CITY OF PORTLAND
COMBINED SEWER OVERFLOW PROGRAM

ANNUAL CSO PROGRESS REPORT TO DEQ

FISCAL YEAR 2005-2006

As Required by the Amended Stipulated Final Order
(ASFO WQ-NWR-91-75)

CITY OF PORTLAND
BUREAU OF ENVIRONMENTAL SERVICES

JUNE 30, 2006

Annual CSO Progress Report to DEQ for FY 2005-2006

Table of Contents

I. Summary

Portland's Combined Sewer Overflow (CSO) Program has completed the 15th year of implementing the full array of projects that fulfill Portland's commitment to control all CSO discharges by December 2011. The City has completed all CSO projects for the Columbia Slough system resulting in several years of eliminating CSO[1] to the Slough. For the Willamette System River, Portland has completed construction of the 14-foot West Side CSO Tunnel and is in the Startup & Testing Phase for the Swan Island CSO Pump Station. In addition, the City has completed 100% design of the Eastside CSO Tunnel and initiated construction of the mining shaft. These activities are in addition to the City's stream separation projects and local basin improvements, which provide control CSO across the combined system.

The Annual CSO Progress Report, required under the Amended Stipulated and Final Order (ASFO), presents the activities completed during fiscal year that ends June 30. The highlights and note-worthy accomplishments from fiscal year 2005-2006 include:

- Completed the 14-foot diameter, 3.5-mile West Side CSO Tunnel and the related drop shafts.
- Completed the majority of the structures and installed most of the equipment for the Swan Island CSO Pump Station. Initial manufacturer testing and field acceptance testing by the contractor has begun.
- Completed the SW Parallel Interceptor Segment 3 that now provides CSO and sanitary sewer service to southwest Portland and delivers the flow to the Westside CSO Tunnel at the Clay Street Shaft.
- Completed the upgrade of the Columbia Boulevard Influent Pump Station from 105 to 135 MGD.
- Completed 100% design for the East Side Willamette River CSO Tunnel and initiated construction of the mining shaft at the OMSI / Opera site.

The City of Portland has completed each of the 22 milestones required in the ASFO (see last page of Appendix A for full list) that have come due through June 30, 2006. Portland's CSO Program is on schedule and moving aggressively through the next phase of controlling the Willamette River CSO outfalls. This past fiscal year (FY05-06), BES spent approximately $100 million for CSO control. Due to the massive facility construction program we have undertaken, we will expend an additional $160 Million in CIP funds in the next fiscal year constructing the required CSO facilities.

The significant activities we expect to complete next fiscal year ending June 30, 2007 include:

- Complete the West Side CSO Tunnel / Swan Island Pump Station, including the Peninsular Forcemain. These facilities, along with system improvements and the SW Parallel Interceptor, will control an additional 16 outfalls on the Willamette River.

[1] As reported previously to DEQ, 0.28 million gallons of CSO discharged to the Columbia Slough on December 28, 2005 due to operator error during a storm that did not meet the 5-year winter criteria.

- For the Eastside CSO Tunnel, complete the site preparations and initial work on the OMSI/Opera Mining Shaft as well as the Alder and Steel Bridge Shafts.
- Complete construction of the Tanner Phase III and Phase IV projects.

II. Introduction

Requirement for Annual Progress Report

This annual report to the Oregon Department of Environmental Quality (DEQ) is required under the Amended Stipulation and Final Order (ASFO) No. WQ-NWR-91-75 signed with the City of Portland (City) on August 11, 1994. During the period that the ASFO is in effect, the City is required to submit each year by September 1st an annual progress report summarizing the City's efforts to eliminate CSO discharges. The report is to contain information on CSO control activities performed during the past fiscal year and identify the CSO Program work planned for the current fiscal year. This report covers the CSO Program activities performed under the Capital Improvement Program (CIP) as well as the planning, operations, and maintenance activities performed by the Bureau of Environmental Services (BES) operating programs for the combined sewer and CSO systems during the past fiscal year.

Portland's Capital Improvement Program (CIP)

The City of Portland's Bureau of Environmental Services manages the planning, and implementation (pre-design, design, construction, & startup) of all capital projects. The CIP is divided into specific functional categories which include: CSO, Maintenance and Reliability, Sewage Treatment Systems, Surface Water Management, and Systems Development. The number of capital improvement projects, listed by program area, is shown in Table 1 below.

Table 1: Projects in Current Capital Improvement Program

Category	Projects Listed at End of FY 05-06	Projects Open During FY 05-06
Combined Sewer Overflow	335	36
Maintenance and Reliability	451	15
Mid-County Sewer	86	0
Sewage Treatment Systems	394	17
Surface Water Management	150	7
Systems Development	245	8
Total	**1,661**	**83**

At the end of fiscal year 2005-06, there were 1,661 individual projects listed in the CIP and 83 projects open during the year. For the CSO Program, there were 335 CSO projects listed in the CIP (see Appendix A for the CSO Capital Improvement Program Implementation Schedule). The 355 CSO projects represent the CSO Management Plan, as it currently exists within the City of Portland in terms of CIP activities. This report focuses primarily on the accomplishments of those projects. It should be noted, however, that there are projects in other CIP categories that have or will have a positive impact on water quality and the control and/or handling of CSO such as basement flooding control projects and improvements at Columbia Boulevard Wastewater Treatment Plant (CBWTP). These projects are not extensively covered in this report but represent other work BES performs that results in improved control of CSO discharges.

III. CSO Program Background

In 1991, when the Stipulation and Final Order (SFO) was issued by DEQ, approximately 60% of Portland's population was served by the combined sewer system. When a storm event occurred in the City that exceeded 0.10 inches in a few hours, stormwater runoff into the combined system would cause overflows to both the Columbia Slough and the Willamette River through up to 55 individual outfalls. Model simulations showed that the 1990 combined sewer system would discharge approximately 6.0 billion gallons of CSO to the Columbia Slough and Willamette River for an average year.

Since 1991, the City has implemented stormwater reduction facilities across the city (these are referred to as the "Cornerstone Projects"), improved interceptor system performance, and completed large CSO conveyance, storage and treatment facilities in the Columbia Slough system. These activities have resulted in CSO discharges being reduced by more than half citywide. In the Columbia Slough, CSO events have been eliminated for storms less than 5-year winter or 10-year summer return frequency. CSO discharge volumes to the Willamette River have been reduced from 4.8 billion gallons per year (1990 estimate) to 2.7 billion gallons per year, based on average annual rainfall. This represents an annual system-wide reduction of 55% since 1990.

In 1994, the SFO was amended to allow a more cost-effective approach for obtaining appropriate water quality benefits for the Willamette River. The new agreement, the Amended Stipulated Final Order (ASFO), retained a similar schedule such that the CSO controls would be implemented across a 20-year period from 1991 through 2011. The City has met or exceeded each of the regulatory requirements for CSO control identified in the ASFO. The ASFO contains the following major milestones for controlling the CSO outfalls:

- By December 1, 2000, the City must eliminate all CSO discharges to the Columbia Slough for storms equal to or less than the 5-year winter storm and 10-year summer intensities. [Milestone completed.]
- By December 1, 2001, the City must eliminate CSO discharges at 7 Willamette River outfalls for storms less than or equal to a 3-year summer storm and limit winter overflows to four or less per winter on average. [Milestone completed.]

- By December 1, 2006, the City must eliminate CSO discharges at 16 additional Willamette River CSO outfalls for storms less than or equal to a 3-year summer storm and limit winter overflows four or less per winter on average. [Startup and testing of final facilities currently in progress.]
- By December 1, 2011, the City must eliminate CSO discharges at all remaining Willamette River outfalls for storms less than or equal to a 3-year summer storm and limit winter overflows to less than four per winter on average. [Design completed and construction in progress.]

The ASFO has a number of intermediate milestones, including submission of this annual CSO progress report to DEQ by September 1 of each year that the ASFO is in effect.

IV. Past Fiscal Year Activities

The CSO abatement activities performed during the period beginning July 1, 2005 and ending June 30, 2006 are categorized in five subsections:

- ASFO Milestones Achieved
- Program Planning Accomplished
- CSO Control Projects Planned, Designed, and/or Constructed
- CSO Operation and Maintenance Activities
- Public Involvement Activities

A. ASFO Milestones Achieved

This past fiscal year contained one ASFO milestone for completing Portland's 20-year CSO program. In total, there are 38 milestones beginning with the first CSO Progress Report required in 1995 all the way through the final report in 2012 that will demonstrate the completed system's compliance with the ASFO performance criteria. The FY 04-05 milestone was #21, the Annual CSO Report. This milestone and the relevant ASFO section requiring the task are as follows:

> Milestone #22 – Annual CSO Progress Report for FY04-05 as per ASFO Section 12.a (11): "By no later than September 1 of each year that this Amended Order is in effect, the City shall submit to the Department and to the Commission for review an annual progress report on efforts to eliminate untreated CSO discharges, subject to the storm return frequencies specified in Paragraph 12.a. of this Amended Order."

In addition, the City completed design of the Eastside CSO Tunnel and initiated construction of the mining shaft at the OMSI/Opera site, as well as other shafts. Starting construction of the final phase for controlling all outfalls by 2011 is the 29th of 38 Milestones specified in the ASFO:

Milestone #29 – Begin construction of system required to control all CSO outfalls by December 1, 2011. ASFO Section 12.a (9): "By no later than May 1, 2008, the Respondent shall begin construction required to comply with Section 12.a.(10)"

B. Accomplishments in Program Planning

The CSO Program continues to develop and execute planning projects for facilities and activities that will cost-effectively control CSO and assure that the Program meets our regulatory obligations. Planning activities performed during Fiscal Year 05-06 include the following:

Portland's Facilities/System Planning

The Asset Systems Management Division, which is a new Division in Engineering Services formed to develop and execute Facilities Systems Planning, initiated the update to the Combined, Sanitary, Stormwater, and Treatment Systems Plans. A contract with CH2M HILL for management and expertise support was secured to help with the BES-led 3-year effort. The result will be a detailed Public Facilities Plan that is integrated with the Portland Watershed Plan and incorporates asset management techniques. At the time of this report, the Combined System Plan is approximately 50% complete.

CBWTP Facilities Plan Update

The City is also developing a comprehensive update to the Columbia Boulevard Wastewater Treatment Plant (CBWTP) facilities plan. This effort examines the liquid and solids processing necessary to handle expected loads for 2011, 2015 and 2020. This effort is expected to be completed during the 2007/2008 fiscal year.

C. Accomplishments in Predesign, Design and Construction

As noted in Section II, 36 of the 335 projects in the City's CIP directly related to the CSO Program were active during the fiscal year. To be "active" a project must have been in at least one of the following project phases:

- Predesign
- Design
- Advertise/Bid
- Construction
- Startup / Close Out

Appendix A provides a graphical status check for all of the 335 CSO projects. The major active projects are described in narrative summaries below.

Downspout Disconnection FY 05/06

During FY 05-06, the City continued the Downspout Disconnection Program in the East Willamette and Columbia Slough Watersheds. The Program was active in areas recommended by the 1994 CSO Facilities Plan (where sumps are installed) while also increasing focus on neighboring combined sewer areas outside of the original 1994 CSO Plan area.

Downspouts were disconnected at 1,528 homes. Of these homes, 750 were located in the original Cornerstone Project area defined in the 1994 CSO Plan and 778 were in the newly expanded Program area. This activity is estimated to remove about 30 million additional gallons of stormwater per year from the combined sewer system. Additionally, 451 homeowners (204 from sumped areas) signed up to disconnect downspouts but the work was not completed before the end of the fiscal year. Also, many homes were surveyed and found to have roof area already disconnected from the combined sewer.

Since the beginning of the Downspout Disconnection Program through June 30, 2006, the Program has disconnected downspouts at over 26,000 homes removing about 520 million gallons of stormwater per year from the combined sewer system. Of these homes, 16,601 are located in the original Cornerstone area while the remaining are in the new Program area. In addition, more than 30,000 surveyed homes have been found to have one or more downspouts already disconnected, resulting in a total of over 56,000 homes that have disconnected one or more downspouts, thereby removing an estimated 1.2 billion gallons of stormwater from the combined sewer system annually.

Sustainable Stormwater Program

BES has organized several parallel efforts to implement green solutions and stormwater inflow controls into a single integrated program titled the "Sustainable Stormwater Program". There are three primary program areas: (1) Pilot / Field Projects; (2) Policy and Technical Assistance; and (3) Education and Outreach related to sustainable stormwater strategies. Staff has also developed a monitoring program to document how much the different projects contribute to CSO reduction goals.

The Sustainable Stormwater Program includes three CIP projects included in previous CSO annual reports: the Eastside Inflow Controls Predesign Project; and the Holladay, Stark, and Sullivan Inflow Controls Project. The program also includes the Innovative Wet Weather Program, which began implementation in FY 04-05 and is funded by the City's operating budgeted and EPA grant funds.

Innovative Wet Weather Program (IWWP)

The IWWP is funded through an EPA grant for innovative projects that demonstrate sustainable, low-impact stormwater management solutions at sites in the CSO area. Funds have been earmarked for twenty-three projects in three categories: Water-quality Friendly Streets & Parking Lots, Downspout Disconnections, Bioswales and Ecoroofs.

Holladay, Stark, and Sullivan Inflow Controls Projects

In 2002 BES completed the engineering predesign to address capacity problems in the combined sewer serving the Holladay, Stark, and Sullivan basins. The predesign recommended a number of inflow control projects. In 2003 BES completed the first inflow control project, diverting runoff from 0.8 acres of paved surface into a landscape infiltration basin near Glencoe School. The project protects residents on SE 52nd from sewer backups. Design and construction of a second project near Mt. Tabor Middle School is currently underway. The project will divert runoff to stormwater infiltration systems from more than two acres of asphalt and roofs.

Tanner Creek Stream Diversion

The Tanner Creek Stream Diversion project continued with construction of the main separation conduits and completing design of the remaining segments. This stream separation project is divided into 5 phases. The last remaining two phases (Phase 3 and 4) are scheduled to be completed late 2006.

- Tanner Creek Phase 1 (from 17th & Johnson to 11th & Lovejoy): ***Completed***
- Tanner Creek Phase 2 (from 18th & Jefferson/Light Rail to 17th & Johnson): ***Completed***
- Tanner Creek Phase 3 (Sylvan/Canyon to Light Rail): Completed design for both stormwater/stream quantity and quality facilities along Highway 26 and under the Jefferson Ramp/Tunnel. Construction began in the spring and is currently underway as seen by the late-night lane closures and activities along the side of on Highway 26.
- Tanner Creek Phase 4 (North side of Washington Park along Burnside): Re-design was completed and construction initiated to direct the northside of Washington Park and surrounding stormwater areas into the new Tanner Creek stream pipe.
- Tanner Creek Phase 5 (From 11th & Lovejoy to the CSO Drop Shaft location at Upshur): ***Completed.***

California Stormwater Separation & Sanitary Pump Station Upgrade

The sewer separation project in the collection system contributing to the pump station was substantially completed in April 2003, and a flow-monitoring network was established to evaluate the quantity of wet weather flow to the California pump station, as well as the quality of the stormwater to the Willamette River to ensure no cross-connections to the storm lines.

Final design was completed with plans and specifications submitted for ODEQ Approval to Construct. Upon positive approval, BES advertised for a contractor and issued a Notice to Proceed in December 2005. Site work began in April 2006. Current expectations are to complete construction and initiate start-up and testing in September 2006. We expect to achieve final Project Completion and start the 2-year warranty period in October 2006.

West Side Willamette CSO Program Projects

The major accomplishments this year is the completion of construction and initial testing of the Westside Willamette CSO Project that will control most of the outfalls along the west side of the Willamette River. The specific projects contained in this program and the work accomplished include:

SW Parallel Interceptor (SWPI)

This critical CSO control facility for the Southwest Portland CSO area also provides needed sanitary capacity for the current and future development along the river. The Southwest Parallel Interceptor (SWPI) is divided into 3 distinct segments that generally parallel Macadam Boulevard. Segment 1 is aligned along SW Virginia from SW Taylors Ferry to SW Sweeney. Segment 2 stretches from Sweeney to Lowell primarily along the railroad right-of-way. Segment 3 extends from Lowell to the SW Clay Street drop shaft where it discharges into the Westside CSO Tunnel.

During previous fiscal years, Segment 1 and Segment 2 were completed. During this past fiscal year, the remaining elements of the Segment 3 pipeline were completed. All shafts have final structural linings installed and the site restoration work at the shaft sites is nearly complete. Upon startup later this calendar year, the Southwest Parallel Interceptor will control CSO from OF#01 through OF#07.

West Side CSO Tunnel, Shafts, Pump Station and Pipelines

The Westside tunnel will collect and intercept overflows from existing combined sewer outfalls that discharge to the Willamette River from the City of Portland's Central Business District and basins immediately north. The tunnel is approximately 18,000-feet long extending from the area near SW Clay Street, proceeding north paralleling the Willamette River to an area between NW Nicolai Street and NW 26th Street, then crossing underneath the Willamette River to a confluent structure and the Swan Island CSO Pump Station. The tunnel includes various shafts along the alignment with depths ranging between 100 to 150 feet. Specific shafts include:

- Swan Island Pump station shaft (135 feet diameter approximate)
- Confluent shaft for the West and future East CSO tunnels (45-ft diameter approximate)
- Four drop shafts along the alignment (outside diameter)
    - Clay Street 47-feet diameter
    - Ankeny 39- feet in diameter
    - Upshur 39-feet in diameter
    - Nicolai 60- feet in diameter

CSO Tunnel and Shafts

The construction of the walls, base slabs and internal structures are complete at all of the shaft locations. Final startup connections and site restoration work is all that remains to be done. The two drives for the Westside Tunnel (South and North) have all been completed with connections to the shafts secured and completed. The tunnel is ready to capture and convey combined sewage once the remaining surface connections to the SWPI and the drop shafts have been made, and once full testing of the Swan Island Pump Station has been completed.

Swan Island Pump Station

Located on Swan Island at the downstream end of the tunnel is a 220 Million Gallon per Day (MGD) dry-pit submersible pump station that transfers flow from the tunnel through a new force main system to the existing interceptors - Peninsular Tunnel and Portsmouth Tunnel. The pump station is designed to accommodate low-flow dry-weather conditions as well as peak wet weather flows up to the design capacity. The pump station design includes surge control equipment and other site improvements.

The structural components of the pump station are all complete including the surface structures, dual-power stations, and Operations & Maintenance Building. Currently the City is installing and testing the motors, pumps, hydraulic control equipment, valving, and the communications & remote control systems. Startup testing

Peninsular Force Main

The Peninsular force main system is a dual force main consisting of a 30-inch and 48-inch pipelines up to 1,400 feet in length each that will connect the new Swan Island pump station to the existing Peninsular Tunnel interceptor. This force main system will be used for pumping dry weather flow as well wet weather flows up to 100 MGD.

The two force mains have been installed and final connections to the Swan Island Pump Station and Peninsular Tunnel have been completed. Testing of the forcemains as part of the overall Swan Island Pump Station testing will begin in late summer 2006.

Portsmouth Force Main

The Portsmouth force main will connect the Swan Island Pump Station to the Portsmouth Tunnel interceptor and direct CSO to the CBWTP for treatment. The force main system will carry up to 120 MGD of CSO flow and will be complete in 2011. The preliminary design for this project is nearly complete. Value engineering review will soon take place to help finalize the 30% design documents.

Influent Pump Station Capacity Improvements

Contractor James W Fowler completed construction of the Influent Pump Station Capacity Upgrade (to 135 MGD) and Wet Weather Hydraulic Improvements during the past fiscal year. In addition to the construction work, BES Programmers have completed software modifications to integrate the new facilities into the CBWTP automation and supervisory control systems.

CBWTP Wet Weather Headworks

No activities were performed on the previously shelved design to upgrade the existing CBWTP Screenhouse into a 150 MGD Wet Weather Screening Facility. Construction of the wet weather hydraulic capacity structures and pipelines that were combined with the Influent Pump Station Capacity Upgrade project were 90% complete at the end of FY04/05. The Wet Weather Headworks will be part of the work to be completed on the CBWTP-CBWWTF site for the 2011 deadline.

Eastside Willamette CSO Program

Eastside CSO Tunnel Project

The purpose of the East Side CSO Tunnel is to control the overflows at 14 outfalls to the Willamette River by 2011. As the project has developed, the number of outfalls controlled by the tunnel was reduced to 12. Two outfalls are to be controlled through other mechanisms: OF 31 flows to be routed to existing interceptor system and OF 44A basin to be separated by December of 2011. The tunnel will be 29,530 linear feet (5.6 miles) long, 22 feet in diameter, and 85 to 165 feet deep.

The Design Project was completed in February 2006 and the Final Contract documents issued. The final project design will allow discharge from only 4 of the 14 outfalls during large storm events after the tunnel is completed in 2011. These 4 active outfalls will meet or exceed the ASFO performance standard for controlling CSO to the 3-year summer storm and the 4-per-winter storm.

The contractor (Joint Venture team of Kiewit-Bilfinger-Berge, KBB) was issued Notice to Proceed in March 2006. Work to date has primarily been in the preparation for and construction of 2 of the 7 tunnel shafts. The main mining site near OMSI / Opera is located at SE Caruthers Street and SE Water Avenue. Approximately 50% of the supporting infrastructure of the mining shaft is in place, including the mining shaft's exterior walls. This shaft will be used to launch the Tunnel Boring Machine (TBM) north and south and the surrounding area will contain equipment in support of the mining operations.

Construction of the large Alder shaft was also initiated. An existing building at SE 3rd and SE Alder was demolished in preparation for the construction this second shaft to the north. Construction of the shaft slurry walls will begin in September 2006 at this site.

The TBM has been ordered and is currently under construction in Germany. It is scheduled for delivery to Portland in February 2007.

Columbia Slough CSO Program

Since the completion of the Columbia Slough CSO facilities, the primary work performed on the facilities has consisted of operation, maintenance and monitoring. The large Columbia Slough Consolidation Conduit (CSCC) and the related pumping and conveyance system have performed well. The only overflow that has occurred was due to operator error during the December 28, 2005 storm. Approximately 0.28 million gallons was discharged when the water level in the Columbia Slough Consolidation Conduit exceeded the weir level at Outfall 57. The overflow event and its cause were reported to DEQ once the information regarding the event was clarified and documented. Other than that incident, there has not been an overflow from the CSCC system since it began operation in October 2000.

Combined Sewer Basin Relief & Reconstruction Projects

Basin relief and reconstruction projects in the combined sewer area are intended primarily to control basement and street flooding and address pipe condition and rehabilitation needs. A secondary purpose is to also provide projects that help reduce CSO flows to the river or to CSO facilities. This is typically done through stormwater management activities and/or inline storage projects that serve to reduce both flooding and CSO impacts. Although these projects are not considered "CSO Program" projects in the CIP, they nonetheless provide on-going reductions in CSO flows and help contribute to a higher level of CSO control.

Northwest Neighborhood Basin Relief & Reconstruction Predesign Project

- This project developed recommended plans to alleviate current and potential basement flooding problems, identify repair or replacement requirements for structurally defective pipes, and provide a level of CSO control consistent with the Clean River Plan. The project area consists of Balch, Nicolai, Tanner B and Fremont combined sewer Basins. During FY05-06 the project team completed the alternatives selection and developed the final Predesign Report (May 2006).

D. CSO Operation and Maintenance Activities

During the year the City continued implementation of operation and maintenance practices that reduce the impact of CSOs and stormwater on the receiving streams. These activities capture and remove pollutants, floatables and debris from the stormwater before it is discharged to the receiving streams from the CSO outfalls. The following information provides the magnitude of the **citywide** effort. Actual measurements and recorded data were not available for this report, so the following information represents estimates based on previous levels of activity:

- Sewer Cleaning: about 180 miles
- Catch Basin / Inlet Cleaning: about 16,500 units
- Drainage Sump/Sedimentation Manhole Cleaning: about 900 units
- Street Sweeping: about 52,000 curb miles

Diversion Structure Inspections and Modifications

The Diversion Structure Inspection Program is designed such that each active diversion structure that can overflow to a receiving water body (approximately 128) is inspected once a week. Diversions that overflow to a downstream facility (approximately 30) and do not pose a risk of direct discharge to the receiving water body are inspected once every two months. Overall, the City performed approximately 6,000 diversion inspections last fiscal year.

E. Public Involvement, Education and Information Activities

The focus of the CSO construction program has shifted from the west side of the Willamette River to the east side. CSO public involvement activities have changed to meet the needs of individual East Side CSO projects. The goals listed below are met through the public information and involvement activities:

Goal 1: Inform and involve residents and businesses in East Side CSO construction areas and the broader public about key issues such as noise, construction schedules and traffic plans.

Goal 2: Develop and maintain good working relationships between the public and project team members.

Goal 3: Meet construction timelines and minimize community impacts.

Goal 4: Respond to individual citizen or business concerns within 24 hours.

Goal 5: Help complete projects on time and within budget.

A public involvement plan is being implemented for the East Side CSO projects. Outreach activities for the East Side Willamette River CSO Projects continued during the past fiscal year. The projects include the East Side CSO Tunnel (East Side Big Pipe); SE 3rd Avenue utility relocations, SE 18th utility relations and construction of outfall structures, SE 20th utility relocations, construction of outfall structures, and connecting pipelines; tunnel access shaft construction at two of seven east side locations; and the Pre-Design Phase of the Portsmouth Force Main.

Outreach activities for the West Side Big Pipe Project are winding down as the start-up approaches in fall 2006. The main emphasis is on outreach activities for the East Side Big Pipe Project to provide for the latest project information to the public and to work with businesses along the tunnel and pipeline routes to minimize construction disruptions. Outreach provides businesses, residents, business and neighborhood groups with project information and opportunities to give input on project decisions, including construction mitigation measures and traffic plans. These activities are tailored to the needs of and impact to area communities. Site visits have been an invaluable tool to begin to develop the long-term relationships that will be needed for this project. In addition to involving impacted communities in CSO project decisions, the Bureau is committed to educating the public about environmental issues.

The BES Spill Prevention/Citizen Response Section is on call to respond to a CSO discharge to the Columbia Slough by posting Extreme Rain Event signs. They will be posted at potentially impacted recreational access points along the Columbia Slough between NE 13th Avenue and Kelley Point Park. There were no combined sewer overflows to the Columbia Slough in the last year.

The River Alert system also includes ten folding signs installed at public access points to the Willamette River. A contractor travels the river by boat and opens the warning signs each time there is a CSO from May 15 to October 15. Forty-eight hours after each CSO event ends, the contractor closes the warning signs. The contractor is required to supply BES with written verification that the signs were opened or closed and a report of the times the work was completed. Between October 15 and May 15, the signs remain open with the message in view for boaters and other river users.

River Alert Warning Sign

folds

The River Alert Hotline number displayed on the warning signs, 503-823-2479, is a 24-hour recorded message the public can call to learn if a CSO advisory is in effect and to hear a message about the CSO program.

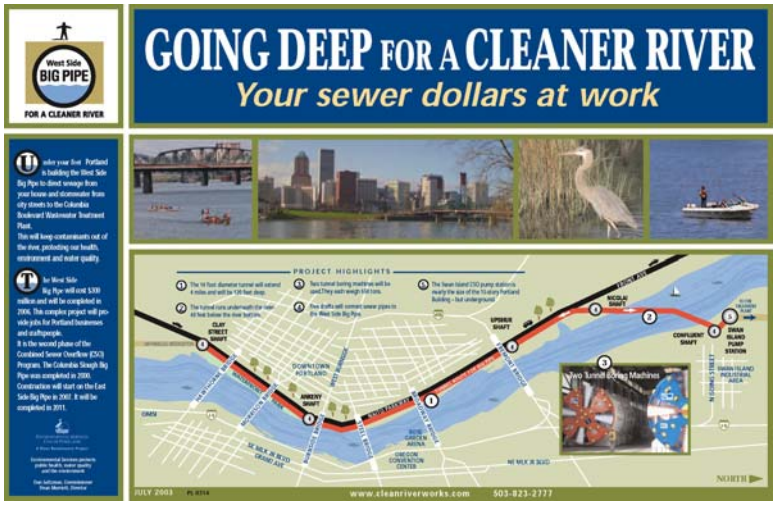
The River Alert program notifies the media by fax and email every time there is an overflow between May 15 and October 15. The Oregonian newspaper publishes an overflow icon on the top of the weather page when overflows occur. In addition, Internet users can visit the Environmental Services home page at www.portlandonline.com/bes to learn if a CSO advisory is

in effect. Internet users can also subscribe to automatic email notification each time a CSO advisory is issued.

- **Clean River Projects Construction Signage** requires contractors to post signage at any sewer system-related construction site to inform the public that the construction is a sewer project designed to keep our rivers and streams clean. In addition, BES posted large banners at West Side CSO project construction sites.

- **Environmental Services developed new CSO interpretive signage** this year and posted signs at six sites in Waterfront Park. The signs have updated information about CSO tunnel construction.

- **Media relations** draw the media's attention to CSO projects. Media advisories, news releases, traffic advisories, and media events are used to alert the media about CSO projects. Individual briefings are also held with reporters. The City provides timely, accurate responses to all media requests and keeps files of all newsprint and broadcast media coverage. In fiscal year 2005-2006, 28 media notifications regarding combined sewer overflow projects were released; eight were CSO advisories during the summer notification period and 19 were traffic advisories related to CSO construction.



- **Media Events** draw attention to significant milestones in the CSO Program. BES held three CSO media events in the last year.

  August 1, 2005 – The 16 foot diameter tunnel boring machine building the southbound segment of the West Side CSO tunnel finished tunneling and was lifted out of the Clay Shaft and disassembled. Television and newspaper photographers and reporters attended.

February 21, 2006 – East Side CSO project staff briefed reporters on East Side CSO projects.

May 12, 2006 – Project staff, dignitaries, contractors and media gathered for a groundbreaking ceremony for the East Side CSO tunnel project.

In addition to media events and media coverage, Environmental Services also made a public presentation to the Portland City Council in August 2004 to update the Council on the CSO abatement program. The briefing was covered by Portland media and broadcast on the community and government access channel of Portland Cable Access.

- **The Internet** provides current information about the City's CSO programs. Environmental Services has a website dedicated entirely to CSO construction projects, schedules, and impacts at www.cleanriverworks.com in addition to main BES website at www.portlandonline.com/bes.

V. Planned Efforts for Current Fiscal Year

Fiscal Year 2006-2007 activities to reduce CSO continue the implementation of the 20-year program to plan, design, construct, and operate Portland's CSO control system. The activities this fiscal year can be briefly summarized as follows:

- Complete construction, testing and full startup of the West Side Willamette CSO Tunnel and Swan Island Pump Station
- Continue construction of shafts for the East Side Willamette CSO Tunnel System; receive delivery of Tunnel Boring Machine.
- Continue operating, maintaining and monitoring the Columbia Slough CSO System to assure compliance with the ASFO and the NPDES Permit
- Continue implementation of stormwater inflow reduction projects in the form of the Downspout Disconnection Program

The current work is divided into the same five subsections used for the previous year's efforts.

A. ASFO Milestones to be Achieved

Fiscal year 2007 contains four ASFO milestones:

- Submit Annual CSO Progress Report - ASFO Section 12.a (11): "By no later than September 1 of each year that this Amended Order is in effect, the City shall submit to the Department and to the Commission for review an annual progress report on efforts to eliminate untreated CSO discharges, subject to the storm return frequencies specified in Paragraph 12.a. of this Amended Order."

- Control 16 new CSO outfalls on the Willamette River - ASFO Section 12.a (7): "By no later than December 1, 2006, the respondent shall eliminate untreated CSO discharges, subject to the storm return frequencies specified An Paragraph 12.a. of this Amended Order, at 16 of the remaining CSO discharge points, consistent with the facilities plan approved by the Commission"

- Submit Engineering Design Documents for 2011 Controls - ASFO Section 12.a (8): "By no later than December 1, 2006, the Respondent shall submit engineering plans and specifications for construction work required to comply with Section 12.a.(10)"

- Submit Updated CSO Facilities Plan - ASFO Section 21: "The Respondent may submit to the Department no later than December 1, 2001, and December 1, 2006, or at other appropriate times during the implementation of the facilities plan, an updated facilities plan report evaluating the effectiveness of CSO control technologies, including, if appropriate, recommendations for reevaluation of activities necessary to accomplish the requirements of this Order if new information or technology has become available. DEQ shall approve or disapprove the recommendations within six months of receipt of the updated facilities plan."

(Note: A Compliance Report will be required December 1, 2007 for the new Westside Willamette CSO Facilities).

B. Program Planning to be Accomplished

CSO program-level planning will continue during the current fiscal year as the City uses the completed CSO Sizing Predesign Report to serve as the basis for an Updated CSO Facilities Plan due to DEQ in December 2006.

In addition, the new Systems Planning effort will continue the process of examining the capacity and rehabilitation needs in the combined and sanitary systems. The end result will be a public facilities plan with recommended projects to address basement backups, SSOs and potential structural condition problems. BES expects to complete the combined and sanitary system plans in fiscal year 2008.

C. CSO Projects to be Predesigned, Designed and/or Constructed

The CSO control projects that will be in the predesign, design and/or construction phases during the current fiscal year include:

- During FY 06-07, the **Downspout Disconnection Program** will continue to disconnect downspouts at homes as well as small multifamily properties in the East Willamette Watershed served by the combined sewer.
- **California Pump Station Upgrade:** The California Wastewater Pump Station Improvements project is scheduled for substantial completion to occur late October 2006with testing and startup in November 2006. The 2-year warranty period will begin after that time.
- **Innovative Wet Weather Program:** Nineteen of the grant projects should be completed by the end of Summer 2006.
- **Holladay, Stark, and Sullivan Inflow Controls Project:** BES will construct infiltration systems at Mt. Tabor Middle School by the end of Summer 2006.
- **West Side Willamette CSO Tunnel / Swan Island CSO Pump Station / Peninsular Forcemain:** Complete full system startup and testing by the end of Fall 2006, with the system ready to be online by December 1, 2006.
- **Portsmouth Forcemain Project:** Initial full design effort based on the Preliminary Design Report (30% Design Documents).
- Construction of the **East Side Willamette CSO System** will continue throughout this fiscal year and are expected to continue through September 2011. The primary efforts through 2007 will be the construction of the exterior walls of the six remaining tunnel drop shafts and the delivery of the Tunnel Boring Machine. The excavation of the shafts will continue through 2009 with build out of the shafts continuing in stages through 2010. These shafts will be used to deliver CSO flows down to the tunnel, some 50 to 100 feet below the collector pipelines. During construction efforts, these shafts will provide the location for primary maintenance and repair work needed on the TBM as it travels along the alignment.

D. CSO Operation and Maintenance Activities Planned

During the current fiscal year the City will continue the implementation of operation and maintenance practices that reduce the impact of CSOs on receiving streams. This Citywide effort is expected to complete the following estimated project work:

- Sewer Cleaning: 200 miles
- Catch Basin/inlet Cleaning: 15,000 catch basin/inlets
- Drainage Sump Cleaning: 800 sumps/sedimentation manholes
- Street Sweeping: 60,100 curb miles
- Diversion Structure Inspections: Perform weekly inspections on all active diversion structures that directly overflow to the receiving stream and do not have automatic monitors/alarms; perform routine inspections on all other active diversions on a bi-monthly (once per two months) basis or as needed for maintenance and proper performance

E. Public Involvement Activities Planned

BES will continue to educate and identify opportunities for Portland residents, businesses and neighborhood groups to participate in CSO and watersheds enhancement projects. The City will expand efforts to increase citizen participation in project decisions, raise awareness about watershed issues and encourage citizens to become stewards for the Portland watershed. The Bureau will work closely with Neighborhood Coalition Offices and Associations to raise awareness about the CSO program, gain active public input on project decisions, and involve more citizens, businesses and neighborhood groups in watershed protection and restoration efforts. This year's activities include:

- Work with citizen committees and work groups to address issues regarding CSO project designs and construction plans. This will include continued community involvement and outreach for the East Side CSO Tunnel design now underway.
- Continue support of the Businesses for Clean Rivers Advisory Committee.
- Continue to conduct site visits to areas within the East Side CSO Tunnel alignment.
- Continue to give presentations to organized community groups and trade groups.
- Provide opportunities to provide face-to-face discussions such as open house activities.
- Develop informational materials that explain CSO projects, time lines, construction mitigation plans and opportunities to enhance impacted communities.
- Provide public involvement support for Willamette Stormwater Inflow Control Projects to encourage and assist commercial and industrial property owners in the combined area to remove stormwater from the combined system by creating on-site stormwater infiltration facilities. These facilities use more natural systems like swales, wetlands and native vegetation to detain and treat stormwater.

- Provide educational CSO classroom presentations and assembly program; develop a new CSO classroom activity that focuses on the history of sewers and implementation of the CSO solutions in Portland.
- Provide information to the public about the CSO program through special displays and computer kiosks in high traffic areas such as OMSI and businesses affected by construction.
- Provide guided tours of project sites and jet boat tours.
- Continue CSO River Alert signage and notification program.
- Distribute Citywide newsletters and quarterly bill inserts that inform citizens about the CSO program, watershed restoration activities and how citizens help protect Portland watersheds.
- Develop a speakers bureau / watershed workshop to highlight City of Portland water quality issues and projects such as the CSO Program to improve the Willamette River.

VI. Conclusions

This past fiscal year, the City completed its aggressive construction effort to complete the large-scale facilities for the West Side CSO Program. The City finished the West Side CSO Tunnel's northern and southern drives, completed the main structures for the Swan Island Pump Station, and completed the shafts and SW Parallel Interceptor that connect to the tunnel. These activities are in addition to completing the design and initiating construction of the East Side CSO Tunnel. Due to these efforts, the capital expenditure for the CSO Program was about $100 million this past fiscal year, and is expected to be $160 in this next fiscal year. These costs are in addition to the approximate $600 million in capital costs already expended over the past years for the Westside, Cornerstone Projects and the Columbia Slough CSO systems.

With the completion of the CSO Sizing & Predesign Projects, the Bureau's focus is being extended to plan for the projects that will need to occur after 2011 in order to maintain and increase the level of CSO control beyond the minimum requirements stated in the ASFO. These future, post-2011 projects are almost entirely "sustainable stormwater management" projects that are designed to infiltrate and treat additional stormwater off of difficult impervious surfaces while providing vegetation and green spaces for habitat and public amenities. To prepare for this post-2011 effort, BES is implementing many pilot and grant projects to develop a full base of experience and proven projects that will serve the Bureau in achieving the post-2011 goals for continued stormwater reduction and increased CSO control.

APPENDIX A

CITY OF PORTLAND - BES

CSO Capital Improvement Program Implementation Schedule

(Appendix A contains 37 pages including this title page)