ 12	$ 12	$ 13	$ 289	$ 357
9703 - Replacements and Repairs	815	515	733	553	423	559	12,747	16,344
9806 - Lift Stations	3,752	1,100	250	750	60	900	9,580	16,392
9808 - Sewer System Planning	20	21	22	23	24	26	580	716
9809 - Sewer System Extensions	-	-	-	-	-	750	-	750
9813 - Onsite Sewage System Conversions	100	650	158	165	749	182	8,593	10,597
9903 - Infrastructure Pre-Design	-	37	39	41	43	45	1,030	1,236
Total	**$ 4,697**	**$ 2,334**	**$ 1,213**	**$ 1,544**	**$ 1,311**	**$ 2,475**	**$ 32,819**	**$ 46,392**

The capital project costs shown in **Table 1** were provided by City staff, and reflect an adjustment for assumed construction cost inflation at a rate of 5.0% per year.

The financial forecast includes the development of a funding strategy for the costs shown in **Table 1**. The capital financing strategy is based on the following principles:

- Any grants or contributions would be applied first to cover eligible project costs. *This analysis does not assume the availability of any such funds.*
- Low-cost loans, such as Public Works Trust Fund (PWTF) or State Revolving Fund (SRF) loan proceeds, would then be applied to eligible project costs. *This analysis does not assume the availability of any new loans.*
- The utility's cash resources are then applied as available to cover costs in excess of any grants or loans. Sources of cash for this purpose include the existing Capital Fund balance, GFC revenues, unspent bond or loan proceeds, rate-funded transfers for system reinvestment, and other transfers from the Operating Fund.
- Revenue bonds are issued to fund costs that exceed the utility's available cash resources. *This analysis assumes that the City would issue 20-year bonds with an interest rate of 4%.*

Table 2 summarizes the 6-year capital financing strategy:

Table 2: Proposed CFP Funding Strategy

Project	2013	2014	2015	2016	2017	2018	Total
Total Capital Costs	$ 4,697,000	$ 2,333,700	$ 1,213,000	$ 1,543,800	$ 1,311,100	$ 2,474,900	$ 13,573,500
Planned Funding Strategy							
Cash	$ 4,697,000	$ 2,333,700	$ 1,213,000	$ 1,543,800	$ 1,311,100	$ 2,474,900	$ 13,573,500
Total	**$ 4,697,000**	**$ 2,333,700**	**$ 1,213,000**	**$ 1,543,800**	**$ 1,311,100**	**$ 2,474,900**	**$ 13,573,500**

Projected Capital Fund Activity	2013	2014	2015	2016	2017	2018
Beginning Balance	$ 3,662,120	$ 674,697	$ 146,823	$ 841,440	$ 2,006,898	$ 3,765,531
Plus: Interest Earnings	7,324	3,373	734	4,207	20,069	37,655
Plus: GFC Revenue	960,952	1,060,452	1,106,883	1,855,051	1,949,664	2,049,103
Plus: Replacement Funding	741,301	742,000	800,000	850,000	1,100,000	1,200,000
Less: Capital Expenditures	(4,697,000)	(2,333,700)	(1,213,000)	(1,543,800)	(1,311,100)	(2,474,900)
Ending Balance	$ 674,697	$ 146,823	$ 841,440	$ 2,006,898	$ 3,765,531	$ 4,577,389
Minimum Balance	*$ 234,850*	*$ 116,685*	*$ 60,650*	*$ 77,190*	*$ 65,555*	*$ 123,745*

Table 2 indicates that the City will have enough cash resources to pay for the projected capital costs without any additional debt issuance. This finding relies on the following assumptions:

- GFC revenue collections are projected increase from $1.0 million to $2.0 million per year by the end of the near-term forecast. This increase is attributable to higher population growth projections beginning in 2016, but also reflects the assumption that the GFC is increased annually with inflation (as measured by the 20-City average ENR Construction Cost Index). Because ENR does not forecast future cost inflation, this analysis assumes that the ENR Construction Cost Index increases at the historical five-year average rate of 3.16% per year.

- Rate-funded replacement funding transfers are initially assumed to provide about $741,000 in funding for capital projects based on the 2013 Budget. Consistent with prior policy recommendations, the amount of the transfers is benchmarked to annual depreciation expense net of debt principal payments – this analysis assumes that the transfers are increased gradually to reach this targeted funding level by 2019.

In the event that CFP project costs exceed the estimates developed by City staff or cash funding sources fall short of the projections developed as part of this analysis, the City can transfer funds from the Operating Fund or consider deferring projects as an alternative to debt issuance.

Given the capital funding strategy shown in **Table 2**, the near-term financial forecast does not show any direct rate funding for the capital projects identified in the CFP. However, there are certain capital-related costs that will impact the estimated revenue needs:

- **Debt Service:** The wastewater utility currently has payment obligations for two revenue bonds. It is responsible for paying for 6.58% of the debt service related to the 2001 Water & Sewer Revenue Bond, and all of the debt service associated with the 2010 Water & Sewer Revenue Bond. In addition, it has two outstanding loans: 1 PWTF loan for the Sleater-Kinney Sewer Line, and 1 SRF loan for the City's septic conversion program. The wastewater utility's annual debt service expense varies from $595,000 – $624,000 over the near-term planning horizon.

- **Replacement Funding:** As shown in **Table 2**, rates are expected to fund a replacement funding transfer for about $741,000 in 2013. Based on the longer-term policy goal of funding transfers based on depreciation expense net of debt principal payments, this analysis increases the annual transfers to $1.2 million by 2018. This increase reflects additional depreciation expenses projected on the projects in the CFP, which are offset by reductions in annual depreciation on existing assets (assets stop depreciating once they are fully depreciated).

EVALUATION OF REVENUE REQUIREMENTS

The revenue requirement analysis determines the annual revenue required to fund the projected operating expenses, capital costs, and policy-based requirements (e.g. reserve funding, replacement funding). In this evaluation, "revenue sufficiency" is defined by the following tests:

- **Cash Flow Test:** Rate revenue and other operating revenues must be sufficient to meet the utility's projected cash needs including O&M, debt service, replacement funding, and any reserve funding needed to meet the minimum balance target for the Operating Fund. The utility may have negative net cash flow when an explicit decision is made to use reserves to phase or "smooth" rate increases – in this analysis, the minimum balance requirement for the Operating Fund limits how far the Operating Fund balance can be drawn down for this purpose.

- **Coverage Test:** As previously noted, the City's revenue bond covenants require that the City's "net revenue" is equal to at least 1.25 times annual revenue bond debt service.

Table 3 summarizes the annual revenue requirement forecast through 2018.

Table 3: Revenue Requirement Forecast

Revenue Requirement Analysis	2013	2014	2015	2016	2017	2018
Revenues						
Sewer Rate Revenue at Existing Rates	$ 5,780,507	$ 5,810,522	$ 5,841,651	$ 5,906,727	$ 5,985,179	$ 6,065,426
LOTT Revenues	10,492,900	10,601,741	10,732,735	10,919,067	11,210,974	11,646,370
Non-Rate Revenues	3,600	5,405	4,290	3,711	7,700	7,206
Total Revenues	**$ 16,277,007**	**$ 16,417,668**	**$ 16,578,676**	**$ 16,829,504**	**$ 17,203,852**	**$ 17,719,002**
Expenses						
Cash Operating Expenses	$ 4,809,353	$ 4,875,879	$ 4,955,923	$ 5,051,528	$ 5,148,485	$ 5,299,801
LOTT Treatment Service	10,492,900	10,601,741	10,732,735	10,919,067	11,210,974	11,646,370
Debt Service	624,027	623,140	620,403	622,399	619,343	594,933
Replacement Funding	741,301	742,000	800,000	850,000	1,100,000	1,200,000
Total Expenses	**$ 16,667,581**	**$ 16,842,761**	**$ 17,109,062**	**$ 17,442,993**	**$ 18,078,802**	**$ 18,741,104**
Net Surplus (Deficiency)	**$ (390,574)**	**$ (425,093)**	**$ (530,386)**	**$ (613,489)**	**$ (874,950)**	**$ (1,022,101)**
Annual Rate Adjustment	**0.00%**	**4.00%**	**4.00%**	**4.00%**	**3.00%**	**3.00%**
Cumulative Annual Rate Adjustment	**0.00%**	**4.00%**	**8.16%**	**12.49%**	**15.86%**	**19.34%**
Rate Revenues After Rate Adjustment	$ 5,780,507	$ 6,042,943	$ 6,318,329	$ 6,644,265	$ 6,934,487	$ 7,238,287
Net Cash Flow After Rate Adjustment	**(390,574)**	**(222,973)**	**(115,852)**	**27,895**	**(49,403)**	**(2,147)**
Coverage After Rate Adjustment	**1.90**	**2.21**	**2.53**	**2.91**	**3.28**	**3.73**
Ending Operating Fund Balance	***$ 1,080,926***	***$ 857,954***	***$ 742,101***	***$ 769,997***	***$ 720,593***	***$ 718,446***
Minimum Balance Required	***$ 480,935***	***$ 487,588***	***$ 495,592***	***$ 505,153***	***$ 514,849***	***$ 529,980***

Table 3 indicates a cash flow deficiency beginning in 2013, primarily due to increases in operating expenses over 2012 levels. Based on a review of actual 2012 versus budgeted 2013 expenses, the most significant increases are expected to occur in labor costs (an increase of about $150,000, or 12% in salary and benefit costs) and pump station maintenance (another increase of about $150,000). The rate revenue strategy shown in **Table 3** assumes that the existing Operating Fund balance is used to phase in the revenue increase needed to cover costs – based on this revenue strategy, **Table 3** shows the Operating Fund balance being drawn down by about $753,000 over the study period.

CURRENT AND PROJECTED RATES

The City of Olympia's wastewater rates are composed of charges for the local City conveyance system and pass-through charges for LOTT wastewater treatment. Residential customers pay a fixed bimonthly charge. Commercial customers pay both a fixed bimonthly charge and a volume charge per hundred cubic feet (ccf) of their metered water usage – the LOTT volume charge applies to usage over 9 ccf per month; to recognize recent downward trends in water consumption, the City recently reduced the threshold for its local volume charges from 9 ccf to 7 ccf per month (18 ccf to 14 ccf bimonthly).

Consistent with the underlying assumptions used in the revenue requirement forecast, the LOTT rates are increased annually with general cost inflation. Note that actual LOTT rates are subject to revision by LOTT's Board and may vary from the inflationary adjustments assumed in this analysis. **Table 4** shows the wastewater rate forecast over the study period.

Table 4: Bimonthly Wastewater Rate Forecast

Class	2013	2014	2015	2016	2017	2018
Residential						
City Fee	$ 37.08	$ 38.56	$ 40.11	$ 41.71	$ 42.96	$ 44.25
LOTT Fee	67.98	69.27	70.73	72.07	73.37	75.57
Total Fee	**$ 105.06**	**$ 107.83**	**$ 110.83**	**$ 113.78**	**$ 116.33**	**$ 119.82**
Overall Change From Prior Year		***2.6%***	***2.8%***	***2.7%***	***2.2%***	***3.0%***
Multi-Family [1]						
City Fee	$ 25.96	$ 27.00	$ 28.08	$ 29.20	$ 30.08	$ 30.98
LOTT Fee	47.59	48.49	49.51	50.45	51.36	52.90
Total Fee	**$ 73.55**	**$ 75.49**	**$ 77.59**	**$ 79.65**	**$ 81.44**	**$ 83.88**
Commercial [2]						
Fixed Rate						
City Fee	$ 37.08	$ 38.56	$ 40.11	$ 41.71	$ 42.96	$ 44.25
LOTT Fee	67.98	69.27	70.73	72.07	73.37	75.57
Total Fee	**$ 105.06**	**$ 107.83**	**$ 110.83**	**$ 113.78**	**$ 116.33**	**$ 119.82**
Variable Rate (per ccf)						
City Fee	$ 2.65	$ 2.76	$ 2.87	$ 2.98	$ 3.07	$ 3.16
LOTT Fee	3.78	3.85	3.93	4.01	4.08	4.20
Total Fee	**$ 6.43**	**$ 6.61**	**$ 6.80**	**$ 6.99**	**$ 7.15**	**$ 7.36**

[1] The multi-family rates apply to each living unit in a multi-family building.
[2] City volume charges apply to commercial water usage over 14 ccf bimonthly; LOTT volume charges apply to commercial usage over 18 ccf bimonthly.

The rate forecast shown in **Table 4** assumes across-the-board adjustments to the existing wastewater rate structure. The City has requested the development of a couple of tiered rate structure alternatives for residential customers based on water use:

- ***Alternative A:*** Under this alternative, customers using 2 ccf or less per month (roughly 17% of the City's single-family residences) pay a lower rate than the City's other customers. Based on discussions with City staff, the rate for low users ("Tier 1") reflects a rate reduction factor of 1.50 relative to the rate imposed on other customers.

- ***Alternative B:*** This alternative is the same as Alternative A in that it creates a "low-user" rate (reflecting a rate reduction factor of 1.50) for customers that use 2 ccf or less in a month. However, it also creates an additional tier for medium users for customers that use more than 2 ccf but less than 4 ccf per month (an additional 25% of the City's residential customers; a total of 42% of the City's residential customers use 4 ccf or less per month). Compared to the rate paid by other customers, this "Tier 2" rate reflects a rate reduction factor of 1.15.

Table 5 shows the near-term forecast of residential rates under the alternatives discussed above.

Table 5: Summary of Single-Family Wastewater Rate Alternatives (City Fee Only)

Single-Family Rate Alternatives	2013	2014	2015	2016	2017	2018
Annual Rate Adjustment	**0.00%**	**4.00%**	**4.00%**	**4.00%**	**3.00%**	**3.00%**
Uniform Rate (Baseline)						
City Fee	$ 37.08	$ 38.56	$ 40.11	$ 41.71	$ 42.96	$ 44.25
Alternative A						
Tier 1 (0 - 2 ccf per Month)	$ 37.08	$ 26.12	$ 27.16	$ 28.25	$ 29.10	$ 29.97
Tier 2 (> 2 ccf per Month)	$ 37.08	$ 39.18	$ 40.75	$ 42.38	$ 43.65	$ 44.96
Alternative B						
Tier 1 (0 - 2 ccf per Month)	$ 37.08	$ 27.06	$ 28.14	$ 29.27	$ 30.15	$ 31.05
Tier 2 (2 - 4 ccf per Month)	$ 37.08	$ 35.30	$ 36.71	$ 38.18	$ 39.33	$ 40.51
Tier 3 (> 4 ccf per Month)	$ 37.08	$ 40.58	$ 42.20	$ 43.89	$ 45.21	$ 46.56

Though the alternative structures shown in **Table 5** would be somewhat more complex to administer than the existing structure (the biggest challenge being to predict the number of residences that will fall into each tier), the City currently administers a four-tiered residential water rate structure and should be able to accommodate either alternative.

AFFORDABILITY

The Department of Health and the Department of Commerce's Public Works Board use an affordability index to prioritize low-cost loan awards depending on whether rates exceed 2.0% of the median household income for the service area. The median household income for the City of Olympia was $52,371 in the 2007 – 2011 American Community Survey conducted by the U.S. Census Bureau, corresponding to a maximum annual wastewater bill of $1,047.42, or $174.57 bimonthly. The residential bills shown in **Table 4** are significantly below this threshold, suggesting an affordable wastewater rate structure. Note that the rate alternatives shown in **Table 5** may result in an additional bill impact of up to $2.31 per bimonthly billing period for most users.

GENERAL FACILITY CHARGE (GFC)

GFCs are a form of connection charge authorized in Section 35.92.025 of the Revised Code of Washington (RCW). GFCs are imposed on new customers connecting to the system as a condition of service, in addition to any other costs related to connecting a customer to the wastewater system. The GFC is typically based on a blend of historical and planned future capital investment in system infrastructure; its underlying premise is that growth (future customers) will pay for growth-related costs that the utility has incurred (or will incur) to provide capacity to serve new customers.

The City most recently conducted a review of its wastewater GFCs in 2010. Based on the recommendations of that study, this analysis assumes that the wastewater GFC is calculated using the same methodology as the City has been using to compute drinking water GFCs. The key components of the GFC calculation are described below.

- **Existing Cost Basis:** The GFC recovers a proportionate share of the cost of existing assets from growth. The total cost of the existing wastewater system is established from the City's fixed asset

records, which indicate a total original cost of $51.2 million for assets booked as of December 31, 2012. This initial cost basis is adjusted as follows:

Donated or grant-funded assets are excluded from the cost basis on the premise that the GFC should only recover costs actually incurred by the wastewater utility.

Outstanding debt principal, net of available cash balances, is deducted to recognize that new customers will be paying for their share of assets funded by this debt through their monthly user rates.

A provision for future asset retirements is also deducted from the existing cost basis. This provision, based on the projected cost of replacement projects in the CFP with adjustments for construction cost inflation, intends to recognize that these projects will replace existing assets. This adjustment is an alternative to excluding replacement project costs from the GFC cost basis, and recognizes that asset replacement project costs will generally cost more than the original construction costs included in the fixed asset schedule.

RCW 35.92.025 allows up to 10 years of interest to be added to the cost basis. Note that the GFC cost basis only includes interest accrued on assets that are included in the cost basis.

Construction work in progress is added to acknowledge investments that the wastewater utility has made in capital projects that are currently underway, but that have not been booked as assets or included in future CFP cost projections.

- **Future System Costs:** The GFC recovers a proportionate share of costs associated with future capital projects from growth to recognize that growth either directly drives or otherwise benefits from these projects. Capital projects identified in the 20-year CFP are separated between expansion projects (which provide increased capacity needed for growth and are allocated only to new growth), and upgrade and replacement projects (which benefit both existing and future customers). For the purpose of this calculation, inflation is backed out of the CFP project cost estimates to recognize that the GFC will be adjusted for future inflation as it occurs.

- **Customer Base:** The customer base is expressed in terms of Equivalent Residential Units (ERUs), which are defined in Section 13.08.190 of the Olympia Municipal Code as follows:

  Single-family residences and duplexes are assigned 1 ERU per living unit.

  Multi-family residential properties with 3 or more units are assigned 0.7 ERUs per unit.

  Non-residential customers are assigned ERUs based on water usage. For City wastewater charges, an ERU is defined as 7 ccf per month.

  Based on these definitions and an analysis of the City's detailed customer water usage statistics, this analysis estimates a total 2012 ERU count of 25,528. Accounting for differences between the City's and LOTT's definitions of an ERU, this is generally consistent with the City's documented payments to LOTT. Adjusting this count for projected 2013 growth, the 2013 ERU count is 25,828.

  Growth projections are based on population projections published by the Thurston Regional Planning Council. Based on these projections, about 9,491 new ERUs will connect to the City's wastewater system over the next twenty years (increasing the total ERU count to 35,320 by 2033).

Table 6 summarizes the updated wastewater GFC calculation:

Table 6: Wastewater GFC Calculation

Existing Facilities Component		**Notes**
Existing Cost Basis		
Plant-In-Service as of Year-End 2012	$ 51,209,831	
Less: Contributions In Aid of Construction	(11,896,681)	
Less: Provision for Asset Retirements	(5,576,340)	Based on Replacement Projects Planned Through 2033
Less: Net Outstanding Debt Principal	(2,641,786)	Outstanding Debt Principal Net of Cash Balances
Plus: Interest Accrued on Assets Included in GFC	21,347,149	
Plus: Construction Work In Progress	12,241,135	
Net Existing Cost Basis	$ 64,683,309	
Total Customer Base (Existing Plus Growth)	35,320	All Customers Through 2033
Existing Facilities Charge per ERU	***$ 1,831***	***Pro Rata Buy-In to Existing Capacity***
Future Facilities Component		
Future Cost Basis Allocable to All Customers		
Projected Expenditures per CFP	$ 20,181,744	All Upgrade and Replacement Costs
Total Customer Base (Existing Plus Growth)	35,320	All Customers Through 2033
Total Future Cost Basis Allocable to All Customers	$ 571	
Future Cost Basis Allocable to Growth		
Projected Expenditures per CFP	$ 8,917,376	All Expansion Costs
Projected Growth	9,491	New Customers Through 2033
Total Future Cost Basis Allocable to Growth	$ 940	
Future Facilities Charge per New ERU	***$ 1,511***	***Pro Rata Share of Future Project Costs***
Total Wastewater GFC per ERU	**$ 3,342**	**Existing Facilities Charge + Future Facilities Charge**

The updated GFC for one ERU has increased by $144 or about 4.5% from the current charge of $3,198.51. As the current charge is based on inflationary adjustments to a historical GFC calculation, this increase is primarily attributable to new asset additions and the addition of future project costs to the CFP.

CONCLUSION

The City of Olympia's wastewater utility is in solid financial condition and, through this document, has a financial plan which enables it to meet projected capital and operational requirements outlined in this plan while maintaining reasonably affordable rates. The financial plan includes the following key elements:

- Fiscal policies which provide for a stable and predictable level of ongoing capital funding from rates.
- A capital funding strategy which relies on cash resources including reserves, GFC revenues and policy-based rate funding. Additional loans and revenue bonds would be considered to augment the cash funding sources as needed. In the event that additional debt issuance is required, the City should investigate and pursue low-cost loans and related assistance programs to the degree possible.
- An increase in the GFC to $3,342 per equivalent residential unit to reflect the current pro rata share of system costs. The revenue requirement analysis assumes implementation of the updated GFC effective January 2014, increasing the charge annually with construction cost inflation.
- A series of modest rate increases to accommodate projected operating and capital needs (shown in **Table 3**), which results in a cumulative increase of roughly 19% from 2014 through 2018. Note that these projected increases are based on a series of assumptions discussed in this chapter – though the recommended financial structure is robust enough to accommodate a variety of unforeseen circumstances, the City should regularly review the fiscal health of the wastewater utility.

Appendix L

SEPA Checklist and Determination

STATE ENVIRONMENTAL POLICY ACT DETERMINATION OF NONSIGNIFICANCE (SEPA DNS)

Community Planning & Development
601 4th Avenue E. – PO Box 1967
Olympia WA 98501-1967
Phone: 360.753.8314
Fax: 360.753.8087
cpdinfo@ci.olympia.wa.us
www.olympiawa.gov

Description of Proposal:	2013 Wastewater Management Plan – This update identifies goals, objectives, and specific strategies that will serve as the Wastewater Utility's guide for managing infrastructure over the next 20+ years. The Plan addresses the maintenance of existing infrastructure, on-site sewage systems and water quality threats, the extension of sewers to new development, sea level rise, drinking water conservation, energy conservation, LOTT/City coordination, equitable and predictable rates and fees, and public education and involvement. The Draft Plan can be viewed on the City's website at http://olympiawa.gov/city-utilities/wastewater/plans-and-studies/wastewater-plan-under-review.
Project Number:	13-0085
Location of Proposal:	City-wide
Proponent:	City of Olympia, Public Works Department PO Box 1967 Olympia, WA 98507
Representative:	Steve Sperr, Water Resources Engineer
Lead Agency:	City of Olympia
SEPA Official:	Steve Friddle, Principal Planner Phone: (360) 753-8048 E-Mail: chornbei@ci.olympia.wa.us
Date of Issue:	August 29, 2013

Threshold Determination: The lead agency for this proposal has determined that this action probably will **not** have a significant adverse impact upon the environment. Therefore an Environmental Impact Statement **is not** required under RCW 43.21C.030(2)(C). The

environmental review and SEPA threshold determination of this proposed action are based upon the environmental checklist and Draft 2013 Waste Water Management Plan. This information is available to the public on request.

This DNS is issued under Washington Administrative Code 197-11-340. The City of Olympia will not act upon this proposal prior to the appeal deadline.
Comments regarding this DNS should be directed to the SEPA Official at the address above.

COMMENT DEADLINE: 5:00 p.m., SEPTEMBER 12, 2013

APPEAL PROCEDURE Pursuant to RCW 43.21C.075(3) and Olympia City Code 14.04.160(A), this DNS may be appealed by any agency or aggrieved person. Appeals must be filed with the Community Planning and Development Department at the address above within twenty-one (21) calendar days of the date of issue. Any appeal must be accompanied by a $1,000.00 administrative appeal fee.

APPEAL DEADLINE: 5:00 p.m., SEPTEMBER 19, 2013

Issued by:

STEVE FRIDDLE, SEPA OFFICIAL

Appendix N

2011 LOTT Inflow & Infiltration
And
Flow Monitoring Report

2011 Inflow & Infiltration and Flow Monitoring Report

Year Eight (September 2010 - May 2011)
First Year in Second Seven Year Cycle
August 2011

Prepared By:

Adam Klein, Brown and Caldwell

Tyle Zuchowski, LOTT Clean Water Alliance

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1. Introduction

The LOTT Clean Water Alliance (LOTT) flow monitoring program was initiated in 2003. In accordance with National Pollutant Discharge Elimination System (NPDES) permit WA0037061, an inflow and infiltration (I&I) evaluation for all sub-basins within the LOTT system is required such that the entire system is evaluated once every 7 years. The purpose of this program is to ensure permit compliance, characterize flows within the collection system, identify areas of concern for I&I, and aid in the prioritization of rehabilitation projects to reduce I&I. The program is also intended to fulfill requirements of the Intergovernmental Contract for Inflow and Infiltration Management and New Capacity Planning, originally dated March 27, 1995, as presented in Exhibit J to the LOTT Interlocal Cooperation Act Agreement for Wastewater Management by the LOTT Clean Water Alliance. This report includes an overview of the LOTT I&I program as well as the results and analysis of the monitoring program for the 2010/2011 monitoring cycle. This monitoring cycle is the first year in the second 7-year cycle and the 8th year overall in the monitoring program.

Brown and Caldwell provides data quality assurance and control and assists in annual I&I analyses. LOTT has contracted with SFE Global NW to install and monitor flow monitors throughout the system (Table 1). This year's flow monitors include five "permanent" monitoring sites, and 10 "temporary" sites. Five of the temporary sites in this year's report were installed as part of a similar program administered by the City of Olympia. The other temporary sites rotate throughout the LOTT tributary system on an annual basis. As the eighth year of the monitoring program represents the first year of the second seven-year cycle, the five LOTT-administered temporary sites were placed at the same location as the first year of monitoring (2003/04) in order to compare how flows at these sites have changed over the past 8 years.

This report covers the 8th year of the program (2010/2011). The report is arranged as follows:

- Section 2 provides an overview of the program, including a summary of the sewer basins being studied, and an inventory and assessment of the flow monitoring sites, equipment, and technology.
- Section 3 presents the results of the inflow and infiltration analyses.
- Section 4 discusses the implications of the data presented in this report and provides recommendations.

2. Overview

Inflow is defined as surface water entering the sewer via manholes, flooded sewer vents, illicitly connected storm drains, basement drains and by means other than groundwater. Inflow is usually the result of rain and/or snowmelt events. Infiltration is defined as groundwater that enters the sewer, usually through leaky sewer pipe joints, manholes, and service connections.

2.1 Program History

Figure 1 shows all monitoring locations to date. Table 1 lists the flow monitoring sites included in this program and the associated tributary sewer basins measured by each site. Monitors installed and operated by the City of Olympia in association with LOTT are included in the table.

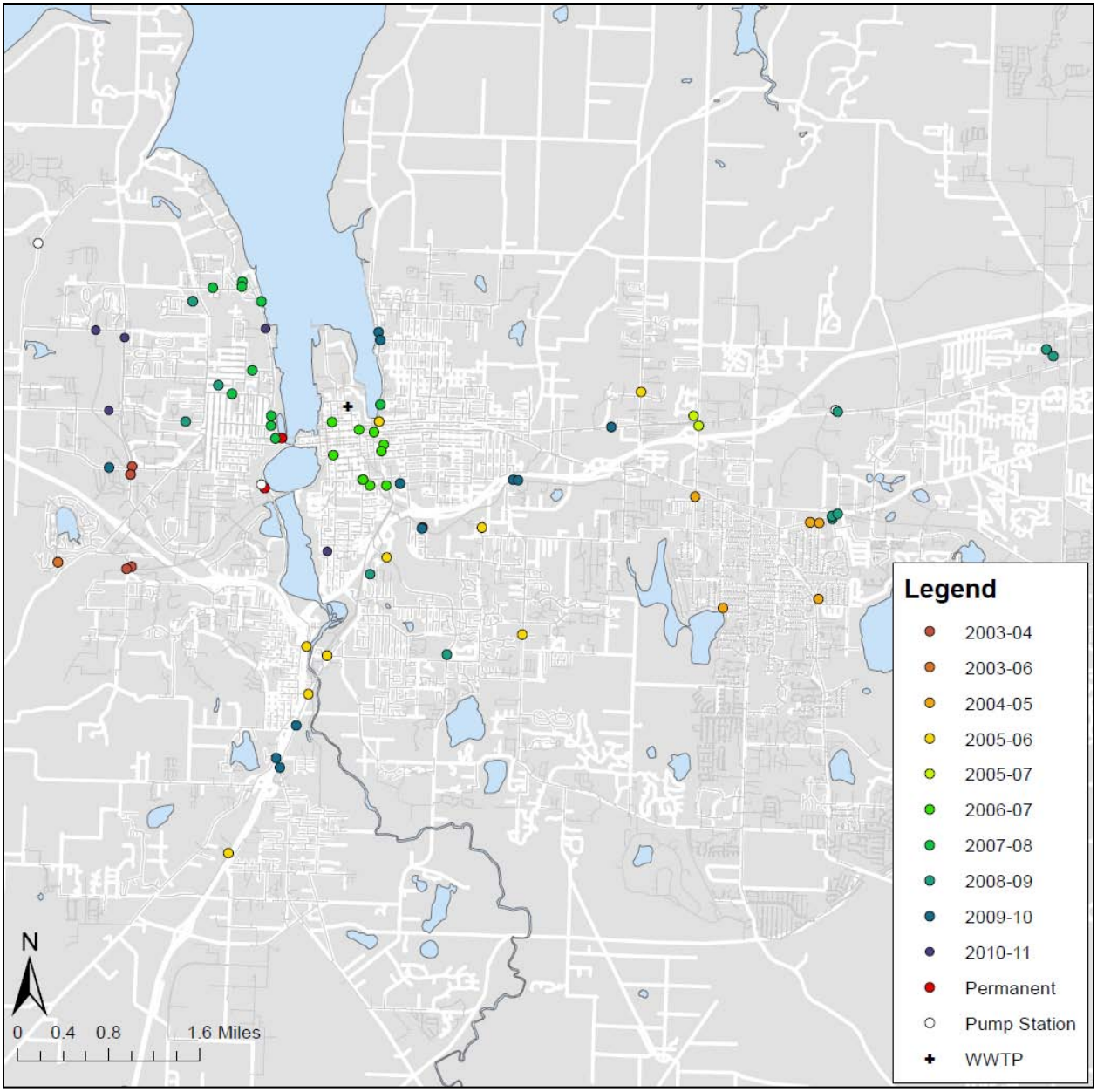

Figure 1. Location of 2003-2011 Flow Monitoring Sites

Table 1. Flow Monitoring Sites, with Tributary Basins						
Name	MH	Pipe	Start	End	Location	Basins served
OL25[1]	700004	30"	Jul-03	ongoing	Private Drive off of Deschutes Parkway	51,52,53,54,56,70,71,72,78,TESC
OL26[3]	700040	24"	Jul-03, Oct-10	Jul-04, May-11	R.R Grade W. of Mottman Road	52,53,54,56,70,71,72,78,TESC
OL27[3]	720001	18"	Jul-03, Oct-10	Jul-04, May-11	Access Road East of Mottman Road	56
OL31[1]	300039	30"	Jul-03	ongoing	Indian Creek Bypass	1,2,3,4,5,6,7,8,9,10,11,12, 13,14,15,16,17,22,77
OL28[3]	740012	8"	Jul-03, Oct-10	May-06, May-11	Swimming Pool Grounds off Park Drive	53
OL29[3]	700061	21"	Jul-03, Oct-10	Jul-04, May-11	Cooper Pt. Road East of Capital Mall Drive	54,70,71,72,78,TESC
OL30[3]	780001	12"	Jul-03, Oct-10	Jul-04, May-11	Cooper Pt. Road and Capital Mall Drive	70
OL33[1]	SSMH9	24"	Jan-04	ongoing	4th Avenue Bridge	48,49,50,74,75,76
L1	VCJ01	15"	Jul-04	Jun-05	Lacey Blvd and Sleater Kinney Road	11,77
L2	WGD01	12"	Jul-04	Jun-05	5223 Lacey Blvd.	10
L3	WGF02	27"	Jul-04	Jun-05	1310 Lebanon Street	12,13,14
L4	WQ302	27"	Jul-04	Jan-05	2402 Sycamore Street	Partial-- 12,13, part of 14
L5	VSE01	15"	Jul-04	Jun-05	4405 26th Loop SE	11
L6[1]	UXS02/3A0002	30"	Jan-05	ongoing	8468 Martin Way E. (Jack in the Box)	1,2,3,4,579,1012,13,14
L7[1]	UY401	24"	Jan-05	ongoing	8503 Martin Way E. (Arco Station)	6,11,77
T1	608	12"	Jun-05	May-06	Deschutes Parkway next to Simmons Road	55
T2	642	10"	Jun-05	May-06	Custer Way at Capitol Blvd.	61
T3	2571	12"	Jun-05	May-06	Capitol Blvd at E Str.	57,58,81
T4	1489	24"	Jun-05	May-06	Tyee Drive (Home Depot)	65,82
01[2]	400009	15"	Oct-05	Mar-06	Henderson Road @ I-5 exit	18
02[2]	370043	24"	Oct-05	Mar-06	16th Avenue @ Wilson Street	16,17
03[2]	370029	15"	Oct-05	Mar-06	Boulevard Road @ 31st Avenue	17
04[2]	110001	15"	Oct-05	Mar-06	East Bay and State (?)	24
05[2]	320006	14"	Oct-05	Mar-06	406 Lilly Road	Partial-- part of 8
D1	520001	21"	Jul-06	Jun-07	222 Capital Way	32
D2	510009	15"	Jul-06	Jun-07	621 Capitol Way	34,35,36,39,41
D3	534001	10"	Jul-06	Jun-07	505 Jefferson St	40
D4	2382512	18"	Jul-06	Jun-07	505 Jefferson St SE	38
D5	530017	12"	Jul-06	Jun-07	1067 11th St	37
D6[2]	300015	36"	Jul-06	Jun-07	1109 Plum St SE	1,2,3,4,5,6,7,8,9,10,11,12, 13,14,15,16,17,18,19,22,77
D7[2]	530001	24"	Jul-06	Jun-07	114 Jefferson	33
D8[2]	203001	8"	Jul-06	Jun-07	705 4th Ave	28
D9[2]	11002	15"	Jul-06	Jun-07	809 Legion	26,30
D10[2]	200013	8"	Jul-06	Jun-07	700 Plum St	20,25,31,43
WB1	640018	15"	Sep-07	Jun-08	Madison and Thomas	49
WB2	640003	12"	Sep-07	Jun-08	309 West Bay Dr NW	Partial-- part of 49, 75
WB3	1582711	8"	Sep-07	Jun-08	200 Oly Way (from Harrison)	76
WB4	1582706	12"	Sep-07	Jun-08	400 Oly Way (from SW)	50
WB5	120008	15"	Sep-07	Jun-08	508 E Bay Rd NE (San Francisco Line)	23
WB11[2]	650005	12"	Sep-07	Jun-08	1201 Brawne Ave	Partial-- part of 49, 75

Table 1. Flow Monitoring Sites, with Tributary Basins (continued)						
Name	MH	Pipe	Start	End	Location	Basins Served
WB12[2]	600024	15"	Sep-07	Jun-08	West Bay Dr	74
WB13[2]	660002	8"	Sep-07	Jun-08	1410 Hummingbird Line	Partial-- part of 48
WB14[2]	670001	8"	Sep-07	Jun-08	Rolling Hills Terr NW	Partial-- part of 48
WB15[2]	660008	8"	Sep-07	Jun-08	2003 Elliott Ave NW	Partial-- part of 48
NL01	WB801	10"	Jul-08	Jul-09	5815 Clearbrook Dr SE	9
NL02a	WB104	NA	Jul-08	Mar-09	1210 Clearbrook Dr (flow out of standpipe)	3
NL02b	WB104	NA	Jul-08	Mar-09	1210 Clearbrook Dr (flow into next manhole)	3
NL03	RK602	18"	Jul-08	Jul-09	1200 Galaxy Ave (LA Fitness)	2
NL04	RK401	24"	Jul-08	Jul-09	1200 Galaxy Ave N	1
NL05	TYH01	8"	Jul-08	Jul-09	5750 Martin Way E	1,24
NL06[2]	230001	10"	Jul-08	Jul-09	2424 Hillside Dr	20
NL07[2]	640032	8"	Jul-08	Jul-09	2307 Harrison Ave NW	Partial-- part of 49
NL08[2]	400030	18"	Jul-08	Jul-09	Henderson Blvd & North St	Partial-- part of 18
NL09[2]	66K101	10"	Jul-08	Jul-09	2111 Peach Ave	Partial-- part of 49
NL10[2]	644001	8"	Jul-08	Jul-09	610 Milroy St NW	Partial-- part of 49
NL02c	WA401	27"	Apr-09	Jun-09	Lacey Blvd and Pacific Roundabout	Partial-- part of 48
SV01[2]	110014	15"	Aug-09	Aug-10	1627 East Bay	21
SV03[2]	120021	12"	Aug-09	Aug-10	1349 E Bay Dr NE	Partial-- part of 23
SV04[2]	220001	15"	Aug-09	Aug-10	1102 Quince St. SE	25
SV05[2]	380001	8"	Aug-09	Aug-10	1705 Boundary St. SE	19
SV06	360001	18"	Aug-09	Aug-10	Indian Creek Trail east of Blvd and Wheeler	15
SV07	300060	30"	Aug-09	Aug-10	Indian Creek Path east of Blvd and Wheeler	1,2,3,4,5,6,7,8,9,10,11,12, 13,14,22,77
SV08	300087	36"	Aug-09	Aug-10	333 Martin Way E	1,2,3,4,5,6,7,8,9,10,11,12, 13,14,77
SV10[2]	70B003	18"	Aug-09	Aug-10	101 Capital Mall Dr.	Partial—part of 71
SV11	2460	NA	Aug-09	Aug-10	4503 Capital Blvd S	58,81
SV12a	1677	NA	Aug-09	Aug-10	2nd Ave and Little St. SW	58
SV12b	2475	NA	Aug-09	Aug-10	5150 Capitol Blvd	81
WS01[2]	600101	8”	Oct-10	June-11	West Bay & Woodard	Partial-- part of 74
WS02[2]	761002	15”	Oct-10	June-11	Harrison near Cooper Pt	Partial-- part of 71
WS03[2]	780022	10”	Oct-10	June-11	Cooper Pt near 14th	Partial-- part of 54, 72, TESC
WS04[2]	750023	10”	Oct-10	June-11	14th at Grass Lake Interceptor	Partial-- part of 54, 72, TESC
WS05[2]	517001	8”	Oct-10	June-11	Columbia & 21st	Partial-- most of 35

1. *Permanent flow monitoring site*
2. *Site operated by the City of Olympia*
3. *Flow monitoring occurred at sites OL26 through OL30 for two time periods. For instance, flow monitoring occurred at Site OL26 from July 2003 through July 2004 and October 2010 through May 2011.*

2.2 Flow Measurement Methodology

All monitoring sites consist of SFE Custom Compound Weirs or area-velocity meters. The SFE Weir is a variant of the V-notch type weir. Permanent flow monitoring sites feature a Lexan-bodied weir, while the rotating temporary sites contain weirs constructed of ¾-inch thick plywood. Flow was calculated by measuring the depth of water flowing over the weir, and then applying a rating curve, which was developed individually for each weir during installation and calibration. SFE Global maintains the sites on a monthly basis, during which time data is downloaded from on-site data logging equipment.

The flow monitor located at the LOTT's Budd Inlet Treatment Plant (BITP) uses a different technology to measure flows. An Acoustic Doppler Flow Monitor (ADFM) was installed by MGD Technologies, Inc. in the 60-inch influent pipe in September 2004. The Martin Way and Capitol Lake Pump Stations have Doppler Ultrasonic, strap-on flow meters installed on the discharge piping. The Kaiser Road Pump Station monitors pump run-time, which is mathematically converted to gallons per minute (GPM) and ultimately to million gallons per day (mgd) ((GPM/60)*0.00144). These monitoring locations were integrated into the BITP SCADA system in January 2005 and are now included in the I&I evaluation program.

2.3 Basin Summary

The 82 LOTT sewer basins were redefined as part of the 2007 *Flows and Loadings Report* based upon sewer maps provided by the cities of Olympia, Lacey, and Tumwater. Six basins are currently unsewered. Of the remaining 76 basins, 69 have been monitored either directly, or through combination of either basins or flow monitors. The remaining nine basins are either too small, have too few pipes, or are of limited accessibility to allow direct monitoring. Flow and inflow and infiltration for all 82 basins are calculated using a regression analysis which considers data from all 72 flow meters listed in Table 1, as well as from the three LOTT pump stations, the LOTT BITP, and a number of pump stations in Olympia and Tumwater. The 82 sewer basins are illustrated on Figure 2.

2.4 Year 8 Flow Monitoring Site Summary

A total of 10 temporary sites were monitored during the 2010-11 period. For the 8th year of the monitoring program, five of the temporary sites were placed at new locations (WS01 to WS05) and the other five were placed at the same location as the first year of monitoring (OL26 to OL30) to compare how these sites have changed over the past 8 years. Section 3.3.5 assesses the change in I/I over the 8-year period.

Table 2 lists attributes for the area served by each monitor, along with the permanent flow monitors and LOTT pump stations. Flow monitor WS01 was not included in Table 2 because WS01 represents only a portion of the flow in basin 74 (the City of Olympia required monitoring of this region for its own purposes). Flow monitor WS04 was not included in Table 2 because WS04 only accounts for a portion of the flow in basin 72. The purpose of this monitor was to understand the flow distribution between the Grass Lake Interceptor and Cooper Point Interceptor. The sum of flows at monitors WS02 and SV10 represents total flow from basin 71, so these monitors are presented together. Flow monitoring locations WS03 (upstream) and OL30 (downstream) span basin 70, so the difference in flow between these sites represents flow in basin 70.

The inch-diameter-mile (IDM) values shown in Table 2 are based on 2009-2010 data. These data will be updated in next year's report.

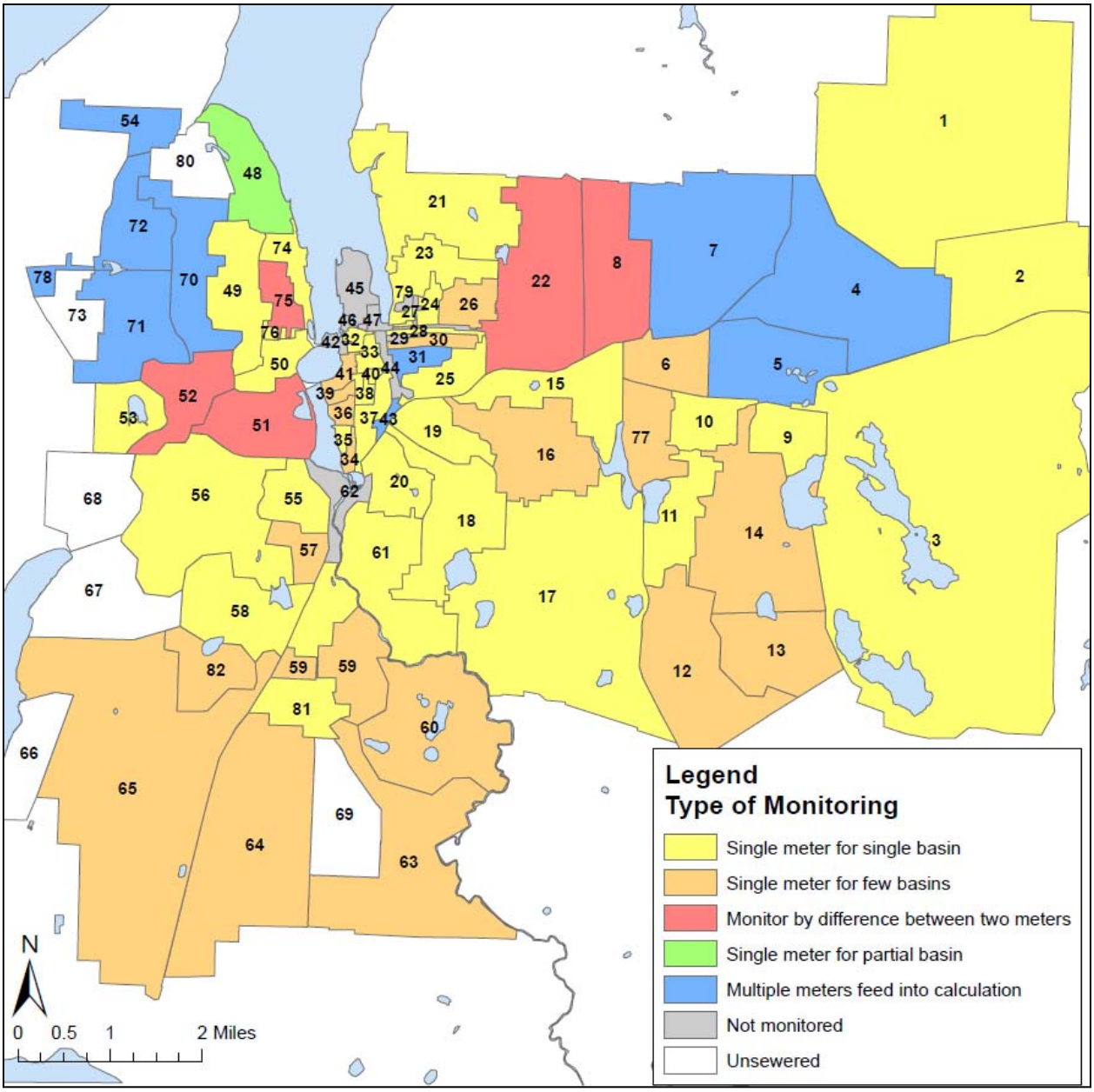

Figure 2. Flow Monitoring Basins

2.5 Flow Monitoring Data

SFE Global's contracted data quality objectives were met 95.6% of the time during the 2010/2011 monitoring period. Figure 3 summarizes the flow monitoring reliability by showing the portion of flow data that were available and passed quality assurance checks.

Table 2. Flow Meter Basin Summary						
Flow monitor	Sewered residents	Sewered employees	ERU[1]	IDM[2]	Acres	% Sewered
OL25	11,586	16,067	6,800	641	4,721	83%
OL31	52,016	31,505	25,913	2,547	27,479	61%
OL33	7,935	2,803	3,796	255	1,504	90%
L6	33,850	13,958	15,789	1,713	20,115	54%
L7	6,526	7,444	3,824	287	1,240	94%
KRPS	993	71	446	37	294	61%
CLPS	24,041	30,574	13,820	1,123	16,298	54%
MWPS	33,161	12,287	15,240	1,672	18,632	54%
WWTP	98,188	89,520	52,731	4,875	49,496	70%
OL26	9,205	12,032	5,326	516	4,185	79%
OL27	2,513	3,637	1,491	116	1,380	89%
OL28	789	59	354	42	316	68%
OL29	4,371	4,860	2,439	267	2,061	70%
OL30-WS03	1,138	2,915	809	102	577	87%
SV10+WS02	1,616	1,709	892	86	663	57%
WS05	76	12	35	5	28	72%

1. *ERU: Equivalent Residential Unit (see Flow and Loadings Report for more details)*
2. *IDM: Inch-diameter-mile of sewer pipe (includes gravity and STEP sewers)*

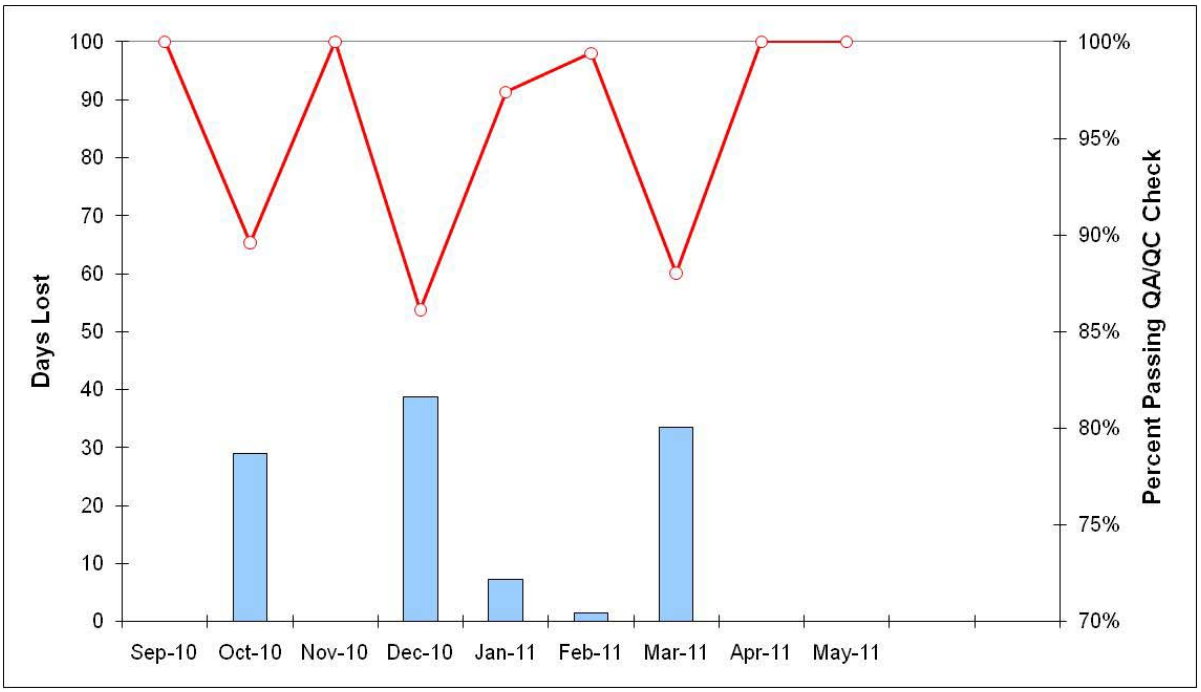

Figure 3. Flow Monitoring Data Quality (All SFE-monitored sites combined)

2.6 Inflow and Infiltration (I&I) Analysis

To effectively evaluate the amount of I&I within each basin, a base sanitary flow (BSF) was computed for each basin based on each basin's local population and employment wastewater generation rates. The wastewater generation rates were calibrated in 2011 based on an analysis of drinking water consumption throughout the LOTT service area.

The wastewater generation rates are developed using the Capacity Assessment and Planning Environment (CAPE) modeling software, a wastewater forecasting and management tool provided by Brown and Caldwell. The rates are calibrated annually based upon flows observed at the BITP, and on drinking water consumption data made available by the LOTT Partners. The flow measured at each site in excess of the BSF was assumed to be due to I&I.

An I&I analysis was performed using the CAPE model discussed above. The record of observed flow data was plotted alongside a concurrent record of rainfall data. The model calculates flow based upon rainfall using a variety of hydrologic parameters. These parameters are calibrated until the model flows matched the observed flows over the period of record. Once calibrated, the model is applied to a long-term historical precipitation record (in this case, rainfall observed at the Olympia Airport from 1955 to 2011). The long-term simulation produces risk-based estimates of the I&I flow over the full range of weather conditions contained in the historical rainfall record.

An example of a CAPE calibration plot is presented on Figure 4. This plot depicts flow monitored at the BITP (blue), rainfall (green), and modeled flow at the BITP (red). The model has been calibrated such that the model and observed flows match very closely.

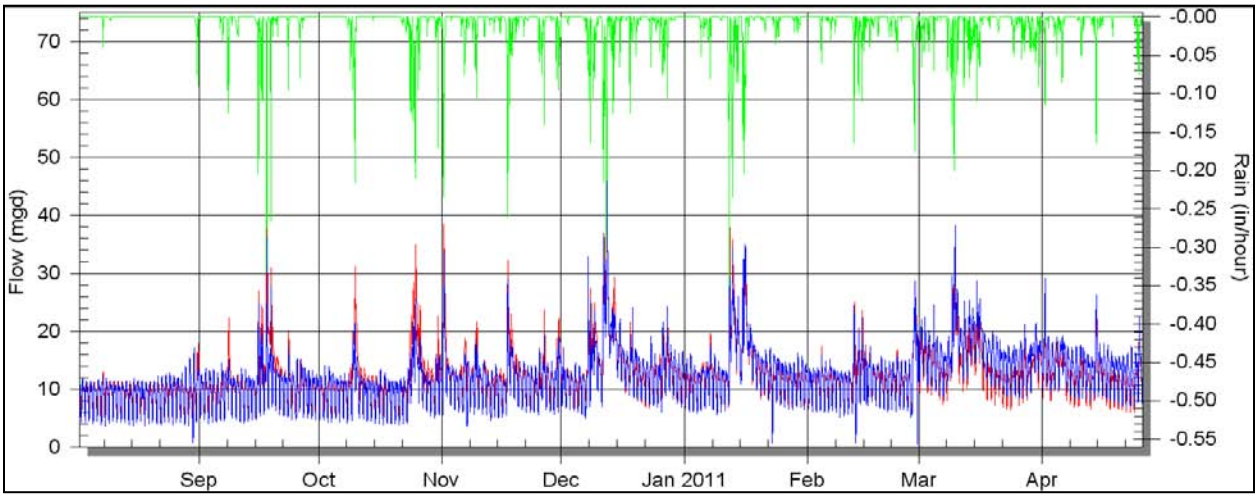

Figure 4. CAPE Model Calibration for the BITP

Figure 5 presents the model calibration from Figure 4 applied to the long term precipitation record.

The data on Figure 5 are used to calculate risk-based I&I. LOTT uses a 10-year return period as the basis of its peak flow projections. A 10-year peak flow carries a 10 percent risk of being surpassed in any given year.

The CAPE model was used to calculate risk-based I&I for each of the flow monitoring sites and combinations presented in Table 2. These data are presented and analyzed in the next section.

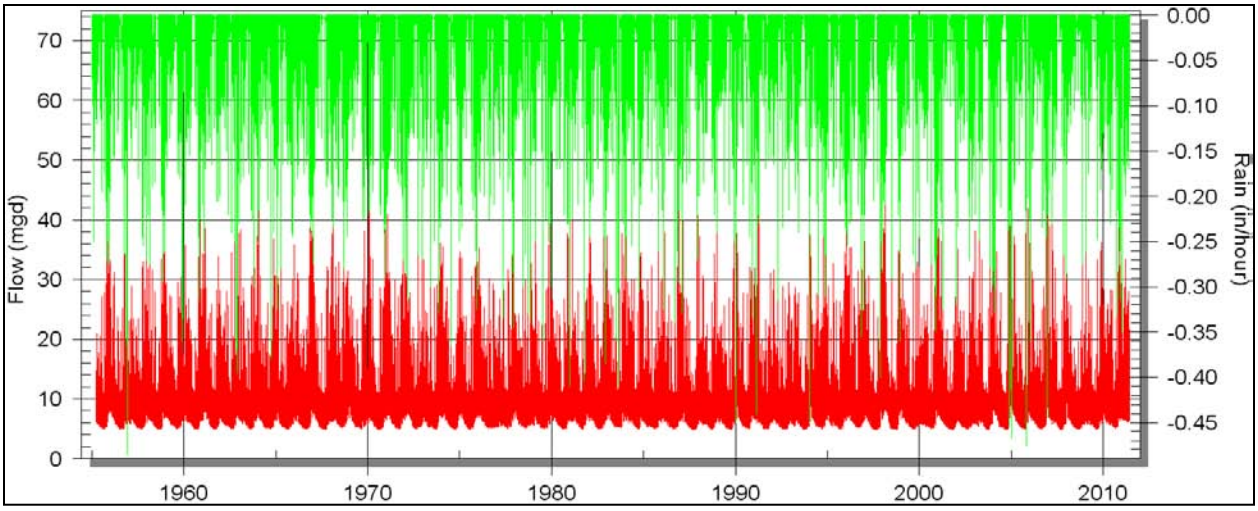

Figure 5. Long Term I&I Projection for the BITP

3. Flow Data Analysis

This section describes the results of the analysis conducted using the flow data collected during the 2010/2011 monitoring season.

3.1 Summary of I&I Statistics for All Flow Monitoring Sites

A summary of the I&I results for each of the flow monitoring sites is provided in Table 3.

Table 3. 2010-11 Flow Monitoring Sites Inflow and Infiltration Summary (Total Flow, mgd)

Flow monitor	Base sanitary flow	Avg. annual I&I	10-Year peak month I&I	10-Year peak day I&I	10-Year peak hour I&I	Summer I&I	Shoulder I&I	Winter I&I
OL 25	1.533	0.407	1.194	2.979	3.721	0.198	0.390	0.589
OL 31	3.864	0.912	2.558	4.022	5.278	0.346	0.765	1.460
OL33	0.453	0.488	1.768	5.183	6.461	0.149	0.372	0.833
L6	2.558	0.129	0.344	1.040	1.633	0.055	0.116	0.197
L7	0.717	0.277	0.738	1.065	1.464	0.114	0.242	0.431
KRPS	0.107	0.068	0.190	0.301	0.387	0.026	0.057	0.108
CLPS	2.456	0.675	1.910	4.641	6.028	0.256	0.567	1.080
MWPS	2.052	0.226	0.612	1.279	1.935	0.090	0.195	0.357
WWTP	8.630	2.661	8.171	33.429	53.178	0.950	2.186	4.336
OL 26	0.967	0.642	1.843	3.387	3.796	0.237	0.532	1.040
OL 27	0.375	0.243	0.657	1.249	1.564	0.096	0.209	0.382
OL 28	0.086	0.110	0.330	0.712	0.799	0.039	0.089	0.179
OL 29	0.644	0.083	0.336	0.994	1.352	0.023	0.060	0.144
OL 30 - WS03	0.029	0.050	0.140	0.168	0.224	0.019	0.042	0.081
SV10+WS02	0.130	0.051	0.137	0.222	0.367	0.021	0.045	0.079
WS05	0.001	0.008	0.058	0.421	1.214	0.001	0.005	0.016

3.2 Analysis of Base Flow

Base sanitary flow is wastewater which does not include I&I. There are three ways to determine the BSF:

1. Direct measurement (flow monitoring), with the BSF typically calculated from the minimum 7-day average flow during the year
2. Estimate based on winter drinking water consumption
3. Model based on population and employment data, using the per capita wastewater generation rates

Table 4 compares estimates of winter drinking water consumption versus population and employment-based model BSF. The population and employment model is calibrated against drinking water consumption, so the difference between these two values should be small. Differences between these two values reflect the influence of point sources, missing drinking water data, or unusual characteristics of the basin.

Table 4. Comparison between Drinking Water Consumption and Modeled Base Sanitary Flow (gpd)

Monitoring location	Winter drinking water consumption	Modeled base sanitary flow	Difference	Difference as % of modeled base sanitary flow
OL 25	1,233,274	1,288,059	54,784	4%
OL 31	3,942,559	4,151,322	208,763	5%
OL 33	586,375	621,949	35,574	6%
L6	2,503,332	2,653,018	149,687	6%
L7	515,258	555,001	39,743	7%
KRPS	104,969	131,279	26,310	20%
CLPS	2,216,332	2,399,021	182,690	8%
MWPS	2,386,393	2,546,493	160,100	6%
WWTP	7,916,392	8,820,215	903,823	10%
OL 26	956,392	1,036,620	80,228	8%
OL 27	181,232	189,888	8,656	5%
OL 28	55,944	64,273	8,329	13%
OL 29	477,264	550,589	73,324	13%
OL 30 - WS03	130,218	182,652	52,434	29%
SV10+WS02	191,631	182,030	-9,601	-5%
WS05	6,178	6,031	-148	-2%

In general, the drinking water consumption data matches the modeled base sanitary flows. Only two sites had differences greater than or equal to 20 percent:

1. The modeled base flow at KRPS was 20 percent higher than winter drinking water consumption. This reflects contributions from the Evergreen State College, which depend upon the campus schedule and are not well accounted for in the drinking water consumption data.
2. Model base flow at OL30-WS03 was 29 percent higher than drinking water consumption. This basin (70) includes much of the Capitol Mall commercial area, as well as Capitol High School. Drinking water consumption at the high school is influenced by the school calendar (winter vacation resulting in lower than typical flows in December). Employment estimates and consumption within dense commercial areas are often difficult to characterize, and likely play a role in the discrepancy.

Overall, the model base flow projections were within 10 percent of drinking water consumption estimates.

Differences between monitored base flow and either model base flow or drinking water consumption are much more common. These differences often reflect typical variability in wastewater flows and error associated with measurement of sewer flows. Differences may also reflect inaccurate sewer basin boundaries, unknown or mistaken sewer routes or connections, or impacts associated with pump stations. Drinking water consumption dissociated from wastewater (such as lawn watering or industrial uses) may also lead to differences between these values. Most critically, leaky sewers or fugitive emissions can cause the monitored base flow to vary from projected values.

Table 5 presents all three sources of base flow information.

Table 5. Comparison Between Three Sources of Base Flow Data

Site	Drinking water consumption	Model base sanitary flow	Measured base sanitary flow	Difference as % of measured base sanitary flow[1]
OL 25	1,233,274	1,288,059	1,533,000	18%
OL 31	3,942,559	4,151,322	3,864,000	-5%
OL 33	586,375	621,949	453,000	-33%
L6	2,503,332	2,653,018	2,558,000	-1%
L7	515,258	555,001	717,300	25%
KRPS	104,969	131,279	107,000	-10%
CLPS	2,216,332	2,399,021	2,456,000	6%
MWPS	2,386,393	2,546,493	2,052,000	-20%
WWTP	7,916,392	8,820,215	8,630,000	3%
OL 26	956,392	1,036,620	967,000	-3%
OL 27	181,232	189,888	375,000	51%
OL 28	55,944	64,273	86,000	30%
OL 29	477,264	550,589	644,000	20%
OL 30 - WS03	130,218	182,652	29,400	-432%
SV10+WS02	191,631	182,030	130,200	-43%
WS05	6,178	6,031	800	-663%

1. *Difference = (measured BSF – average of drinking water consumption and model base sanitary flow) ÷ (measured BSF)*

The largest discrepancies were noted at site WS05 and in basin 70 (OL30 – WS03). Site WS05 measures flow in a small basin off Capitol Boulevard (Figure 6). While the basin houses approximately 68 parcels, only 47 parcels are located upstream of the flow monitoring site. Of those, one parcel represents a large apartment complex. Based upon the measured flow, it appears that this complex drains to the pipelines on Capitol Boulevard, and should therefore be located in the adjacent sewer basin.

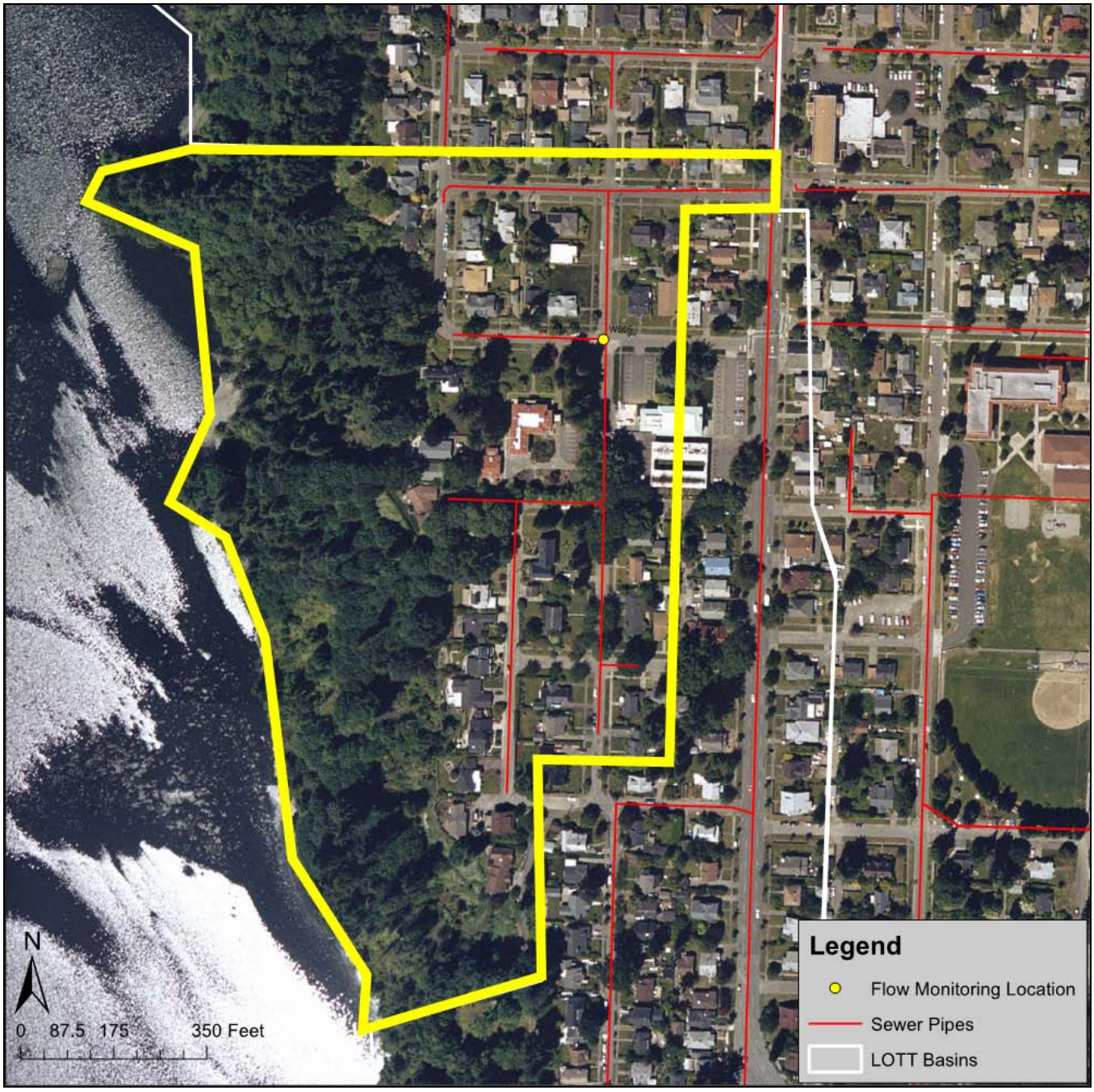

Figure 6. Basin 35 (Flow Monitor WS05)

As discussed above, the difference in flow between meters OL30 and WS03 represents flow generated in basin 70. The measured base flow was much lower than predicted by either the model or the drinking water consumption data (29,000 gpd versus 130,000-180,000 gpd). However, this is partly an artifact of the method used to calculate the measured BSF. The minimum 7-day average flow at site OL30 was 0.096 mgd, measured in April, 2011. The minimum 7-day average flow at site WS03 was 0.066 mgd, measured in February 2011. Flows are the two sites are plotted on Figure 7.

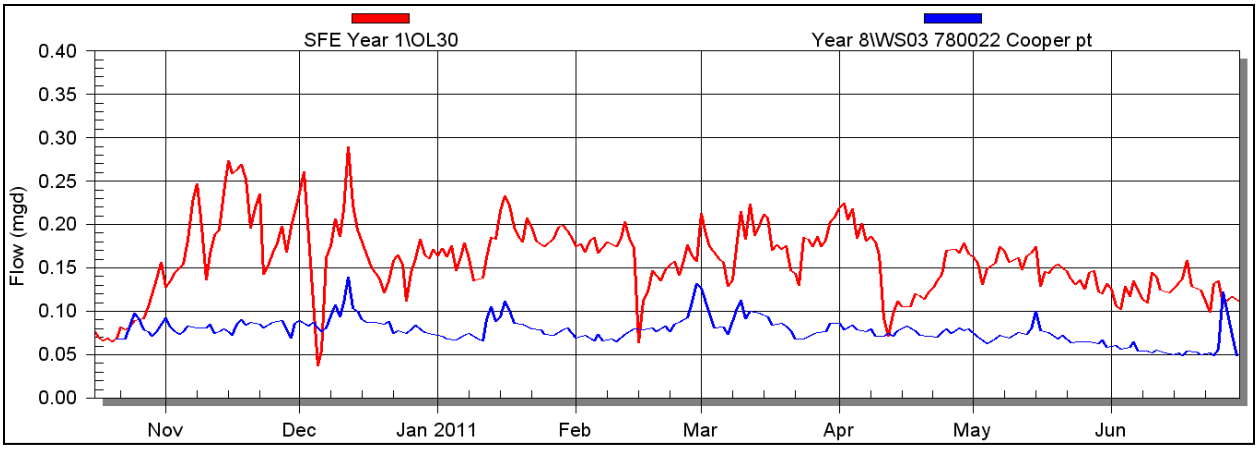

Figure 7. Daily Flows at Sites WS03 and OL30

When considering the difference in flow between two sites, the base flow must be calculated at each site during the same period. A base flow measured in April at one site should not be combined with a base flow measured in February at another site. Flow at site WS03 was stable, averaging between 0.05 to 0.10 mgd. The flow at site OL30 was more variable, ranging from 0.07 to 0.30 mgd. Generally, the difference in flow between the two sites averaged 0.05 to 0.10 mgd, and this represents the true base flow. The balance of the discrepancy between measured flow and modeled flow (approximately 0.05 mgd) appears to be related to a reduced base flow at site OL30, which will be discussed in Section 3.5.

The base flow measured at site OL27 was double the projected flow. This meter serves basin 56, which includes the Mottman Industrial area of Tumwater. High base flows in this basin reflect the impact of point sources.

The base flow calculated for basin 71 (SV10 + WS02) was 60,000 gpd lower than the projected base flow. This basin is primary comprised of apartment complexes, where wastewater generation is typically difficult to project using consumption or population models. This is mainly due to fluctuating occupancy rates.

The base flow measured at site OL33 was 33 percent (150,000 gpd) lower than projected. This trend has been observed in the past, and is likely related to lower-than-projected residency rates in this basin, along with year-round infiltration.

The base flow measured at site OL28 was 30 percent (25,000 gpd) higher than projected. It is very likely this is related to year-round infiltration, given the location of sewer pipes around Ken Lake and the history of I&I in this basin. A higher than projected base flow was also noted in the 2006 *Inflow & Infiltration and Flow Monitoring Report*, with a conclusion that this was likely related to continuous infiltration from the pipes near the lake.

3.3 Analysis of Inflow and Infiltration

There are a number of ways to assess the quality and integrity of the sewer system. Some of the most commonly used methods involve a calculation of I&I per IDM of pipe, I&I per ERU, and the ratio of the peak hour flow to the base flow. Table 6 summarizes these statistics for each of the flow monitors. These may be compared with benchmark values, established in the 2007 *Inflow and Infiltration and Flow Monitoring Report*.

Table 6. Summary of I&I Statistics								
Flow monitor	Annual average I&I/ERU	Peak day I&I/ERU	Peak hour I&I/ERU	Avg annual I&I/IDM	Peak day I&I/IDM	Peak hour I&I/IDM	Peak hour flow/base flow	Benchmark ratio[1]
OL 25	60	438	547	635	4,648	5,805	3.4	2.6
OL 31	35	155	204	358	1,579	2,072	2.4	1.2
OL33	129	1,366	1,702	1,915	20,319	25,329	15.3	8.9
L6	8	66	103	75	607	953	1.6	0.4
L7	72	279	383	965	3,715	5,106	3.0	2.5
KRPS	152	676	869	1,826	8,132	10,455	4.6	5.2
CLPS	49	336	436	601	4,133	5,368	3.5	2.3
MWPS	15	84	127	135	765	1,157	1.9	0.6
WWTP	50	634	1,008	546	6,858	10,909	7.2	3.6
OL 26	121	636	713	1,246	6,569	7,363	4.9	4.1
OL 27	163	838	1,049	2,093	10,773	13,487	5.2	6.2
OL 28	309	2,008	2,255	2,620	17,024	19,113	10.3	10.6
OL 29	34	407	554	310	3,726	5,070	3.1	2.0
OL 30 - WS03	62	208	277	491	1,649	2,190	8.6	1.9
SV10+WS02	57	249	412	596	2,595	4,295	3.8	2.0
WS05	235	12,071	34,785	1,750	90,027	259,435	1,518.1	145.1
Benchmark[2]	20	150	250	200	1,500	2,400	2.5	1.0

1. *The benchmark ratio is the average value of seven ratios, corresponding to the first seven columns of the table (starting with average annual I&I/ERU and ending with the peak hour flow/base flow). The value in this table is divided by the benchmark. For example, the benchmark ratio at site OL25 is the average of the following values: {60/20; 438/150; 547/250; 635/200; 4,648/1,500; 5,805/2,400; 3.4/2.5} = 2.6.*
2. *I&I benchmarks established in the 2007 LOTT Inflow and Infiltration Report*

As a rule of thumb, new pipe construction should limit I&I to 100 to 200 gpd/IDM or less on an average annual basis. For existing pipe, the amount of I&I will vary widely depending on the age of pipe, local maintenance standards, and most importantly, the degree of sewer separation (i.e., whether downspouts are strictly disconnected or whether any sewer to storm pipe cross-connections exist) during the original design of the collection system.

3.3.1 Site Assessments

Pump stations and permanent sites experienced similar I&I patterns to previous years. Of the new sites, the highest levels of I&I were observed at sites OL27, OL28, and WS05.

Site OL27, with a benchmark ratio of 6.2, observed I&I levels nearly double those observed at the BITP. Most of the I&I is classified as annual average or peak day, rather than peak hour. Given that this site monitors flow generated in the Mottman Industrial Zone, it is likely that much of what is being classified as I&I is actually point source flow from local industry. Seasonal contributions from South Puget Sound Community College also bias the I&I calculation in this basin.

Site OL28 (Figure 8), which serves Basin 53, had a benchmark ratio of 10.6. This basin has a history of high I&I related to pipes located in and around Ken Lake. The City of Olympia conducted a major I&I reduction project in 2004-05. Phase one of the project involved replacement of large collectors. Phase two included

the replacement and repair of laterals and small sewers. The 2006 Report noted that these improvements had reduced I&I by approximately 40-50 percent. Data collected for this report indicate much higher levels of I&I, close to the values noted prior to the renovation projects. This change will be discussed in more detail in section 3.3.5.

Monitor WS05 has a benchmark ratio of 145.1. Basin 35 (Figure 6) is comprised of a combined sewer system, known to contribute large amounts of I&I to the system. These data help to localize combined flow contributions within downtown Olympia.

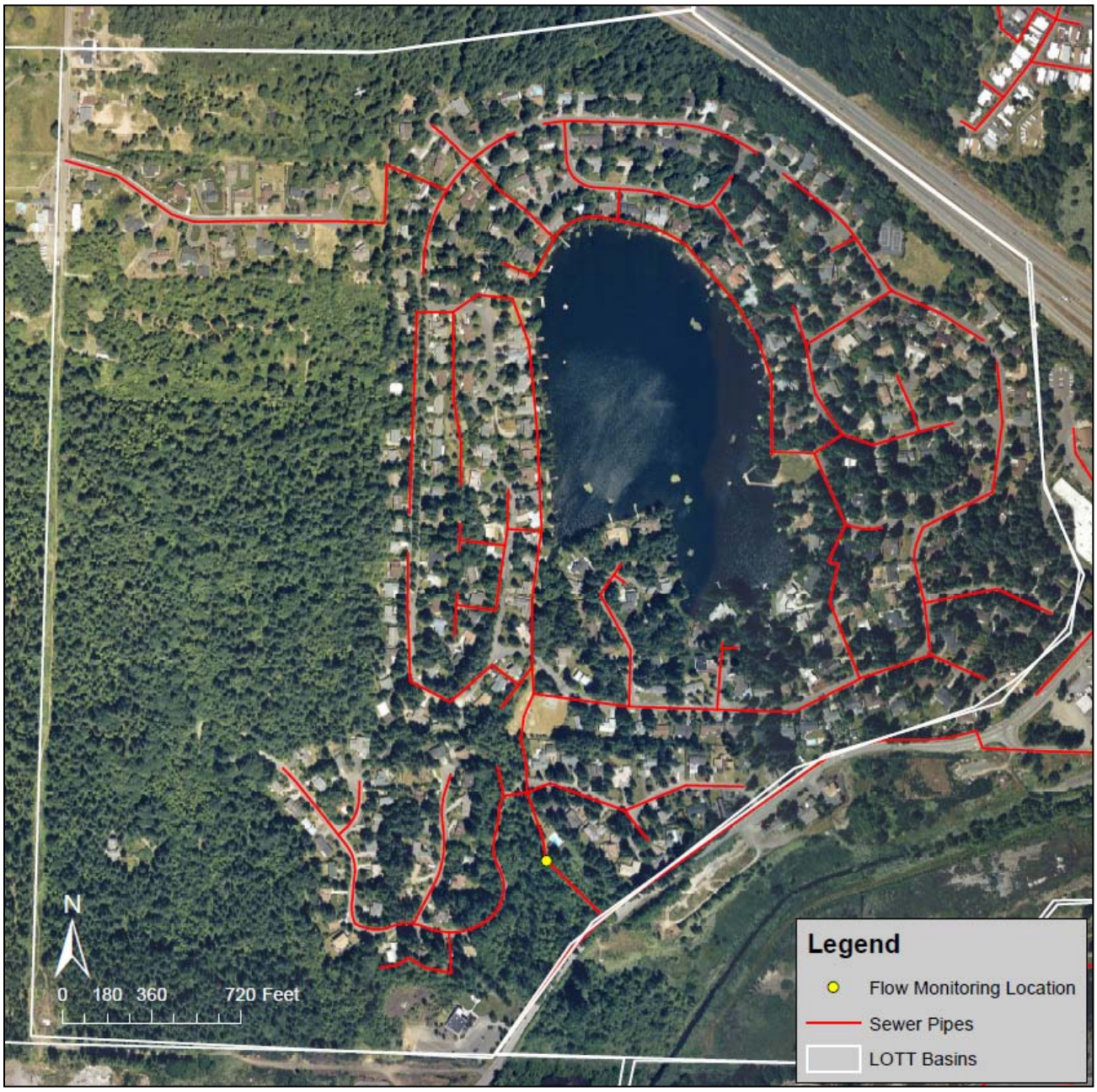

Figure 8. Basin Served by Monitor OL28

3.3.2 LOTT

The system I&I model gradually becomes more accurate as more basins are monitored (Table 7). As of last year's report, nearly all sewered basins have been monitored, meaning that changes from year to year should be small, reflecting I&I reduction work being carried out by Thurston County and the cities of Olympia, Lacey, and Tumwater.

Table 7. LOTT System-Wide I&I Profile (mgd)

Averaging period	2004 Report	2005 Report	2006 Report	2007 Report	2008 Report	2009 Report	2010 Report	2011 Report	Percent change from 2010
Average Annual	3.0	2.1	2.7	2.7	2.4	2.8	2.7	2.7	-1%
10-year Peak Month	12.0	6.2	8.3	8.0	7.8	8.8	8.4	8.2	-3%
10-year Peak Day	35.0	25.3	27.5	27.4	31.7	36.4	34.5	33.4	-3%
10-year Peak Hour	52.0	51.3	50.4	51.5	51.9	57.2	55.4	53.2	-4%
Summer (Jun-Sept)	0.9	0.8	1.0	1.0	0.9	1.0	0.9	1.0	1%
Shoulder (Apr, May, Oct)	1.9	1.7	2.5	2.3	2.0	2.3	2.2	2.2	0%
Winter (Nov-Mar)	5.0	3.5	4.6	4.5	4.1	4.7	4.4	4.3	-2%

3.3.3 Updated I&I Model

Inflow and infiltration estimates for each flow meter are translated to basin I&I estimates using a best-fit technique taking all of the data from all of the meters into account. In this way, basin I&I estimates will be updated on an annual basis, and compared with the previous year's estimate in the annual Flow Monitoring and I&I Evaluation.

As the I&I program progresses, model projections for each of the permanent stations will become more accurate. By recalibrating the full set of basin I&I profiles each year, the overall system model will increase its accuracy on a continuous basis.

Note that approximately one-third of the basins have not been monitored directly (as discussed under Figure 2). In these basins, the I&I estimates are based on the regression of data from all downstream flow monitors, as well as the system as a whole. Table 8 summarizes the basin I&I statistics.

Table 8. Basin I&I (gpd)

Basin	City	Location	Avg. Annual	Peak Month	Peak Day	Peak Hour	Summer (6,7,8,9)	Shoulder (4,5,10)	Winter (Nov-Mar)
1	L	Hawks Prairie	41,700	126,800	278,400	406,900	19,000	35,700	73,300
2	L	Martin Way East	7,800	28,400	55,800	98,400	4,500	7,600	12,500
3	L	Lacey STEP Area	10,800	27,000	143,000	299,500	3,200	8,000	16,400
4	L	Dept of Ecology	18,600	51,500	130,700	173,700	7,600	14,500	35,000
5	L	Marvin-Carpenter Rd	3,300	8,300	43,800	91,600	970	2,400	5,000
6	L	West Lacey, South Sound Center	173,100	467,700	724,500	813,900	69,500	155,700	256,700
7	L	Woodland Creek	585	700	886	948	401	446	637
8	O	Lilly Road	170,200	467,200	918,300	1,097,300	56,600	142,400	260,400
9	L	Homan Dr	21,300	68,000	137,400	201,200	11,900	18,900	35,300

Table 8. Basin I&I (gpd) (continued)									
Basin	City	Location	Avg. Annual	Peak Month	Peak Day	Peak Hour	Summer (6,7,8,9)	Shoulder (4,5,10)	Winter (Nov-Mar)
10	L	Lacey Blvd	52,400	153,900	247,700	278,400	25,900	53,100	96,500
11	L	Chambers Lake	20,500	88,900	218,900	265,000	5,800	14,300	37,700
12	L	South Lacey	1,000	10,900	50,600	111,000	501	687	2,900
13	L	South Lacey	1,000	11,000	50,800	111,300	501	687	2,900
14	L	Ruddell Road	1,600	16,600	77,200	169,200	836	893	4,500
15	O	Miller Lake Area	100,500	298,700	619,900	1,006,300	28,900	83,800	161,800
16	O	Fones Rd	29,400	84,800	373,800	642,700	11,500	26,700	48,700
17	O	SE Olympia STEP	19,300	56,500	84,600	125,200	7,500	16,900	32,000
18	O	Henderson Rd	17,600	48,500	188,200	363,700	7,100	15,700	28,500
19	O	Indian Creek	5,900	17,400	65,900	98,100	2,200	5,000	9,400
20	O	North Ave	56,400	153,200	324,900	618,700	25,700	52,900	85,800
21	O	Northeast Olympia	90,200	220,400	782,600	904,500	12,500	53,000	114,100
22	O	South Bay Road & Pacific	480	492	836	998	388	459	471
23	O	East Bay, San Francisco Ave	101,200	108,100	1,588,000	2,174,800	29,800	66,200	87,500
24	O	East Side, Olympia Ave	101,500	265,600	963,300	1,235,800	36,000	68,800	143,400
25	O	East Downtown, North of I5	51,500	148,100	410,000	549,400	19,300	43,000	82,500
26	O	East Olympia, Roosevelt	20,500	73,900	514,800	1,056,100	3,200	11,700	59,300
27	O	East Side Puget St	271	351	1,700	4,700	293	372	378
28	O	East Side, 4th Ave	22,400	90,400	330,400	582,300	6,200	16,200	40,600
29	O	Downtown, 5th & Chestnut	271	351	1,700	3,400	293	372	378
30	O	Downtown East, Legion and 5th	39,000	153,300	681,400	1,688,700	517	25,400	87,600
31	O	East Side, Plum St	28,300	107,600	872,200	1,559,100	9,300	28,000	53,200
32	O	Central Downtown	98,000	254,500	3,638,200	7,360,300	34,900	84,500	154,400
33	O	Downtown, Jefferson-Adams	93,500	307,400	1,603,100	3,522,700	34,800	70,300	165,300
34	O	Downtown, Capital Blvd	4,700	15,000	222,600	228,200	1,800	4,100	8,100
35	O	Downtown, Capital Blvd	8,200	58,100	425,400	1,204,600	857	4,700	16,100
36	O	Downtown, Capital Blvd	13,700	44,200	654,400	670,600	5,300	12,100	23,900
37	O	Downtown, Adams-Franklin	29,300	243,000	1,955,300	5,132,000	18,700	30,400	61,700
38	O	Downtown, State Offices	2,800	9,000	44,000	83,100	954	2,300	4,700
39	O	Downtown, Capital Blvd	13,400	43,300	640,700	656,600	5,200	11,900	23,400
40	O	Downtown, Union Ave.	50,000	154,300	854,800	1,691,000	17,900	41,900	83,400
41	O	Downtown, Columbia St	40,300	130,000	1,926,000	1,973,700	15,600	35,700	70,500
42	O	4th Ave Bridge	765	1,000	1,400	5,400	601	750	769
43	O	I5 Interchange	868	986	2,100	2,500	701	800	997
44	O	Downtown, Plum St	271	351	1,700	9,400	293	372	378
45	O	Port of Olympia	27,600	39,300	345,100	392,500	7,300	17,800	29,900
46	O	Downtown, Columbia St NW	271	351	1,700	2,900	293	372	378
47	O	Budd Inlet WWTP Area	271	351	1,000	1,300	293	372	378
48	O	West Side, West Bay Rd North	67,300	218,500	740,700	966,100	19,400	61,100	117,300
49	O	West Side, Division St	203,000	733,700	1,812,700	2,145,900	65,200	159,000	355,200
50	O	West Side, South of Harrison	44,500	207,500	943,400	1,353,100	11,000	31,700	82,300

Table 8. Basin I&I (gpd) (continued)

Basin	City	Location	Avg. Annual	Peak Month	Peak Day	Peak Hour	Summer (6,7,8,9)	Shoulder (4,5,10)	Winter (Nov-Mar)
51	0	Percival Creek	600	750	1,000	1,500	501	600	685
52	0	Cooper Point - Black Lake Rd	1,300	3,000	10,000	28,900	1,500	1,600	2,300
53	0	Ken Lake	109,400	342,700	753,600	797,400	39,300	90,700	179,100
54	0	Cedrona	4,400	16,800	30,100	49,900	2,900	5,000	5,800
55	T	Tumwater Hill	87,600	291,000	1,850,000	2,302,500	19,600	58,800	157,200
56	T	Mottman Industrial Area	222,500	631,700	1,335,100	1,560,300	96,700	205,600	370,600
57	T	South Tumwater Hill	8,300	22,000	79,500	110,600	2,700	7,000	13,800
58	T	Tumwater, 54th Ave SW	27,100	78,700	145,900	210,600	8,200	20,700	40,500
59	T	Hixon Dr	4,600	7,100	39,600	89,500	1,500	3,500	8,300
60	T	Trails End	880	950	1,000	1,200	859	925	942
61	T	Old Brewery	11,400	29,300	87,300	141,500	4,300	9,900	18,400
62	T	Tumwater Falls Park	711	850	1,100	3,000	511	719	773
63	T	Old Highway 99	2,900	4,500	24,800	56,300	907	2,200	5,200
64	T	South Tumwater, Center St	4,000	6,200	34,700	78,300	1,300	3,100	7,300
65	T	Black Hills	2,000	5,100	12,000	28,500	843	1,600	3,400
66	T	Black Lake	0	0	0	0	0	0	0
67	T	Black Lake - Trosper	0	0	0	0	0	0	0
68	T	North Black Lake	0	0	0	0	0	0	0
69	T	Airport	0	0	0	0	0	0	0
70	0	West Olympia, Cooper Point Rd	26,800	119,400	179,300	347,700	16,800	21,000	48,300
71	0	West Olympia, Mud Bay Rd	26,500	112,200	235,100	490,700	17,200	21,600	47,900
72	0	Kaiser Road	5,100	10,900	66,800	222,900	4,700	7,000	7,500
73	0	Mud Bay Rd	0	0	0	0	0	0	0
74	0	West Side, West Bay Rd	20,200	73,800	212,600	273,700	7,200	17,000	36,200
75	0	West Side, North of Harrison	34,800	135,500	510,200	748,200	12,200	31,900	52,200
76	0	West Side, Harrison Ave	25,700	87,000	318,800	441,500	8,900	20,900	43,800
77	L	Chambers Lake North	30,800	66,500	143,500	282,500	14,100	29,700	47,400
78	0	West Olympia, 11th Ave	1,300	4,100	8,500	47,700	673	1,100	1,600
79	0	East Side, Quince St	271	351	1,000	1,300	293	372	378
80	0	North Cooper Point Rd	0	0	0	0	0	0	0
81	T	Downtown Tumwater, Israel Rd	72,800	193,500	494,700	545,000	30,100	66,700	123,500
82	T	Tumwater, Littlerock	3,400	9,000	23,000	32,000	1,100	2,800	5,300
TESC		The Evergreen State College	18,700	102,900	132,600	149,600	6,300	14,900	33,300

3.3.4 I&I Benchmarks and Basin Ranking

The intergovernmental agreement which established the LOTT I&I program includes a non-degradation clause. Based upon this clause, LOTT will annually evaluate I&I in each of its sewer basins. If the amount of I&I in a basin is found to be significantly increasing, LOTT and its partners will prioritize work in that basin to remedy the situation. In order to provide a measure which can be tracked on an annual basis, the benchmarking process discussed in Section 3.3.1 was adopted. The benchmarks represent the top 33rd

percentile of I&I measures across all of the basins when the benchmark was introduced (2007). That is, two-thirds of the LOTT basins exhibited I&I parameters worse than these benchmarks at that time.

Each LOTT basin was compared with the benchmark in each of the nine categories. A benchmark average is then calculated, which provides a representation of how each basin compares to the benchmark. A basin in the top one-third in each of the nine categories will have a score less than 1.0. A ranking of the 82 LOTT basins, along with some key I&I figures and the benchmark score, is provided in Table 9. The benchmark average ratio and basin rankings are plotted on Figures 9 and 10.

Table 9. LOTT Sewer Basins Inflow and Infiltration Ranked from Highest to Lowest Severity of I&I

Rank	Basin	City	Location	Avg Day II/ERU	Avg Day II/IDM	Peak Hour /Base Flow Ratio	Benchmark Ratio	2010 Benchmark Ratio	Change	Absolute Difference
1	35	O	Downtown, Capital Blvd	11.7	1,750	80.3	60.7	13.3	78%	47.4
2	32	O	Central Downtown	13.7	4,700	53.5	60.3	72.5	-20%	-12.3
3	39	O	Downtown, Capital Blvd	12.4	3,418	59.6	48.1	64.1	-33%	-16.0
4	41	O	Downtown, Columbia St	8.7	4,360	39.0	47.3	62.0	-31%	-14.7
5	33	O	Downtown, Jefferson-Adams	17.6	4,629	3.7	35.2	43.3	-23%	-8.1
6	40	O	Downtown, Union Ave.	9.9	4,605	31.5	30.2	30.4	0%	-0.1
7	24	O	East Side, Olympia Ave	16.9	6,362	11.2	24.6	25.5	-3%	-0.9
8	37	O	Downtown, Adams-Franklin	2.7	755	18.7	21.9	23.7	-8%	-1.7
9	76	O	West Side, Harrison Ave	11.7	4,182	10.0	20.8	20.8	0%	0.0
10	36	O	Downtown, Capital Blvd	4.8	1,143	11.3	16.1	20.9	-30%	-4.8
11	30	O	Downtown East, Legion and 5th	6.2	1,458	17.4	14.6	15.4	-6%	-0.8
12	53	O	Ken Lake	15.4	2,616	5.4	12.5	8.2	34%	4.3
13	31	O	East Side, Plum St	4.0	801	15.3	11.6	8.7	26%	3.0
14	34	O	Downtown, Capital Blvd	3.1	880	6.8	11.3	14.7	-30%	-3.4
15	55	T	Tumwater Hill	4.5	1,697	6.3	11.2	13.2	-18%	-2.0
16	28	O	East Side, 4th Ave	5.9	1,362	8.5	10.4	10.4	0%	0.0
17	23	O	East Bay, San Francisco Ave	6.4	1,642	7.6	9.4	10.8	-15%	-1.4
18	49	O	West Side, Division St	6.0	2,274	3.5	9.1	8.5	6%	0.5
19	48	O	West Side, West Bay Rd North	7.7	1,517	5.8	9.0	8.1	10%	0.9
20	26	O	East Olympia, Roosevelt	2.8	814	8.1	8.6	9.1	-5%	-0.5
21	6	L	West Lacey, South Sound Center	8.0	3,225	3.4	8.5	5.0	41%	3.5
22	50	O	West Side, South of Harrison	3.0	968	4.9	7.7	7.5	3%	0.2
23	56	T	Mottman Industrial Area	7.0	1,919	3.7	6.9	4.7	32%	2.2
24	25	O	East Downtown, North of I5	5.4	1,293	4.1	5.8	5.9	-1%	-0.1
25	21	O	Northeast Olympia	7.3	938	4.2	5.7	8.5	-48%	-2.8
26	74	O	West Side, West Bay Rd	5.0	847	3.7	5.5	5.4	2%	0.1
27	15	O	Miller Lake Area	6.0	1,127	3.7	5.4	4.6	14%	0.7
28	75	O	West Side, North of Harrison	2.8	764	3.4	5.0	6.1	-21%	-1.1
29	43	O	I5 Interchange	19.9	42	3.0	4.8	4.3	12%	0.6
30	8	O	Lilly Road	4.8	1,498	1.9	4.8	6.4	-35%	-1.7

Table 9. LOTT Sewer Basins Inflow and Infiltration Ranked from Highest to Lowest Severity of I&I (continued)

Rank	Basin	City	Location	Avg Day II/ERU	Avg Day II/IDM	Peak Hour /Base Flow Ratio	Benchmark Ratio	2010 Benchmark Ratio	Change	Absolute Difference
31	45	O	Port of Olympia	5.3	388	4.5	4.0	6.8	-70%	-2.8
32	38	O	Downtown, State Offices	0.5	871	1.8	3.9	4.0	-1%	0.0
33	20	O	North Ave	3.7	767	2.7	3.4	3.5	-3%	-0.1
34	81	T	Downtown Tumwater, Israel Rd	2.2	955	1.4	2.9	2.9		0.0
35	10	L	Lacey Blvd	3.2	584	1.3	2.3	2.3	-1%	0.0
36	58	T	Tumwater, 54th Ave SW	2.0	660	1.3	2.2	2.4	-8%	-0.2
37	71	O	West Olympia, Mud Bay Rd	1.5	309	1.5	2.0	1.5	24%	0.5
38	72	O	Kaiser Road	1.1	159	2.5	1.8	1.9	-6%	-0.1
39	70	O	West Olympia, Cooper Point Rd	1.7	262	1.2	1.7	1.8	-5%	-0.1
40	16	O	Fones Rd	1.1	246	1.8	1.7	1.5	9%	0.2
41	9	L	Homan Dr	1.4	372	1.1	1.5	1.5	0%	0.0
42	57	T	South Tumwater Hill	1.2	313	1.2	1.5	1.6	-11%	-0.2
43	78	O	West Olympia, 11th Ave	1.0	129	2.1	1.4	1.5	-8%	-0.1
44	4	L	Dept of Ecology	1.6	256	1.1	1.3	1.4	-1%	0.0
45	11	L	Chambers Lake	1.0	165	1.0	1.2	1.0	17%	0.2
46	19	O	Indian Creek	1.1	122	1.4	1.1	1.1	3%	0.0
47	18	O	Henderson Rd	0.8	145	1.3	1.0	1.1	-2%	0.0
48	77	L	Chambers Lake North	0.9	283	0.8	0.9	0.7	24%	0.2
49	82	T	Tumwater, Littlerock	0.7	180	0.7	0.7	0.9		-0.1
50	1	L	Hawks Prairie	0.9	106	0.8	0.7	0.8	-10%	-0.1
51	61	T	Old Brewery	0.5	157	0.7	0.7	0.7	-5%	0.0
52	54	O	Cedrona	0.5	118	0.6	0.6	0.6	2%	0.0
53	17	O	SE Olympia STEP	0.6	143	0.6	0.5	0.5	5%	0.0
54	59	T	Hixon Dr	0.4	103	0.8	0.5	0.6	-11%	-0.1
55	64	T	South Tumwater, Center St	0.4	79	0.9	0.5	0.6	-20%	-0.1
56	2	L	Martin Way East	0.4	75	0.7	0.5	0.5	1%	0.0
57	63	T	Old Highway 99	0.3	86	0.7	0.4	0.6	-26%	-0.1
58	5	L	Marvin-Carpenter Rd	0.3	41	0.8	0.4	0.5	-14%	-0.1
59	3	L	Lacey STEP Area	0.2	46	0.7	0.4	0.4	-19%	-0.1
60	65	T	Black Hills	0.2	48	0.5	0.2	0.3	-23%	-0.1
61	79	O	East Side, Quince St	0.2	93	0.5	0.2	0.4	-58%	-0.1
62	13	L	South Lacey	0.0	8	0.6	0.2	0.2	-10%	0.0
63	42	O	4th Ave Bridge	0.5	28	0.6	0.2	0.3	-20%	0.0
64	14	L	Ruddell Road	0.0	6	0.6	0.2	0.2	-10%	0.0
65	46	O	Downtown, Columbia St NW	0.2	22	0.5	0.2	0.3	-36%	-0.1
66	47	O	Budd Inlet WWTP Area	0.4	8	0.5	0.2	0.3	-58%	-0.1
67	29	O	Downtown, 5th & Chestnut	0.1	46	0.5	0.2	0.2	-34%	-0.1
68	62	T	Tumwater Falls Park	0.4	27	0.5	0.2	0.2	-8%	0.0
69	12	L	South Lacey	0.0	4	0.5	0.1	0.2	-10%	0.0
70	27	O	East Side Puget St	0.1	25	0.5	0.1	0.2	-26%	0.0

Table 9. LOTT Sewer Basins Inflow and Infiltration Ranked from Highest to Lowest Severity of I&I (continued)

Rank	Basin	City	Location	Avg Day II/ERU	Avg Day II/IDM	Peak Hour /Base Flow Ratio	Benchmark Ratio	2010 Benchmark Ratio	Change	Absolute Difference
71	52	O	Cooper Point - Black Lake Rd	0.1	14	0.4	0.1	0.1	-8%	0.0
72	44	O	Downtown, Plum St	0.1	4	0.5	0.1	0.1	-14%	0.0
73	7	L	Woodland Creek	0.1	14	0.4	0.1	2.3	-3251%	-2.3
74	22	O	South Bay Road & Pacific	0.0	5	0.4	0.1	0.1	7%	0.0
75	51	O	Percival Creek	0.0	5	0.4	0.1	0.1	-96%	-0.1
76	73	O	Mud Bay Rd	0.0	0	0.4	0.0	0.0	0%	0.0
	60	T	Trails End							
	66	T	Black Lake							
	67	T	Black Lake - Trosper							
	68	T	North Black Lake							
	69	T	Airport							
	80	O	North Cooper Point Rd							
			Total (Excludes TESC)				3.52	3.68	-4.5%	

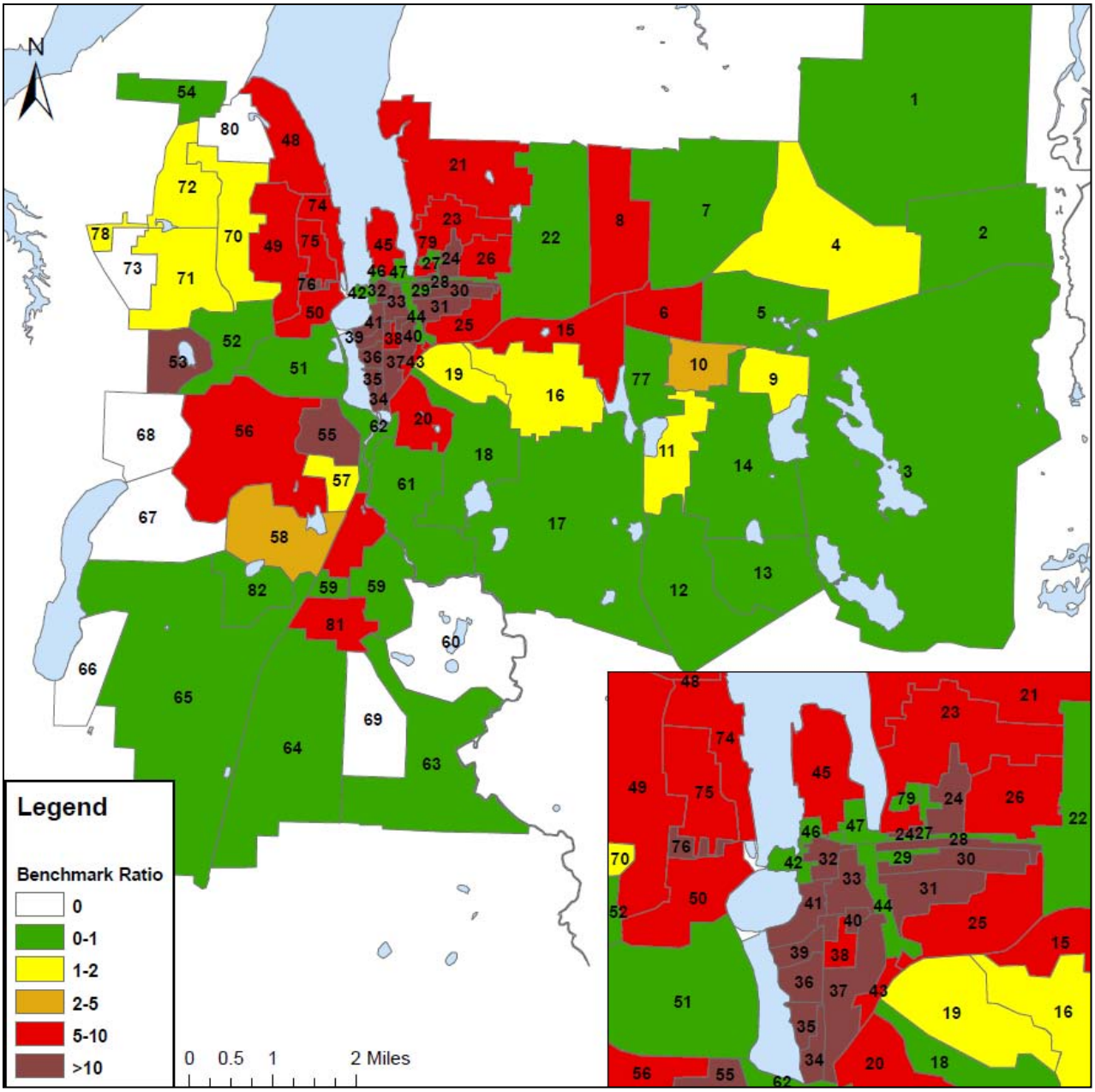

Figure 9. LOTT Sewer Basins, Magnitude of I&I as Expressed by Ratio of I&I Parameters to Benchmark Values

Basins Labeled by Basin ID

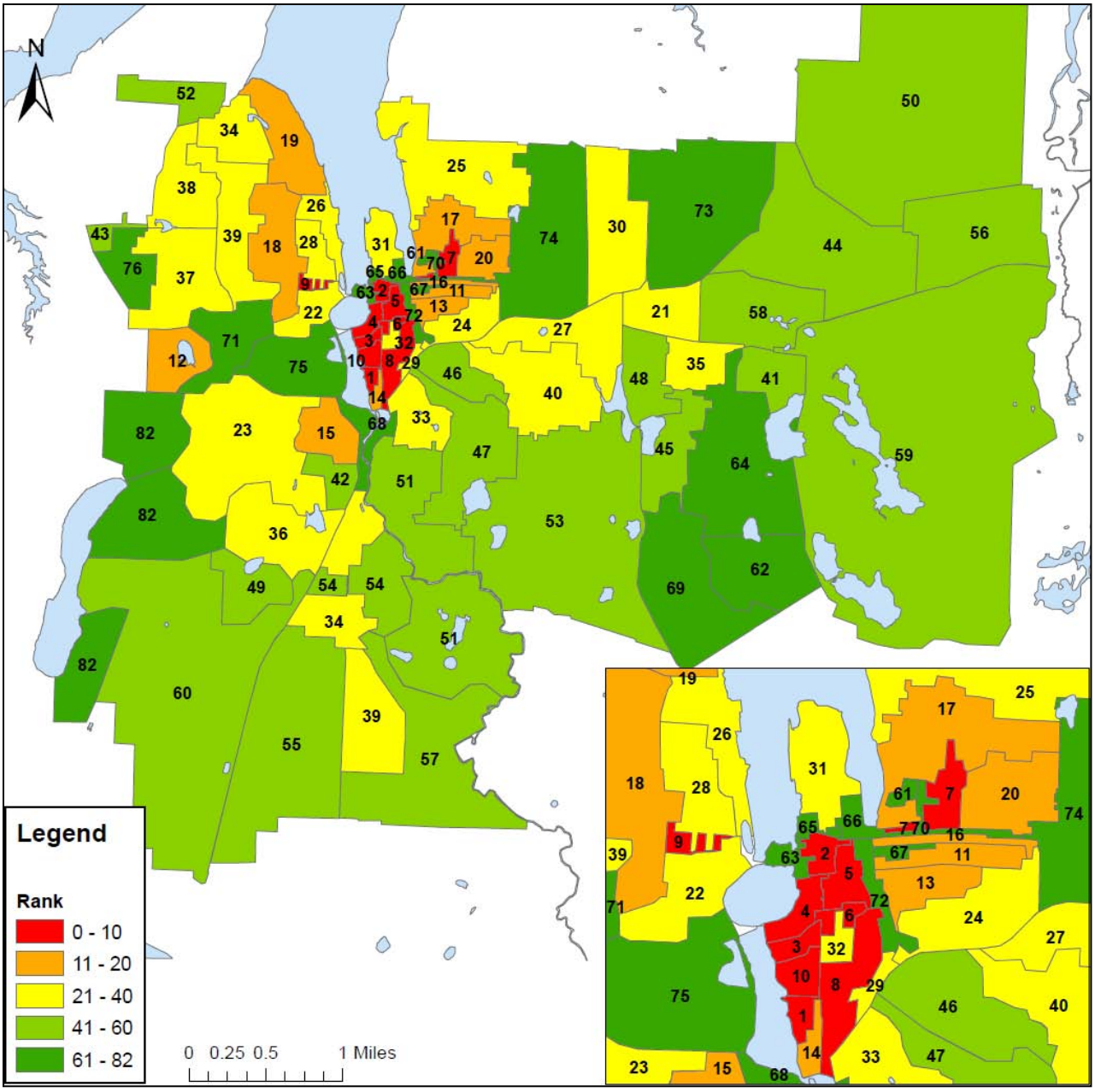

Figure 10. LOTT Sewer Basins, Ranked by I&I Severity

Basins Labeled by Rank

The basins with the most I&I are concentrated in the central downtown area of Olympia (low ranking). This corresponds with the location of most of the combined sewer pipes in the system. High levels of I&I were also noted in both the East Bay and West Bay areas of Olympia, corresponding to the areas with the oldest residential developments.

Outside of central Olympia, the highest levels of I&I were noted in the Tumwater Hill area of Tumwater and the Ken Lake area of Olympia. The Ken Lake basin ranking was impacted by this year's monitoring. In last year's report, this basin was ranked 20th; this year, the ranking has increased to 12th.

The lowest levels of I&I were found in south Lacey, southwest Tumwater, and the STEP areas of southeast Lacey and southeast Olympia.

Overall, the system benchmark ratio was 3.52, an improvement from the 2010 analysis. Average ratios for the LOTT partners were:

- Lacey: 0.9
- Olympia: 5.9
- Tumwater: 3.2

It was recommended in the 2010 I&I Report that the 2010 benchmark values serve as a baseline for comparison of future values. There is annual variation in I&I due to weather and groundwater level fluctuations, so a small amount of annual variation in I&I benchmarks is expected. The difference in benchmark values from the 2010 I&I Report to the 2011 I&I Report is shown on Figure 11.

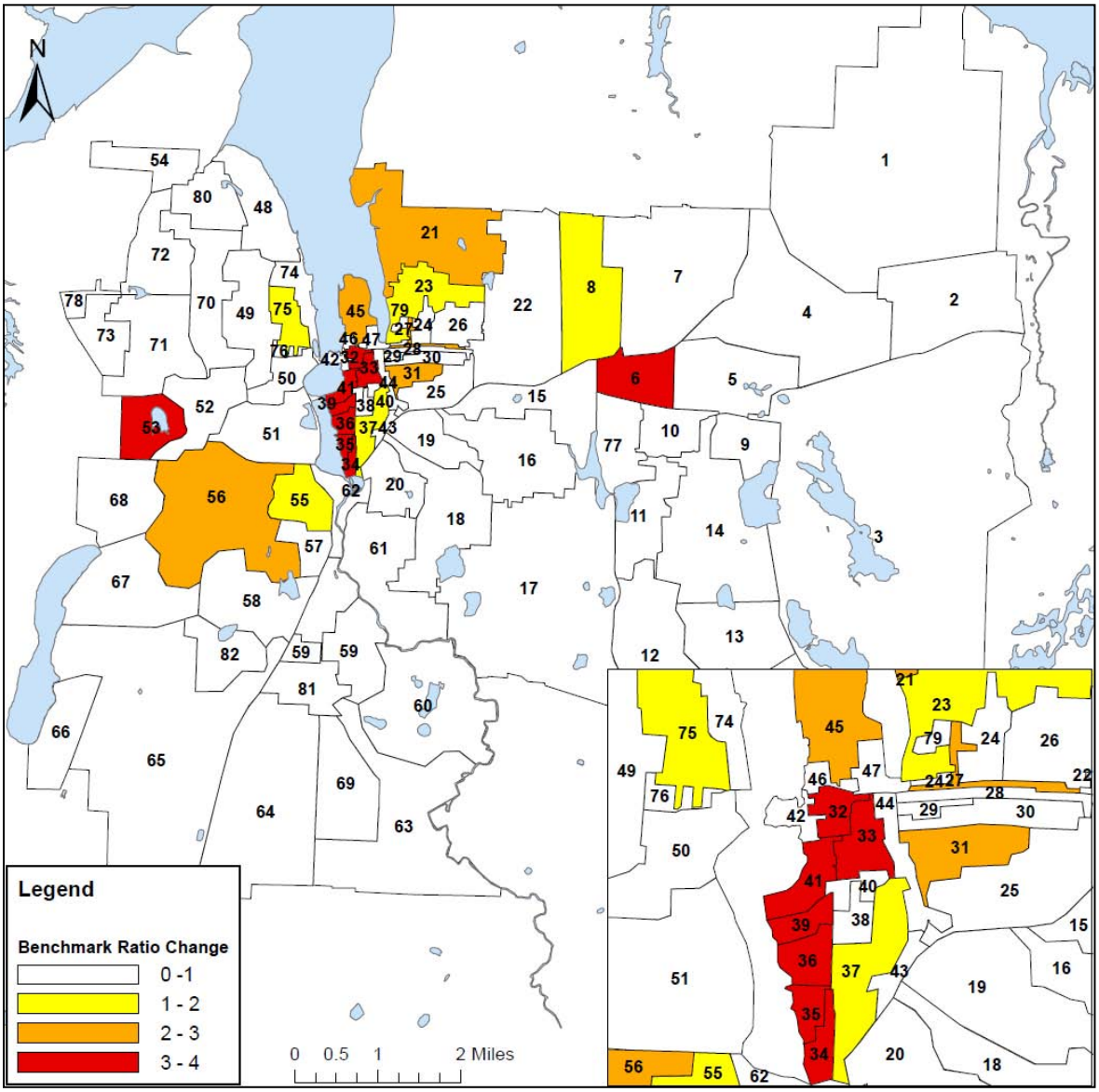

Figure 11. Change in Benchmark Values in LOTT Basins from 2010 to 2011 I&I Report

The benchmark value changed by greater than 1.0 in 19 basins; by greater than 2.0 in 14 basins; and by greater than 3.0 in nine basins. A majority of the basins with a large benchmark change are located in the downtown area (basins 34, 35, 36, 39, 41). These basins have high benchmark ratios, so while the magnitude of change is high, the change as a percentage of the previous benchmark is relatively low. The reason for the change this year has to do with monitor WS05. Downtown basins 34, 35, 36, 39, and 41 had previously been modeled with one flow meter, D2, in 2006/2007. During this year's flow monitoring, meter WS05 was placed in Basin 35 to improve our understanding of the downtown combined sewer system. Data from WS05 led to an adjustment of I&I in several of the downtown basins.

As largely unmonitored basins, basins 6 and 8 are sensitive to changes in the overall system regression. It is anticipated that benchmark ratios in these basins will vary annually at a higher rate than those basins with more direct monitoring. The magnitude of I&I in these basins is low, and further analysis is not warranted at this time.

Changes noted in basins 53 and 56 will be discussed in the following sections.

3.3.5 Comparison of I&I from Year 1 to Year 8

Five of the sites monitored for this report were previously monitored in 2003-04. The purpose of re-monitoring these sites is to assess the change in I&I and highlight areas for I&I reduction. The CAPE model was used to compare I&I measured in 2003-04 with I&I measured in 2010-11. This was done by projecting the I&I model developed in 2003-04 onto the 2010-11 data, and vice versa. To demonstrate the process, consider site OL26.

Figure 12 presents the model developed in 2004. As before, measured flows are presented in blue, and model flows are presented in red. In a well calibrated model, the model flows should overlap with the measured flows, and this is generally the case on Figure 12.

When the 2004 model is applied to 2010-11 rainfall data, the result is plotted on Figure 13.

Notice how the model flow (red) is consistently lower than the measured flow (blue). This indicates that that model is under-predicting I&I in the system. One may conclude that I&I in this basin has increased over the past 7 years.

In order to fit the 2010-11 data, the model for site OL26 was recalibrated. The recalibrated model is presented on Figure 14.

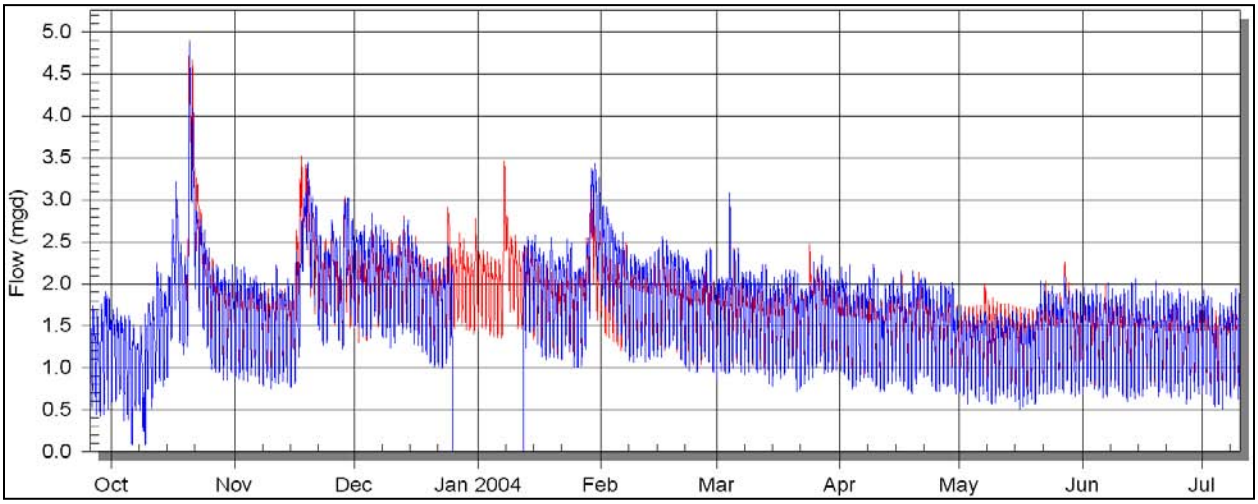

Figure 12. 2004 I&I Model for Site OL26

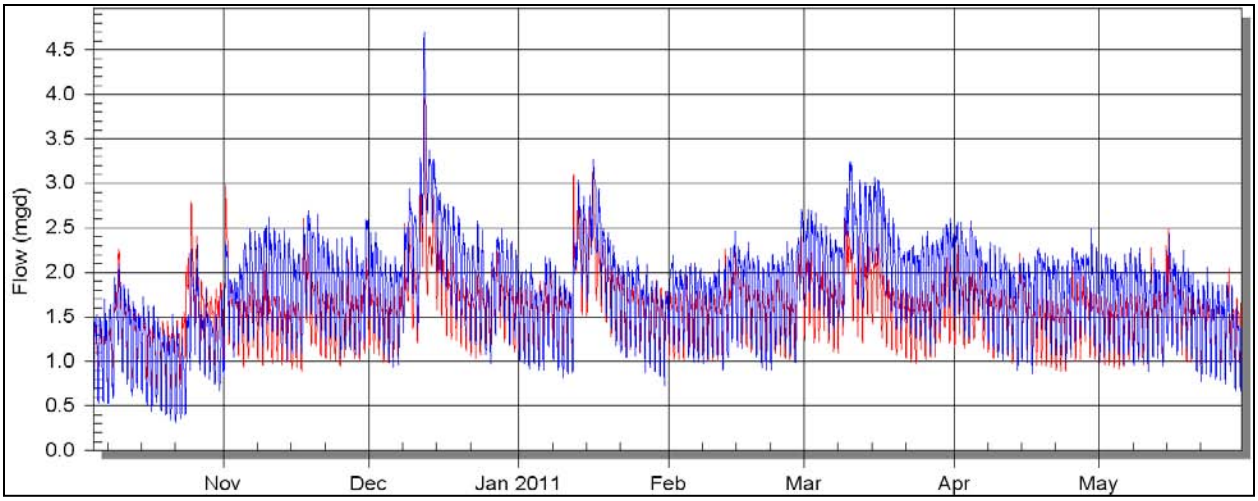

Figure 13. 2004 I&I Model for Site OL26 Applied to 2010-11 Precipitation

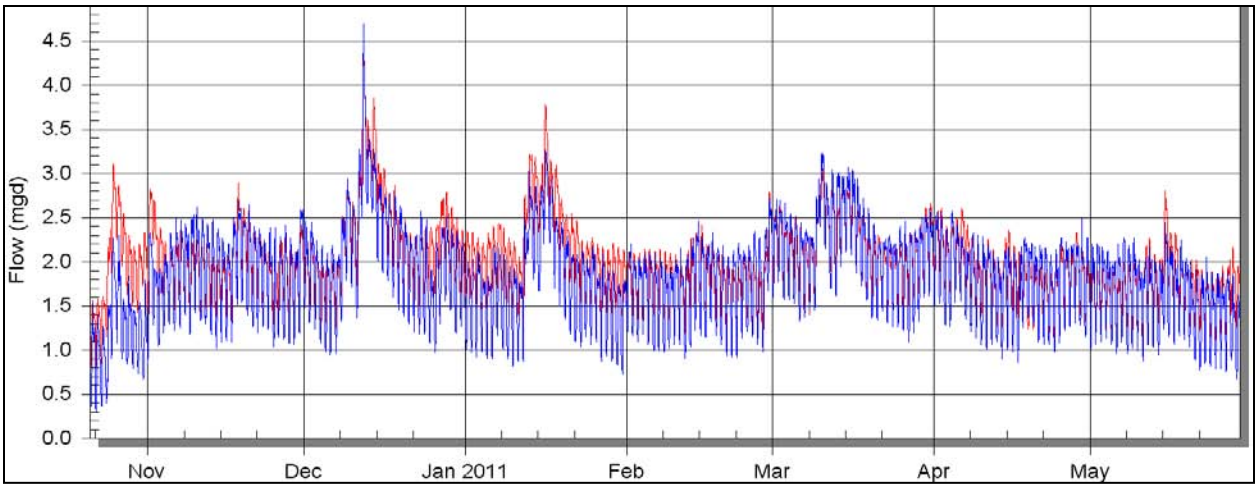

Figure 14. 2011 I&I Model for Site OL26

The 2011 data was difficult to calibrate, and there is some discrepancy between the measured (blue) and model (red) flows. However, the model accurately projects the December 12, 2010 peak event as well as March 2011 flows.

When the 2011 model is projected against 2003-04 flows, the result is plotted on Figure 15.

In this case, the 2011 model projects higher flows that were observed in 2003-04. In particular, the October 21, 2003 peak event is projected to reach 6.2 mgd, compared to the observed peak flow of 5.0 mgd. The 2011 model is therefore over-predicting I&I in 2003-04. This validates the earlier conclusion that I&I has increased from 2003-04 to 2010-11.

This procedure was used to assess the change in I&I at each of the Year 1 sites. Raw data are presented in Table 10, while benchmark data are presented in Table 11.

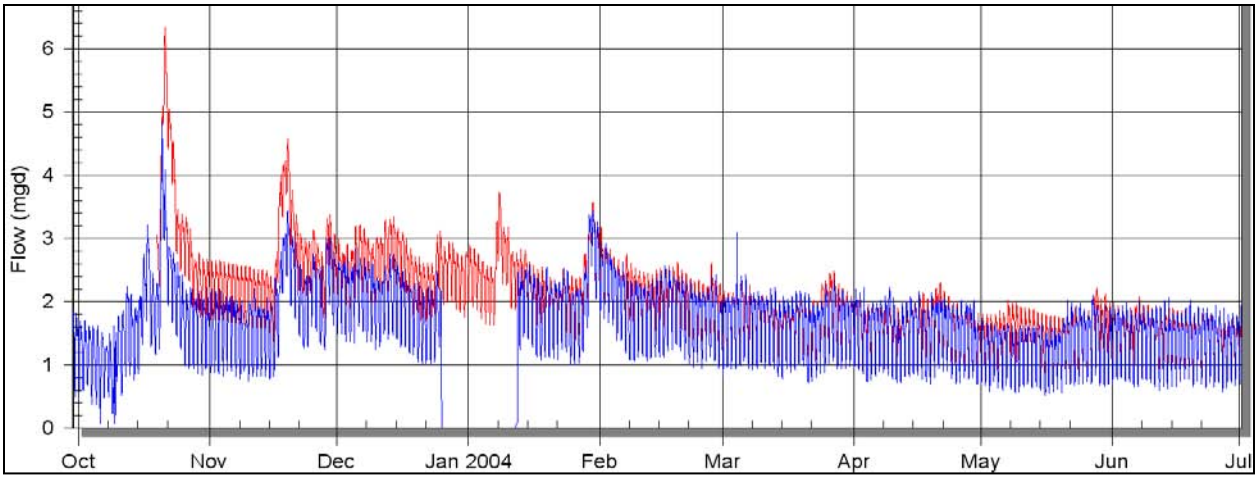

Figure 15. 2011 I&I Model for Site OL26 Applied to 2003-04 Precipitation

Table 10. Comparison of I&I, 2004 versus 2011

	I&I (mgd)									
	OL26		OL27		OL28		OL29		OL30	
Year	2004	2011	2004	2011	2004	2011	2004	2011	2004	2011
Base Sanitary Flow	1.204	0.967	0.425	0.375	0.098	0.086	0.617	0.644	0.216	0.096
Annual Average	0.394	0.642	0.143	0.243	0.066	0.110	0.163	0.083	0.045	0.062
10-year Peak Month	1.070	1.843	0.543	0.657	0.202	0.330	0.572	0.336	0.223	0.176
10-year Peak Day	2.355	3.387	0.862	1.249	0.436	0.712	0.996	0.994	0.374	0.280
10-year Peak Hour	3.379	3.796	1.427	1.564	0.473	0.799	1.766	1.352	0.627	0.406
Summer	0.155	0.237	0.050	0.096	0.023	0.039	0.063	0.023	0.008	0.023
Shoulder	0.337	0.532	0.121	0.209	0.053	0.089	0.137	0.060	0.032	0.051
Winter	0.621	1.039	0.227	0.382	0.108	0.179	0.256	0.144	0.081	0.099

1. *Site OL28 was continuously monitored from 2003-2006, in order to track the performance of an I&I removal project. Data from 2006 are presented in this table as the basis for comparison.*

Table 11. Comparison of ERUs and Benchmark Ratios for 2004 versus 2011

FM Site	ERU			Percent Difference	Benchmark Ratio			Percent Difference
	2004	2011	Change		2004	2011	Change	
OL26	4,324	5,326	1,002	23%	3.20	4.11	0.91	28%
OL27	918	1,491	573	62%	5.46	6.18	0.72	13%
OL28[1]	341	354	13	4%	6.50	10.63	4.13	63%
OL29	2,240	2,439	199	9%	2.80	2.00	-0.80	-29%
OL30	977	809	-168	-17%	2.31	2.39	0.08	4%

1. *Site OL28 was continuously monitored from 2003-2006, in order to track the performance of an I&I removal project. Data from 2006 are presented in this table as the basis for comparison.*

Tables 9 and 10 indicate that I&I levels have increased at sites OL26, OL27, and OL28; have decreased at site OL29; and has been stable at site OL30. The following sections discuss each site in detail.

3.3.5.1 Site OL26

Site OL26 measures flow entering the Percival Creek Interceptor, and conveys flow which has previously passed sites OL27, OL28, OL29, and OL30 (Figure 16).

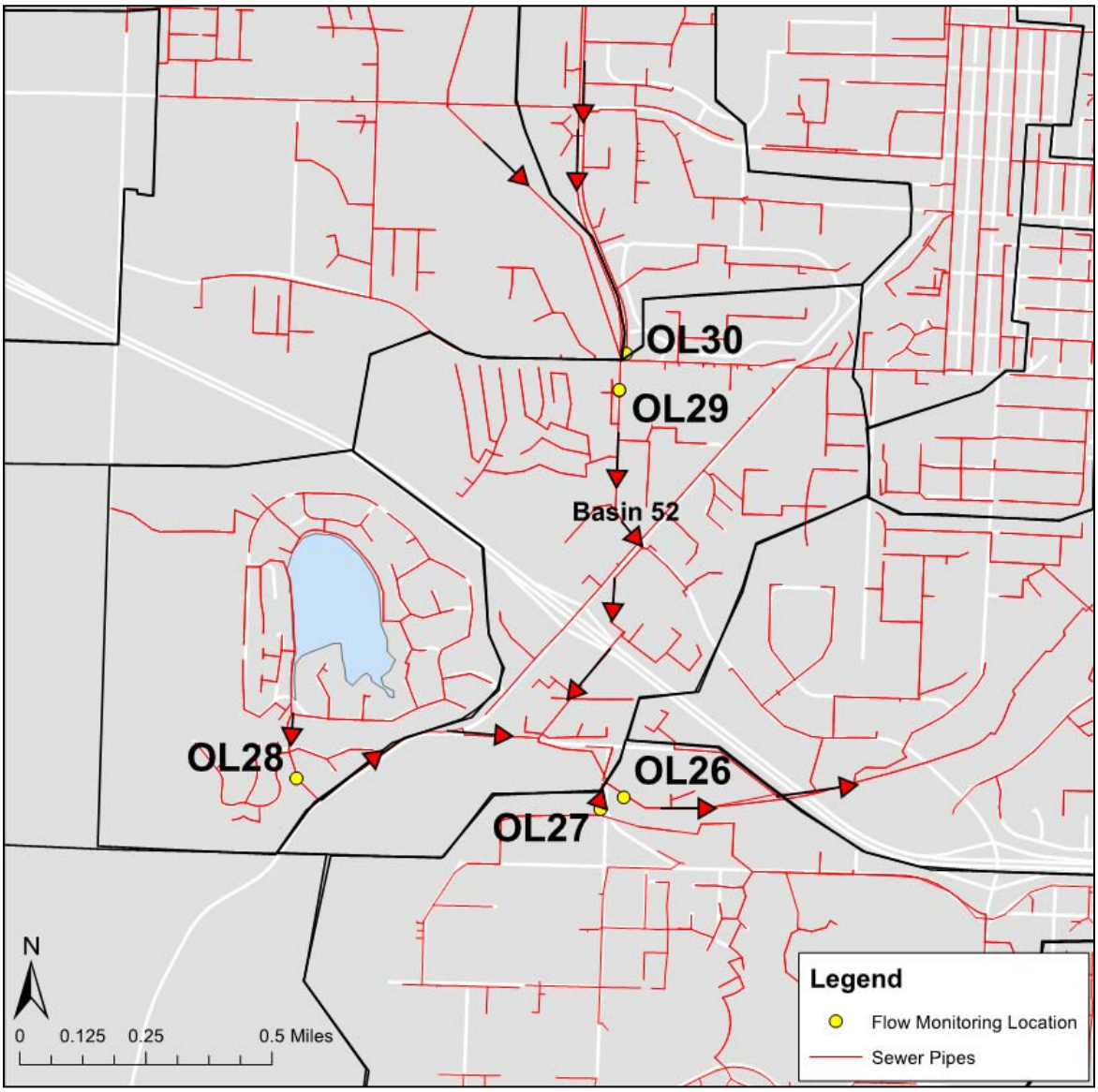

Figure 16. Site OL26 and its Tributaries

As shown on Figures 12-15, the magnitude of inflow and infiltration increased at this site from 2004 to 2011. As will be discussed below, most of this I&I comes from the basins feeding site OL27, OL28, OL29, and OL30. Only a small portion (less than 10 percent) of I&I is generated in Basin 52.

3.3.5.2 Site OL27

Site OL27 receives flow generated in Basin 56, which includes the Mottman Industrial Zone in Tumwater. The industrial flows make it difficult to effectively track I&I. The I&I increase was mainly tied to average annual flows (peak hour I&I actually decreased from 1.56 to 1.43 mgd). While some of the increase may be attributed to groundwater infiltration, it is more likely that the change has do with variable industrial flow rates.

3.3.5.3 Site OL28

As discussed above, the City of Olympia conducted an I&I removal project in 2004-05. This project, conducted in two phases, effectively removed a substantial amount of I&I from the system. The 2006 I&I Report noted a 40-50 percent reduction in I&I from 2003-04 to 2005-06.

Monitoring conducted for this report (2010-11) suggest a reversal, with levels of I&I approaching levels noted before the I&I removal project. To demonstrate the change over time, consider the I&I model calibration from 2010-11 (Figure 17).

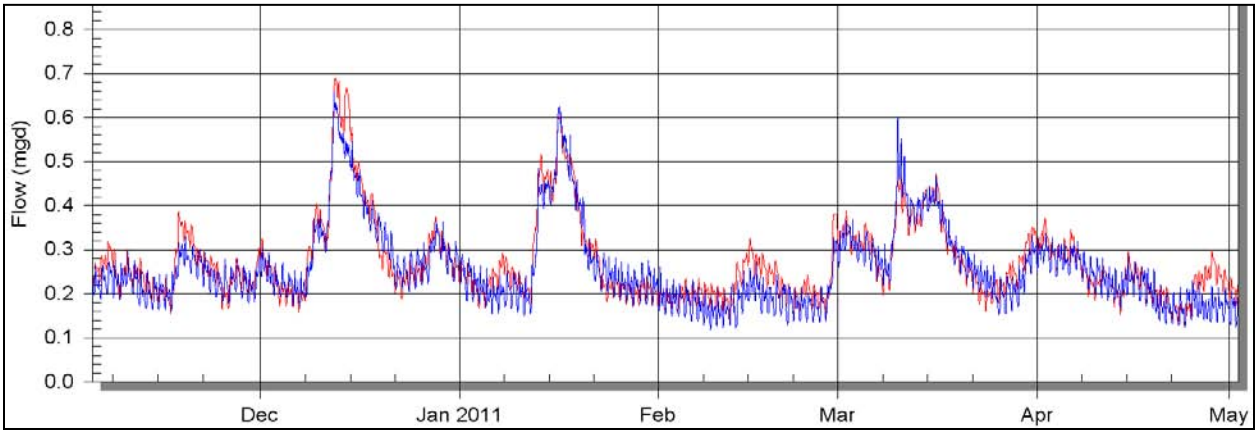

Figure 17. 2011 I&I Model for Site OL28

When the 2011 model is applied to data from 2003-04, it provides a moderately good fit to the data. Peak flow events on October 21 and November 19 led to clogging of the pipe, so flow data (blue) for those periods and the periods immediately afterwards are not accurate. However, the model (red) appears to accurately project the initial peak of each event. For the first event, actual flows subsided sooner than the model predicted. For the second event, the clogging event lasted a full week, by the end of which the model flows matched closely to observed flow. In general, Figure 18 suggests that I&I levels in 2011 are similar to levels observed in 2003-04.

Figure 19 applies the 2011 model to data from 2005-06, just after completion of the I&I removal project. In this case, there is a clear discrepancy between model (red) and observed (blue) flows. Specifically, the model flows are consistently higher. This indicates that there was less I&I in 2005-06 than there was in 2010-11.

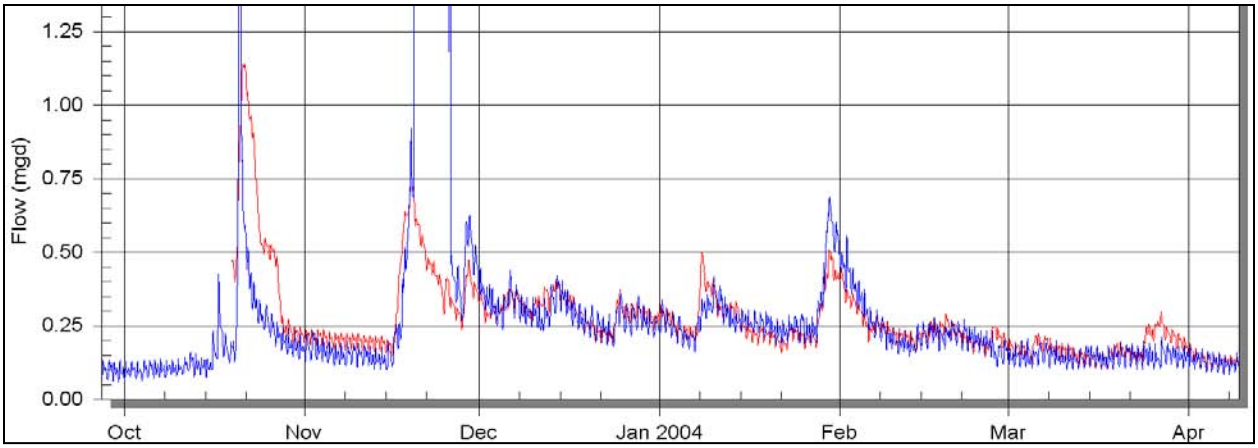

Figure 18. 2011 I&I Model for Site 0L28 Applied to 2003-04 Data

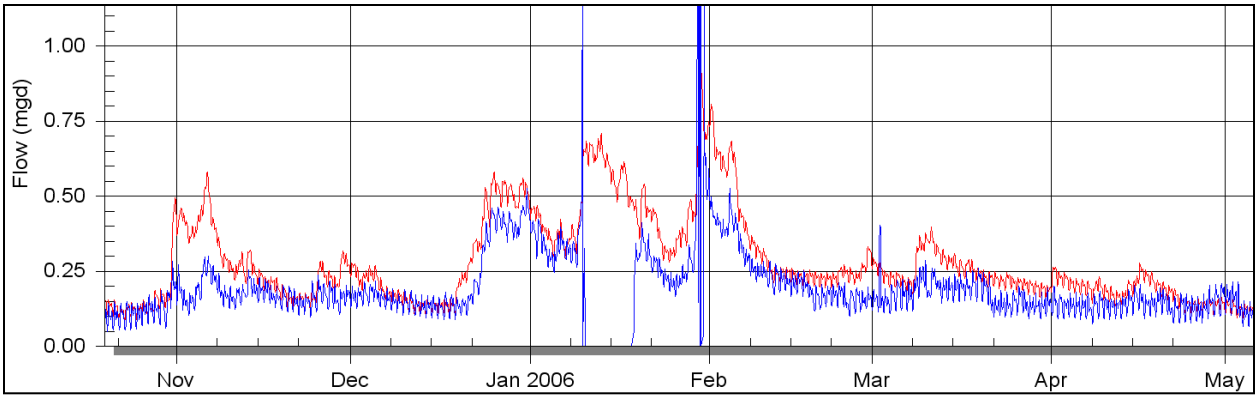

Figure 19. 2011 I&I Model for Site 0L28 Applied to 2005-06 Data

These observations mirror the findings in Tables 11 and 12, which indicate an increase in peak day I&I from 0.436 to 0.712 mgd from 2006 to 2011, and a respective increase in the benchmark ratio from 6.5 to 10.6.

3.3.5.4 Site 0L29

A reduction in I&I was noted at site 0L29. Peak hour I&I decreased from 1.7 to 1.3 mgd, and the benchmark ratio decreased from 2.8 to 2.0. It is likely that the reduction in I&I is linked to installation of the new Cooper Point Road Interceptor, which conveys flow from the new Kaiser Road Pump Station Force Main. These changes have reduced flow to the Grass Lake Interceptor, and have improved a number of lateral connections.

3.3.5.5 Site 0L30

I&I at site 0L30 was largely unchanged from 2004 to 2011. However, the base flow reduced from 0.216 to 0.096 mgd. Figure 20 plots daily flows from the two time periods to demonstrate this point.

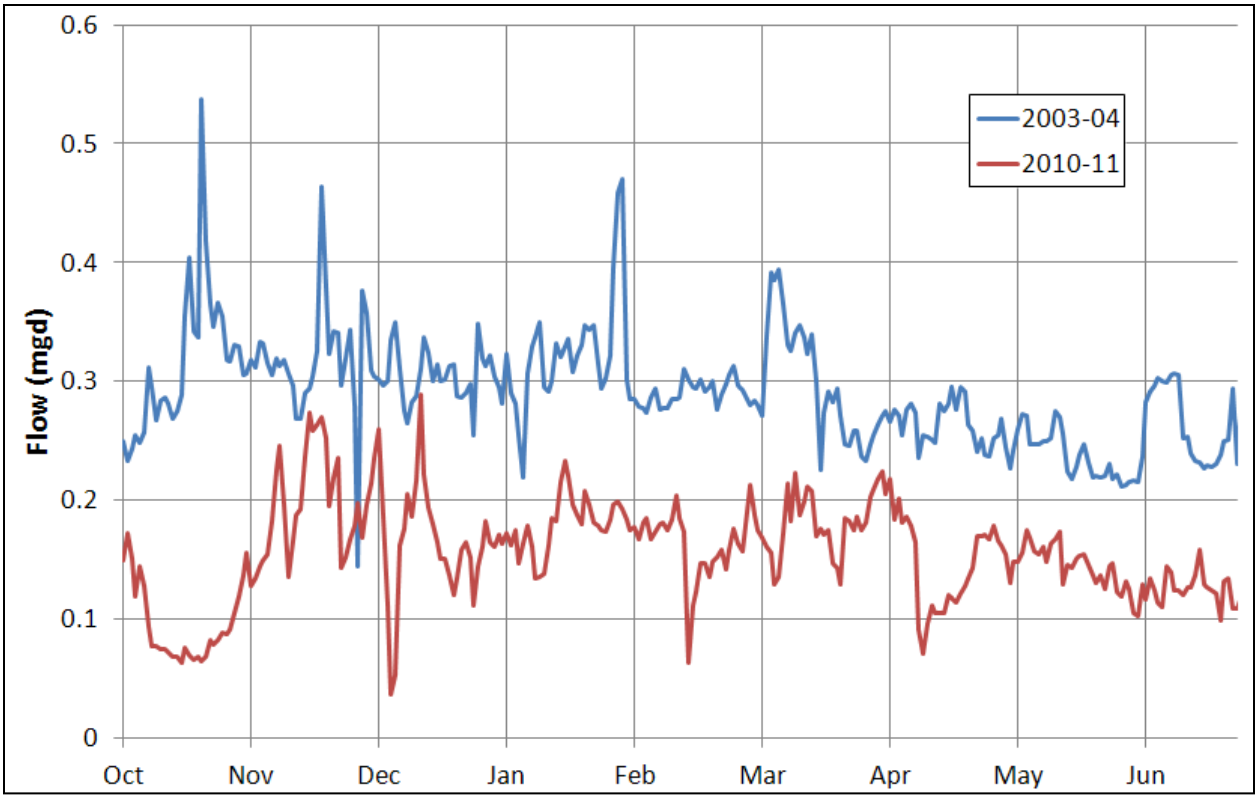

Figure 20. Daily Flows at Site OL30, 2003-04 versus 2010-11

Site OL30 (Figure 21) draws flow from basins 70 and 72, along with flow from the Kaiser Road Pump Station (KRPS). Historical flows at the KRPS have been stable since 2005, so the reduction in flow at OL30 is most likely linked to a change in either basin 70 or 72. Base flows at the downstream site OL29 increased from 2003-04 to 2010-11, which suggests that the cause of the reduced flow at OL30 was matched by an increase in flow in another tributary pipe. There are two sewer pipelines running down Cooper Point Road in basin 70. Site OL30 measures flow in the older of the two pipes (to the east). The newer pipe (to the west) was installed in 2004-05. The most likely scenario is that one or several of the pipes connecting into the old interceptor were transferred into the new interceptor during that construction.

3.3.5.6 Summary of changes, 2004 to 2011

Changes in I&I at sites OL26, OL27, and OL30 were either small (less than 5 percent benchmark ratio change), related to impacts at other sites, or impacts from local industry. A moderate (29 percent benchmark change) reduction in I&I at site OL29 is was attributed to new pipe installation with the Kaiser Road Force Main and the Cooper Point Road Interceptor. A large (63 percent benchmark change) increase in I&I at site OL28 suggests that improvements observed from an I&I reduction project in 2004-05 have been overcome by increased I&I since that time.

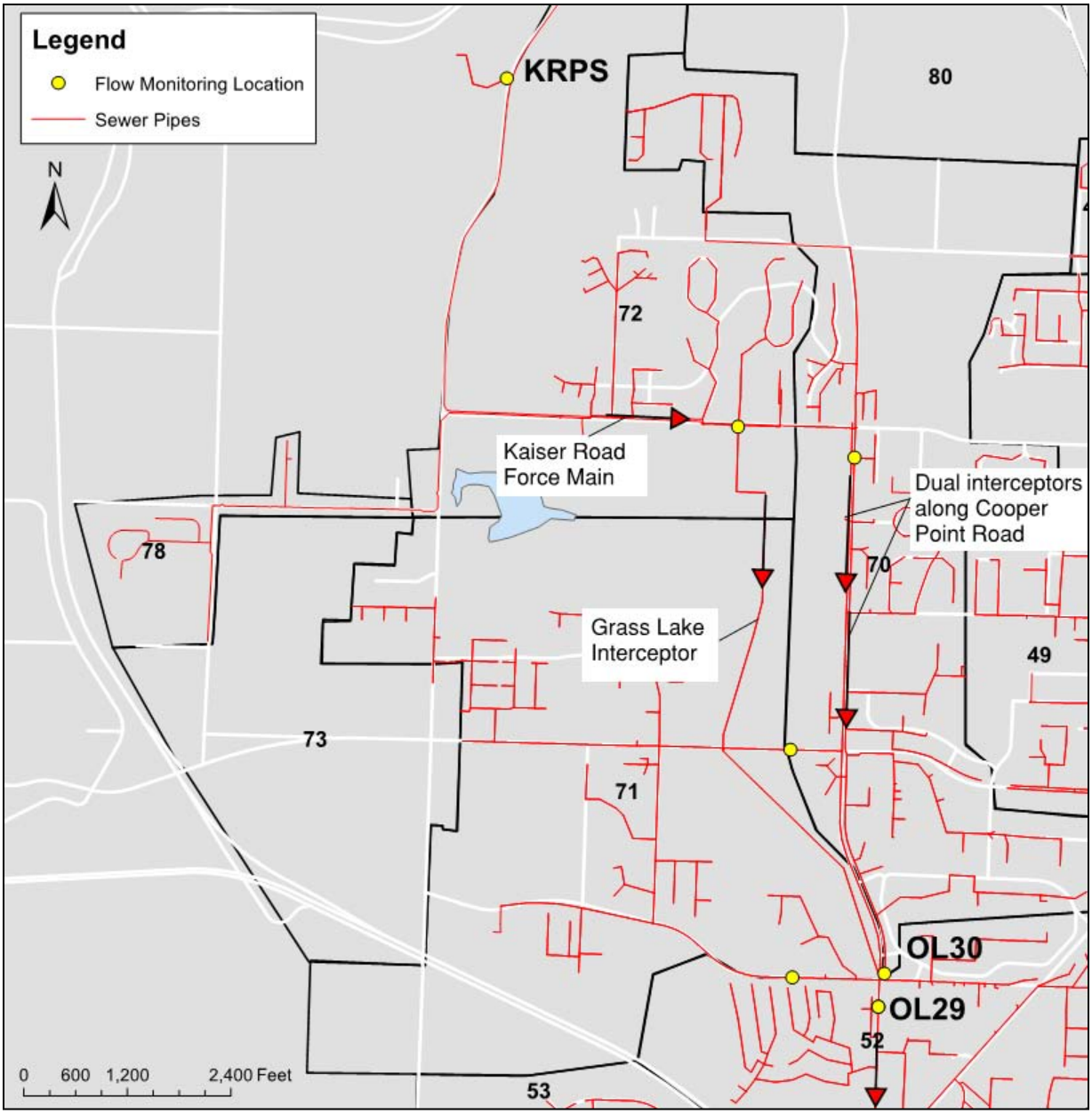

Figure 21. System Tributary to Site OL30

4. Recommendations

- The City of Olympia should investigate potential causes of the increased I&I in the Ken Lake basin (basin 53).
- Monitoring at site WS05 has improved our understanding of the downtown Olympia combined sewer system. Supplementary monitoring in this area should be pursued as the opportunities present.
- Temporary flow monitors should be moved to Lacey, to allow assessment of sites monitored during Year 2 of the program (2004-05).

Appendix O

Existing Policies and Procedures

1. Grinder Pump Policy (2006) and Maintenance Agreement template (2011)
2. Grease Interceptors/Traps (2008)
3. To and Through Requirements (2012)
4. Process for Review and Approval of Septic Systems in the City's Sewer Service Area (2008)
5. OSS Permitting Flowchart (2012)
6. Sewer Service Line Sinkhole SOP (2012)
7. Intruding Tap SOP (2012)

GRINDER PUMP SEWER SYSTEM POLICY FOR THE CITY OF OLYMPIA

I. GENERAL POLICY OBJECTIVES:

A. It is the policy of the City of Olympia to permit only conventional gravity sewer systems whenever it is feasible.

B. Grinder pump sewer systems shall not be installed and used in lieu of the orderly extension of gravity sewers with the development of intervening properties. Grinder pump installation and use shall be limited to:

1) New individual private sewer connections where a public gravity sewer is contiguous to the property, but terrain, natural features or other physical barriers prohibit a gravity connection;
2) New sewer connections for the conversion of onsite sewage systems to public sewer or for infill development only where it is specifically determined by the City Council to be in the best interest of the City of Olympia;
3) The connection of residential properties to the public sewer where an existing onsite sewage system has failed or is an impending health hazard as determined by the Thurston County Health Department or the State Department of Health.

C. Grinder pumps and sewer service laterals which are installed as part of a grinder pump sewer system shall be purchased, owned, and operated by the property owner.

D. Grinder pump force mains receiving effluent from more than one property shall be publicly owned and maintained.

1) Publicly-owned grinder pump force mains shall be permitted only where the City Council determines it to be in the best interest of the City *and* construction of a conventional gravity and lift station sewer system is not feasible, provided that:

a) The proponent of the low pressure sewer system can demonstrate that no other technically feasible alternative is available;
b) In such cases, the cost of installation of the public grinder pump force main shall be borne by the proponent; and
c) The installation is in accordance with the Olympia Engineering Design and Development Standards.

2) Acceptance of publicly-owned grinder pump force mains shall be limited to:

a) Service to existing residential properties where onsite sewage systems have failed or have been determined to be an impending health hazard as determined by the Thurston County Health Department or the State Department of Health; or

b) Service to new development in terrain-isolated areas.

E. Grinder pumps shall not be permitted to discharge to designated Septic Tank Effluent Pump force mains.

AGREEMENT TO MAINTAIN
PRIVATE GRINDER PUMP SYSTEM
BY AND BETWEEN
THE CITY OF OLYMPIA
AND
_____, AND
ITS HEIRS, SUCCESSORS, OR ASSIGNS
(HEREINAFTER "OWNER")

The upkeep and maintenance of a privately owned grinder pump system is essential to the protection of water resources in The vicinity of such a system. All property owners are expected to conduct business in a manner that promotes environmental protection. This Agreement contains specific provisions with respect to maintenance of a grinder pump system.

LEGAL DESCRIPTION:

Whereas, the subject property is served by a privately owned grinder pump system that pumps wastewater generated on the property into the City of Olympia's public sewer system. In order to further the goals of the City of Olympia to ensure the protection and enhancement of the City of Olympia's water resources, the City of Olympia and Owner hereby enter into this Agreement. The responsibilities of each party to this Agreement are identified below.

OWNER SHALL:

(1) Own, operate and maintain a privately owner grinder pump system in the manner prescribed and included herein as Attachment "A".

(2) Enter into and keep active a Grinder Pump System Maintenance Contract meeting the requirements prescribed and included herein as Attachment "B".

(3)

THE CITY OF OLYMPIA WILL, AS RESOURCES ALLOW:

(1) On a regular basis, the frequency of which will be determined solely by the City, inspect or otherwise ensure that the Owner is maintaining the privately owned grinder pump system and has a current maintenance agreement in place.

(2)

Review this agreement with Owner and modify it if necessary.

REMEDIES:

(1) If the City of Olympia determines that maintenance or repair work is required to be done to the grinder pump system existing on the Owner property, the A representative of the City shall give the Owner, and the person or agent in control of said property if different, notice of the specific maintenance and/or repair required. The City shall set a reasonable time in which such work is to be completed by the persons who were given notice. If the above required maintenance and/or repair is not completed within the time set, written notice will be sent to the persons who were given notice stating the City of Olympia's intention to perform such maintenance and bill Owner for all incurred expenses. The City of Olympia may also adjust wastewater utility charges on the Owner's bill if required maintenance is not performed.

(2) If at any time the City of Olympia determines that the existing grinder pump system creates any imminent threat to public health or welfare, the Administrator may take immediate measures to remedy said threat. No notice to the persons listed in (1), above, shall be required under such

circumstances.

(3) The Owner grants authority to the City of Olympia for access to any and all grinder pump system features for the purpose of inspection, and performing maintenance or repair as may become necessary under Remedies (1) and/or (2).

(4) The persons listed in (1), above, shall assume all responsibility for the cost of any maintenance and for repairs to the grinder pump system. Such responsibility shall include reimbursement to the City of Olympia within 30 days of the receipt of the invoice for any such work performed. Overdue payments will require payment of interest at the current legal rate for liquidated judgments. If legal action ensues, any costs or fees incurred by the City of Olympia will be borne by the parties responsible for said reimbursements.

(5) The owner hereby grants to the City of Olympia a lien against the above-described property in an amount equal to the cost incurred by the City of Olympia to perform the maintenance or repair work described herein.

This Agreement is intended to protect the value and desirability of the real property described above and to benefit all the citizens of the City of Olympia. It shall run with the land and be binding on all parties having or acquiring from Owner or their successors any right, title, or interest in the property or any part thereof, as well as their title, or interest in the property or any part thereof, as well as their heirs, successors, and assigns. They shall inure to the benefit of each present or future successor in interest of said property or any part thereof, or interest therein, and to the benefit of all citizens of the City of Olympia.

Dated at _____, Washington, this _____ day of _____, _____.

OWNER

By:_____
Authorized Agent for Owner

_____

STATE OF WASHINGTON)
) ss
COUNTY OF THURSTON)

On this day and year above personally appeared before me, a Notary Public in and for the State of Washington duly commissioned and sworn, personally appeared _____, to me known to be the _____ of _____ and acknowledge the said instrument to be the free and voluntary act and deed of said corporation, for the uses and purposes therein mentioned, and on oath stated that _____ is authorized to execute the said instrument and that the seal affixed is the corporate seal of said corporation.

WITNESS my hand and official seal the day and year first above written.

_____

Notary Public in and for the State of Washington, residing in _____

My Commission Expires: _____

Dated at _____, Washington, this _____ day of _____, _____.

CITY OF OLYMPIA

By:_____
Authorized Agent for City of Olympia

STATE OF WASHINGTON)
) ss
COUNTY OF THURSTON)

On this day and year above personally appeared before me, _____, to me known to be acting as Authorized Agent for_____, a Municipal Corporation, who executed the foregoing instrument and acknowledged the said instrument to be the free and voluntary act and deed of said Municipal Corporation for the uses and purposes therein mentioned and on oath states he is authorized to execute the said instrument.

Given under my hand and official seal this _____ day of _____, _____.

_____
Notary Public in and for the State of
Washington, residing in _____

My Commission Expires: _____

Approved as to Form:

_____
City Attorney
City of Olympia

Grinder Pump System O&M Requirements – April 2011 draft
(to become Attachments to an Agreement with Owner that will be recorded)

OPERATION AND MAINTENANCE RESPONSIBILITIES

1. General

A. All individual grinder pump facilities and individual force mains, up to and including its connection to the public sewer system, shall be privately owned and maintained by the property owner (or Homeowner Association, if applicable). These private systems include all check and control valves located on the pressurized service lateral, also called individual force main.
B. All common force mains located in public right(s)-of-way and serving single or multiple properties will be publicly owned and maintained by the City of Olympia as part of the public sewer system.
C. Electrical service to the pump(s) and controls is required. The owner of the property shall maintain electrical service to the grinder pump system at all times.
D. Auxiliary power, commonly provided by an onsite generator, shall be provided, owned, operated and maintained by the owner of the grinder pump system.
E. The property owner (or Homeowners Association) shall be responsible for operation, maintenance and future replacement of the private grinder pump system, including entering into and keeping current a Grinder Pump System Maintenance Contract as detailed below.

2. Grinder Pump System Maintenance Contract Requirements

A) Each Property Owner served by a grinder shall bear full responsibility for providing, installing, using, operating, maintaining, servicing, repairing and replacing his/her grinder pump system and/or its pressure force main or lateral, unless otherwise set forth herein. The City of Olympia has no responsibility for maintaining, or responding to an alarm condition arising from a privately owned grinder pump system.
B) Each Property Owner served by a grinder pump system shall have full responsibility for using the pump consistent with the manufacturer's instructions and shall avoid introducing into the sewerage system materials that may damage the impellers on the "pump," including, but not limited to, items designated as biodegradable in septic tanks.
C) Each Property Owner served by a grinder pump shall close the sewage system and cease operations during any period when the grinder pump system serving a property is inoperable.
D) Where the grinder pump system and/or pressure force main or lateral is shared between Property Owners, they shall submit to the City of Olympia a Declaration of Easements, Covenants and Restrictions in recordable form setting forth the rights and responsibilities of each benefited Property Owner with respect to the installation, use, operation, maintenance, service, repair and replacement of the low pressure sewer system, which agreement shall bind all future Property Owners. The City of Olympia will not issue a permit for the installation of the grinder pump system until evidence is presented that the agreement has been recorded in the Office of the Thurston County Auditor.
E) The property owner shall annually renew, for the life of the grinder pump system, and shall annually provide to the City of Olympia a copy of, a Grinder Pump System Maintenance Contract with an authorized Maintenance Contractor (hereinafter the "Maintenance Contractor"). The Maintenance Contractor shall be a private independent

contractor who has been given special training by the original equipment manufacturer and is authorized by the manufacturer to service the equipment.

F) Prior to initial start-up of the System, or within one month of occupancy of the dwelling, or within one month of transfer of the Property to a new owner, the current property owner shall meet with the Maintenance Contractor and review the operation and maintenance of the System, and the Maintenance Contractor shall provide the property owner with the following:
    a. Verbal and detailed written operation and maintenance instructions.
    b. A detailed drawing showing the location, size, material type, and depth of all components of the System. A copy of the detailed drawing shall also be sent to the City of Olympia.
    c. A complete review of the system indicating the location of all buried components of the System, including provision of a caution notice regarding disturbance near and within the grinder pump, such as excavation for trees or fencing.
    d. If it applies, a complete explanation of the System's automatic alarm system and who to contact in the event the alarm would be activated.

G) After the first month of operation of the grinder pump system, and annually thereafter, or more frequently if the manufacturer of any component parts recommends more frequent servicing, the property owner shall have the Maintenance Contractor inspect the System and have the Maintenance Contractor provide the property owner and City of Olympia with copies of a report signed by the Maintenance Contractor certifying that the grinder pump system is operating in accordance with the permit. The inspection and maintenance program will include at a minimum the manufacturer's recommended services and inspections for each separate component of the System. The Maintenance Contractor's report shall include the average daily flow from water meter readings, if available. The report shall also indicate resolution of any deficiencies noted in the Maintenance Contractor's inspection or any service or alarm call during the past year. If a revision or modification is made to the System, an amended and revised drawing detailing the revision or modification shall be provided to the property owner and the City of Olympia. The property owner is responsible for obtaining a permit from the City of Olympia, if required for any revision or modification to the System.

H) If an inspection indicates the need for repair, replacement and/or additional maintenance that is not covered under the maintenance contract, the property owner further agrees to pay all costs of such repair, replacement and/or additional maintenance.

I) The property owner shall provide an adequate supply of electrical power with the proper phase, frequency and voltage as recommended by the equipment manufacturers of the various components of the System.

J) Home Builders are required at settlement to provide the property owner with all information regarding the grinder pump system installed. The information provided shall include manufacturer, distributor, operating instruction, warranties and authorized maintenance contractors.

K) Home Builders shall also inform the property owner of the requirements of the City of Olympia regarding the annual inspection and maintenance agreement.

PLATTING REQUIREMENTS

The following language shall be included on all record plats for developments that include any lots to be served by private grinder pump systems. Such plats shall clearly indicate which lots require grinder pumps.

1. Where grinder pumps are required, each building or property that is (or could potentially be) owned by a different owner shall have a separate wet well tank, grinder pump and

individual force main/service lateral. An exception to this are multi-unit condominiums or townhomes that share a common roof and interior walls, where each such structure may have one common wet well tank, grinder pump and force main/service lateral.
2. Each individual grinder pump installation connected to a common force main shall be consistent with the overall system design approved by the pump manufacturer and the City of Olympia.
3. Each building utilizing a grinder pump system shall have a gravity sewer drain through the building's foundation at a location that will facilitate connection to a future gravity sewer, unless future gravity sewer service is not possible.
4. All individual grinder pump facilities and force mains serving only one (1) home or building shall be privately owned and maintained by the property owner or Homeowners Association.
5. All grinder pump systems shall meet the design and installation standards set forth in Chapter 7 of the City of Olympia's Engineering Design and Development Standards.
6. A copy of the As-Built drawings and manufacturer's operation and maintenance information shall be kept on site by the property owner.
7. The property owner shall be responsible for operation, maintenance and future replacement of the private grinder pump system. At least annual maintenance of each grinder pump system shall be performed by a licensed and bonded plumber/contractor, who is certified and approved by the equipment manufacturer. Documentation of all maintenance activities shall be provided to the City of Olympia upon request. Failure to provide the required documentation will be cause for disconnection of sewer service by the City of Olympia.

DEED RESTRICTIONS

The following language shall appear on the recorded deed for each property to be served by a private grinder pump system. The language shall be included on any and all subsequent deeds, certificates of transfer, etc. until such time as the grinder pump system is eliminated and replaced by a different means of providing sanitary sewer service to the property.

1. The individual force main(s) serving the building(s) on this property, both check valves and all other appurtenances that are a part of the force main or are connected to it, are private and shall be owned and maintained by the property owner, including the curb stop, curb stop box and force main between the pump and public force main.
2. The property owner shall be responsible for operation, maintenance and future replacement of the private grinder pump system. At least annual maintenance of each grinder pump system shall be performed by a licensed and bonded plumber/contractor, which is certified and approved by the equipment manufacturer. Documentation of all maintenance and pumping shall be provided to the City of Olympia. Failure to provide the required documentation will be cause for disconnection of sewer service by the City.
3. For installations connected to a common force main, the grinder pump system shall meet the design and installation standards set forth in Chapter 7 of the City of Olympia's Engineering Design and Development Standards, particularly Section 7F.
4. These conditions are to run with the land and shall be binding upon the Owner(s) as well as the heirs, successors, administrators, and assigns of the Owner(s), until such time as the grinder pump system is eliminated and replaced by a different means of providing sanitary sewer service to the property. Invalidation of any condition herein by a judgment or court order shall in no way affect any of the other provisions, which shall remain in full force and effect.

ATTACHMENT "B"
Grinder Pump System Maintenance Contract

Monitoring Company Name:
Company Address:
Company Phone:

Owners Name:
Site Address:
Site Parcel Number:

A one year contract between Owner and Maintenance Contractor firm will begin on _____ and end on _____. The Contractor reserves the rights to cancel the contract at any time and will notify the City of Olympia. The owner will be charged a fee of $_____ to the Maintenance Contractor. It is the responsibility of the Owner to pay any and all fees to the permitting agency.

The Maintenance Contractor is responsible for;

- Meeting with the owner to review the operation of the system as described in Section F of Attachment A of the Agreement to Maintain Private Grinder Pump System (Agreement) by and between the City of Olympia and the Owner.
- Checking all major components of system once per year. The Owner will contact the Maintenance Contractor annually to schedule this service.
- Since the duties of the Maintenance Contractor are based upon the type of system to be installed, refer to the manufacturer's recommended services and inspections for each separate component of the System.
- Servicing and testing will be scheduled as required in the Agreement and Attachment A of the Agreement.
- Information will be recorded and reported to the City of Olympia as required in Attachment A of the Agreement.

The Maintenance Contractor is not responsible for the warranty of the grinder pump system (information should be obtained from designer/installer or contact product manufacturer).

The Maintenance Contractor is not responsible for any failure of system and not responsible for the repair of failure, unless hired by the Owner to do so. It is the Owner's responsibility to fix any problems that are noted after inspection of the system.

I have read and understand the contract presented:

Owner Signed: _____

Name Printed: _____ Date: _____

Maintenance Contractor Signed: _____

Name Printed: _____ Date: _____

Policy Summary:

1. Specifies the types of establishments in which the installation of a grease interceptor or trap will be required.
2. Outlines the situations in which the installation of a grease interceptor or trap will be required as a condition of permit issuance.
3. Specifies when existing businesses will be required to install a grease interceptor or trap.

Background:

The purpose of a grease interceptor (or grease trap) is to intercept grease flowing from plumbing fixtures which serve areas in which grease is produced, such as kitchens, and to hold this accumulation of grease within the interceptor in order to prevent its flow into the remainder of the plumbing system and ultimately into the public sewer system. Grease tends to build on the inside of drainage piping, thus restricting the flow and eventually causing blockage. Grease which is allowed to flow into the public system becomes a major maintenance issue for the Public Works Department and has the potential to be very costly to address.

The 2006 Uniform Plumbing Code (UPC) grants the authority to local jurisdictions to require those establishments which produce grease that is discharged into the plumbing system to install grease interceptors or traps. Specifically, UPC Section 1014.1 states in part as follows:

> *Where it s determined by the Authority Having Jurisdiction that waste pretreatment is required, an approved type of grease interceptor(s) complying with the provisions of this section shall be installed in grease waste line(s) leading from sinks and drains, such as floor drains and floor sinks and other fixtures or equipment in serving establishments such as restaurants, cafes, lunch counters, cafeterias, bars and clubs, hotel, hospital, sanitarium, factory, or school kitchens, or other establishments where grease may be introduced into the drainage or sewage system in quantities that can effect line stoppage or hinder sewage treatment or private sewage disposal.*

Discussion:

Grease interceptors/traps can be highly effective in limiting the accumulation of grease in the public sewer system. The cost for installing the interceptor/trap is appropriately borne by the establishments which produce the grease.

New establishments such as those listed in UPC Section 1014.1 are required by most Washington communities to install a grease interceptor or trap in conjunction with construction of the facility. Existing establishments of this type which do not have a grease interceptor or trap on the premises are required by some communities to retrofit an interceptor or trap into the plumbing system upon notification from the local jurisdiction.

Chapter 13.20.120 of the City Municipal Code specifies that "the City, based on the determination that such devices are necessary for implementation of pretreatment requirements, may require any User to install and maintain, on their property and at their expense "grease, oil, and grit interceptors". The City Engineer delegates this responsibility to the Building Official in order to be consistent with provisions of the UPC.

Grease interceptors/traps must be regularly maintained in order to assure continued effectiveness. If regular maintenance is not accomplished, grease could still flow into the public system. It is in the best interests of a community to insure that the owners of the establishments with installed grease interceptors/traps establish and follow a maintenance program.

It should be noted that the definitions of grease interceptors and grease traps are located in Section 209.0 of the UPC.

Policy:

1. Establishments such as those listed in the UPC Section 1014.1 are subject to the requirement by the Community Planning & Development to install a grease interceptor or trap which complies with the remaining provisions of the same code section.
2. Grease interceptors are generally appropriate for restaurants, hotels, cafeterias, schools, hospitals, and any similar institutional or commercial buildings where food is served in quantity. Grease traps generally are appropriate for delicatessens, cafes, lunch counters, and bars.
3. The requirement to install a grease interceptor or trap in those establishments referenced in #1 and #2 above will be imposed during the plan review process associated with a permit application for:
   (a) New structures
   (b) Additions to existing structures
   (c) Alterations to existing structures, regardless of the valuation
   (d) Changes of Occupancy
4. A grease interceptor or trap may also be required to be installed in existing establishments referenced in #1 and #2 above under certain circumstances. If City Public Works crews provide written notification to the Building Official that a significant amount of grease has been observed in any section of the public sewer system serving such an establishment, the Community Planning & Development inspector will investigate the alleged violation. If the violation is found to exist, the inspector will determine an acceptable manner for capturing the grease. This may include the requirement to install a grease interceptor or trap.

NEXT SCHEDULED REVIEW: June, 2010

TO AND THROUGH REQUIREMENT FOR SANITARY SEWER INFRASTRUCTURE

Summary:

1. Outlines the requirements for extension of the sanitary sewer infrastructure with connection to the public sewer system.
2. Outlines the requirements for situations where properties have multiple frontages.

Background:

Connection to the public sewer infrastructure is required for all new development and conversion of failing onsite sewage systems (OSS). It is also necessary if a property owner desires to convert from an OSS to the City's public sewer system.

The City of Olympia Engineering Design and Development Standards require that developers (or property owner(s), as applicable) be responsible for the construction of all utilities internal to and fronting their properties and for needed extensions of utilities to and through their site. Section 3.110 (B) states:

> *Utility mains will be extended across the frontage of and through the extremes of the property being developed for loop closures and/or future development as determined by the Public Works Director and current utility comprehensive and master plan.*

In addition, Section 2.050 (F) states:

> *Capacity and Routing. The capacities and dimensions of water mains, sewerage, and drainage facilities will be adequate to provide for the future needs of other properties in the general vicinity. Said facilities will be extended in public rights-of-way or easements along each frontage of a development or along alternative routes to the boundaries of adjoining properties as approved by the Director of Public Works. Oversizing of facilities may be required of the developer. The City may participate in the cost of oversizing if sufficient funds are available.*

It should be noted that the connection of properties served with OSS to the public sewer system is a priority of the 2006 Wastewater Management Plan and Comprehensive Plan wastewater policies.

Discussion:

Orderly extension of the sewer infrastructure with development is necessary to ultimately serve the urban growth area, including those areas currently served by OSS. For the purposes of this discussion, connection to the public sewer infrastructure constitutes "development" requiring the construction of sewer utilities internal to and fronting the property and for needed extensions of sewer utilities to and through the property.

Typically, sewer service is provided to a property from the street with which the property was platted and from which it is addressed and/or gains vehicular access. Sewer utilities should be located within the right-of-way and preferably under paved surfaces for access and protection. Occasionally, the terrain will not allow for gravity flow from a property to the street. In these cases, sewage is either pumped or the gravity sewer is constructed to the property in a serviceable location within a public easement.

While most properties have a single frontage along a right-of-way (minimizing the options for where service laterals can enter a property), some properties have multiple frontages, such as those located on corners (contiguous frontages) and those with street frontage on both their front and rear property lines (non-contiguous frontages). Because there may be more than one option for extending the sewer system to obtain service to these properties, the decision of how to serve properties with multiple frontages is often more difficult. OSS are often located in back and side yards making service connections from those frontages advantageous.

The Director of Public Works or their designee will determine along which frontage(s) or route(s) the sewer shall be installed for connection to the sewer system. In general, to be permitted to connect to the sewer utility, a property owner is required to construct the sewer infrastructure along each frontage or along alternative routes to the boundaries of adjoining properties. In cases where the City or a developer constructs the sewer infrastructure along one property frontage, the property owner may still be obligated to construct the sewer infrastructure along an additional frontage in the future. It is recognized, therefore, that properties with multiple frontages have a greater burden when it comes to extending the sewer.

The Director of Public Works or their designee has the authority to waive the requirement that sewer infrastructure be constructed along all frontages in association with connection to the public sewer. If it can be demonstrated that the construction of a sewer along any given frontage will not potentially provide future benefit to other properties, the requirement to construct the sewer along that frontage will be waived.

Requirements:

1. Orderly extension of the sewer utility is necessary to ultimately serve the entire urban growth area.
2. With some exceptions, properties should generally be served from a sewer located within the street from which they are accessed and on which they are addressed. Exceptions include, but are not limited to when terrain or lack of sewer availability preclude that option.
3. To be permitted to connect to the sewer utility, a property owner is required to extend the sewer infrastructure to the property and then along each frontage of the property or along alternative routes to the boundaries of adjoining properties as

needed to serve adjoining properties, unless waived as described below. This is often referred to as the *"To and Through"* requirement.

4. If it can be demonstrated that the construction of a sewer along any given frontage will not potentially provide future benefit to other properties and/or meets one or more of the following criteria, the requirement to construct the sewer along that frontage will be waived:

    a. An existing sewer line is not immediately available for extension along a second frontage, and it is a non-contiguous frontage (i.e. the second frontage is along the opposite side of the lot(s) as the primary frontage), or

    b. For a single property that has two or more contiguous frontages (i.e. a corner lot), abandoning an onsite septic system and making one connection to the public sewer, the sewer extension will only be required across one frontage unless additional extension is required to accommodate the service lateral location. This waiver only applies if the number of ERUs on the property is not being increased.

    c. It is unlikely that a sewer line will ever be constructed along the second frontage, due to the location(s) of existing and/or planned sewer line(s) in the vicinity of the development, as determined by the Director of Public Works or their designee.

5. The Director of Public Works or their designee has the authority to waive the requirement that sewer infrastructure be constructed along all frontages in association with connection to the public sewer.

PRO 3001

Adopted: July __, 2008
Last Reviewed: July 2008

SUMMARIZES PROCESS FOR REVIEW AND APPROVAL OF PROJECT APPLICATIONS FOR ONSITE SEWAGE SYSTEMS

Procedure Summary:

Specifies procedures for processing project applications received from Thurston County Environmental Health (TCEH) for onsite sewage systems within the City's urban growth area.

Background:

Permits for onsite sewage systems within the City's urban growth area are issued by Thurston County Environmental Health (TCEH). Article IV of the Sanitary Code for Thurston County establishes the rules and regulations of the Thurston County Board of Health (Article IV) governing disposal of sewage. Article IV, Section 21.2.8 requires that proposals for onsite sewage systems be consistent with requirements in city sewerage plans.

Policies from the City of Olympia's 2006 Wastewater Management Plan have been codified in the City's municipal code (OMC 13.08.050). These policies are more restrictive than those in Article IV.

All project applications for onsite systems proposed within the City's urban growth area require city jurisdiction review and approval.

Discussion:

In addition to TCEH, the City Residential Plans Examiner and Wastewater Utility Engineer are involved in the approval of project applications for onsite systems within the City's urban growth area. Following is a summary of the roles for each:

TCEH: Receives project application from customer, routes application to City Residential Plans Examiner, issues permit.

Residential Plans Examiner: Receives project application from TCEH; reviews application for 1) whether the project is on a legal lot, 2) proximity to critical areas and steep slopes; routes application to a Wastewater Utility Engineer; returns project application to TCEH.

Wastewater Utility Engineer: Receives project application from Residential Plans Examiner; determines if project fulfills the requirements of OMC 13.08.050 using the attached flowchart; returns project application to Residential Plans Examiner.

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PRO 3001

Adopted: July __, 2008
Last Reviewed: July 2008

Procedure:

The specific procedure for review and approval of project applications for onsite systems within the City's urban growth area is as follows:

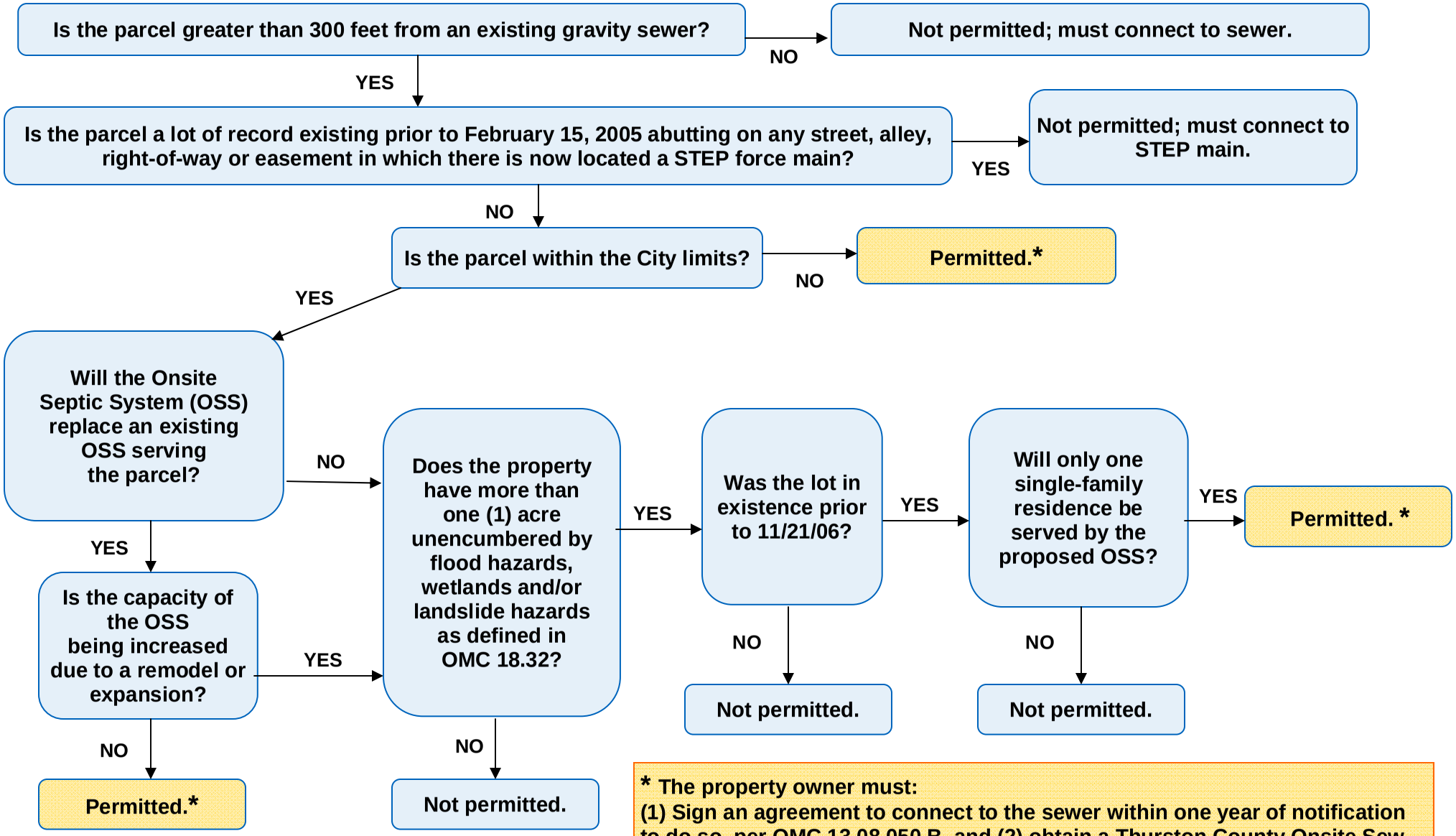
- Applicant submits project application to TCEH.
- TCEH routes application to City Residential Plans Examiner.
- The Residential Plans Examiner reviews application for 1) whether the project is on a legal lot, and 2) proximity to critical areas and steep slopes;
- If based on the review, the Residential Plans Examiner is unable to approve the application, it is marked "Disapproved", comments explaining why it is disapproved are added and the Residential Plans Examiner signs the application.
- If the Residential Plans Examiner denies approval of an application, he/she is responsible for phoning the applicant to provide an explanation.
- If the Residential Plans Examiner approves the application, it is routed to a Wastewater Utility Engineer;
- The Wastewater Utility Engineer reviews the application and determines if project fulfills the requirements of OMC 13.08.050 using the attached flowchart;
- The Wastewater Utility Engineer marks the project application "Approved" or "Disapproved", adds any pertinent comments and signs the project application.
- If the Wastewater Utility Engineer denies approval of an application, he/she is responsible for phoning the applicant to provide an explanation.
- The Wastewater Utility Engineer returns the application to City Residential Plans Examiner.
- The Residential Plans Examiner returns the application to TCEH via campus mail.
- TCEH either denies or approves the application and notifies applicant.

NEXT SCHEDULED REVIEW: July, 2010

Onsite Septic Systems - Permitting Flowchart / City of Olympia Sewer Service Area

To determine when onsite sewage systems can be installed or repaired/replaced in case of failure within the City and its Urban Growth Area.

CITY OF OLYMPIA PUBLIC WORKS DEPARTMENT — SEPTEMBER 2012



* The property owner must:
(1) Sign an agreement to connect to the sewer within one year of notification to do so, per OMC 13.08.050.B, and (2) obtain a Thurston County Onsite Sewage System Permit, designing it as an interim system.

The following sections of the *Olympia Municipal Code* (OMC) address the repair, replacement, and installation of onsite sewage systems within the Olympia city limits and its Urban Growth Area:

13.08.020 Connection Required When

The owner or occupant of any lands, buildings or premises to which a public sewer is currently or becomes adjacent and available, shall not be required to connect the lands, buildings or premises to the public sewer so long as the property is served by an existing lawfully functioning individual onsite sewage system. In the event any lands, buildings, or premises are served by an individual onsite sewage system which fails to function and there is a public sewer adjacent and available within 300 feet of the property by way of a public right-of-way or easement, the owner or occupant shall be required to connect the property to the public sewer. In the event lands, buildings, and premises are served by an individual onsite sewage system which fails to function and there is no public sewer adjacent and available and a replacement individual system cannot be lawfully approved to serve the property, it must nevertheless be connected to the public sewer.

13.08.050 - Adoption of Wastewater Management Plan

There is hereby adopted by reference as Exhibit "A" the "City of Olympia Wastewater Management Plan, with 2007 amendments," three (3) copies of which shall be kept on file in the office of the City Clerk and the Olympia Public Works Department. This Plan shall be considered a part of this ordinance as though fully set forth herein. Specific substantive requirements of the Plan include:

A. New onsite sewage systems shall be permitted within the city limits only to serve a single-family residence provided:

1. The property being served is an undeveloped lot of record larger than one (1) acre located more than 300 feet from the sewer and the lot is existing prior to November 21, 2006;
2. The lot size determination shall include only those portions of a lot unencumbered by flood hazards, wetlands and/or landslide hazards as defined in OMC 18.32;
3. Permitted onsite sewage systems shall be considered interim facilities and must be designed for conversion to the sewer system when sewer becomes available;
4. Development of properties with onsite sewage systems shall be in accordance with the Residential Districts' Development Standards for Developments without sewer systems on Individual Lots, in OMC Section 18.04.080(E)(2).

B. All properties being served by onsite sewage systems and located within the urban growth boundary including within the city limits shall enter into an appropriate agreement with the city agreeing to connect the residence directly with the proper sewer in accordance with the provisions herein, within one (1) year after date of official notice to connect, provided that the sewer is within 300 feet of the property. A user can avoid incurring the charges provided herein by discontinuing the generation or discharge of any waste from the site and capping the wastewater connection. The capping of the wastewater connection must pass City inspection.

1. Application fees as established by the City Council shall be paid upon the submittal of a signed Onsite Sewage System Agreement requesting use of an onsite sewage system;
2. Requirements that the cost of the sewer extension be borne in whole by the applicant for sewer services, subject to any provisions in effect at the time of connection for latecomer reimbursement;
3. The agreement shall not be executed prior to the time formal application is made for approval of the project for which onsite sewage system is requested. The term of said agreement shall terminate at the time any project application or approval expires or is revoked for any reason. A new agreement shall also be required for any extension of project applications or approvals or when in the opinion of the Director of Community Planning & Development, a substantial change or addition is made to the project; and
4. Following execution, such agreement shall be recorded by the City in the records of the Thurston County Auditor, at the cost of the applicant.

Additional information can be found at: **www.olympiawa.gov//city-utilities/wastewater/septic-to-sewer.aspx**

Sewer Sinkhole SOP

Goal: To establish a consistent standard when the City addresses "sinkholes" that appears in City right of way caused by side sewers.

Background: Wastewater collection personnel occasionally encounter or are given information regarding a sinkhole, pothole, or similar depression in the pavement or adjacent area that may be caused by a failing side sewer. A Standard Operating Procedure (SOP) is necessary so that there is a consistent response to this occurrence, particularly if it is necessary to have the property owner whose side sewer has caused the depression or sinkhole, address and repair the site in a timely manner.

Recommended Steps:

1. Once a sinkhole or depression is identified or reported, operations staff will visit the site and take notes on the conditions. As always, they will attempt to verify lateral location using city maps and take photos of the immediate area.
2. In accordance with the City's traffic control standards, operations staff will install the proper signage, barricades, and cones warning the public of the existing hazard before leaving the site.
3. If staff suspects the sinkhole is a result of a faulty side-lateral, they will notify their lead worker/supervisor of the location so they can coordinate with our Wastewater Engineer(s) to review the most recent TV report of the City's adjacent sewer mainline.
4. If the lateral in question is not mapped and/or there is not sufficient video/report, then operations lead/supervisor will schedule a TV inspection of the City's mainline to confirm the condition and verify lateral location in proximity of the sinkhole.
5. Once the City has determined the side sewer is the cause of the sinkhole, Wastewater Engineer(s) will set up hard copy and electronic file for the site.
6. Wastewater Engineer(s) will notify a CP&D Code Enforcement Officer, who will then initiate the enforcement process.
7. CP&D will notify Wastewater Engineer(s) once the side sewer is repaired or replaced, and the surface restoration work is complete.
8. Wastewater Engineer(s) will then request a post TV inspection of the City's sewer main to verify that there are no remaining issues from the side sewer that's been repaired (i.e sediment loading or obstruction).

Supporting Citations in OMC 13.08 and 4.44, and EDDS Chapters 2 and 7):

Definition of "Side sewer" in OMC 13.08.010 – "that portion of the sewer beginning 2 feet outside the outer foundation wall of the structure to and including the connection to the public sewer main."

Maintenance responsibility of property owner in OMC 13.08.040 – "The property owner is responsible for all costs and expense incidental to the installation, connection and maintenance of a side sewer, including that portion within the city right-of-way or utility easement. The City shall not be liable for any damages or costs incurred by reason of blockage or deterioration of a side sewer, up to and including its connection with the public sewer main."

(from EDDS 7A.010 General) – "…Maintenance of a private sewer, building, or side sewer will be the responsibility of the property owner. Maintenance of the lateral to and including the point of connection to the sewer main will be the responsibility of the property owner."

Enforcement – see the following for more information on enforcement methods:

1. OMC 13.08.380
2. OMC 4.44.010,.030.050,.060
3. EDDS 2.090,.100,.110,.120.130

References

- Washington State Department of Transportation, "Work Zone Traffic Control Guidelines", (short duration work zones), January 2006, M54-44.
- Manual of Uniform Traffic Control Devices (MUTCD) and Washington State Amendments (M24-01)

Compliance References

- WAC 296-155-305: Signaling and Flaggers

Intruding Tap SOP

April 2012

Goal: To establish a consistent standard to address sewer service lines that intrude into the sewer main, in some cases blocking flow or the ability to inspect, maintain, line and/or repair the pipe.

Background: Wastewater collection personnel occasionally encounter, either during video inspection of a sewer main or in the field, a sewer service line intruding into the sewer main. A sewer service line is considered to be intruding into the sewer main if the end of the pipe extends into the sewer main a distance of more than ½ inch from the inside wall of the sewer main.

A Standard Operating Procedure (SOP) is necessary so that there is a consistent response to this occurrence, particularly if it is necessary to remove the intrusion to complete the video inspection of a sewer main or prepare a sewer main for trenchless relining ore repair.

Note that if an intruding tap is found within two years of its construction, the property owner will be required to remove the intrusion and pay for all costs associated with the effort. For intrusions that are found to be at least two years old, the Wastewater Utility will remove the intrusion at its own cost.

Preventative Steps:

1. Educate CP&D inspectors as to the importance of ensuring that direct/saddle taps do not result in the service line pipe intruding into the pipe.
2. Require the contractor or owner to provide video verification, if the inspector does not personally witness the tap, showing that the tap does not intrude into the sewer main. (from EDDS 7A.070, Testing) – "Any tap to an existing [sewer] system needs to be televised at the applicant's expense."

Recommended Steps if Intruding Tap Encountered During Sewer Inspection or Videotaping:

1. Once an intruding tap is identified or reported, operations staff will notify their lead worker/supervisor of the location so they can coordinate with our Wastewater Engineer(s) to review the TV report and/or photos of intrusion.
2. Wastewater Engineer(s) will set up hard copy and electronic file for the site.
3. A Wastewater Engineer will determine if the intrusion was the result of construction occurring within the last two years. If the answer is yes, the Wastewater Engineer will coordinate with a CP&D Code Enforcement Officer notification to the owner that the intrusion is to be removed. CP&D will notify Wastewater Engineer(s) once the side sewer is repaired or replaced, and the surface restoration work is complete.
4. If the intruding sewer service line was installed some time more than two years before the identification of the intrusion, then the following steps will be taken:

5. A Wastewater Engineer, in consultation with the Wastewater Collections Leadworker, will determine the urgency of removing the intruding tap. Scheduling of removal of the intruding tap will then be made.
6. The intruding tap will be removed by operations staff using a jetter attachment, some other trenchless device, or excavation of the site.
7. Once the intruding tap has been removed, a follow-up TV inspection of that section of the sewer main will be completed by operations personnel.

Supporting Citations in OMC 13.08 and 4.44, and EDDS Chapters 2 and 7):

Definition of "Side sewer" in OMC 13.08.010 – "that portion of the sewer beginning 2 feet outside the outer foundation wall of the structure to and including the connection to the public sewer main."
Construction/Installation (from EDDS 7A.080, General Notes) – "…3. Side sewer services will be PVC, ASTM D 3034 SDR 35 with flexible gasketed joints. Side sewer connections will be made by a tap to an existing main or a wye branch from a new main connected above the springline of the pipe. Side sewer services will be installed according to applicable standard detail(s)."

Maintenance responsibility of property owner in OMC 13.08.040 – "The property owner is responsible for all costs and expense incidental to the installation, connection and maintenance of a side sewer, including that portion within the city right-of-way or utility easement. The City shall not be liable for any damages or costs incurred by reason of blockage or deterioration of a side sewer, up to and including its connection with the public sewer main."

(from EDDS 7A.010 General) – "…Maintenance of a private sewer, building, or side sewer will be the responsibility of the property owner. Maintenance of the lateral to and including the point of connection to the sewer main will be the responsibility of the property owner."

Enforcement – see the following for more information on enforcement methods:

1. OMC 13.08.380
2. OMC 4.44.010,.030.050,.060
3. EDDS 2.090,.100,.110,.120.130

References

- Washington State Department of Transportation, "Work Zone Traffic Control Guidelines", (short duration work zones), January 2006, M54-44.
- Manual of Uniform Traffic Control Devices (MUTCD) and Washington State Amendments (M24-01)

Compliance References

- WAC 296-155-305: Signaling and Flaggers

Appendix P - Agreements

(Not included in 2013 Plan, but available upon request)

1. 2013 Lacey Agreement (in draft form as of March 2013)
2. 2012 Mutual Aid Agreement
3. 2007 Overhulse Lift Station Agreement
4. 2007 South Puget Sound Community College Lift Station Interlocal Agreement
5. 2006 Providence St. Peter Lift Station Agreement
6. 1999 Interlocal Cooperation Agreement for Wastewater Management by the LOTT Wastewater Alliance
7. 1992 Implementing Agreement between Olympia, Lacey, Tumwater and Thurston County
8. 1992 General Sewerage Agreement for the Unincorporated Urban Growth Management Area
9. 1980 Agreement and Contract for Motel 8 Area in Lacey
10. 1950 Tumwater Agreement