Combined Sewer Overflow Program

Annual Progress Report to DEQ

ASFO WQ-NWR-91-75

Fiscal Year 00-01

June 30, 2001

ENVIRONMENTAL SERVICES
CITY OF PORTLAND
CLEAN RIVER WORKS

CITY OF PORTLAND
COMBINED SEWER OVERFLOW PROGRAM

ANNUAL CSO PROGRESS REPORT TO DEQ

FISCAL YEAR 00-01
(ASFO WQ-NWR-91-75)

CITY OF PORTLAND
BUREAU OF ENVIRONMENTAL SERVICES

JUNE 30, 2001

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I. Summary

The City of Portland has completed several projects and activities over the past fiscal year that are designed to minimize and/or eliminate Combined Sewer Overflow (CSO) discharges to the Columbia Slough and Willamette River. The activities can be categorized into three groups: System-wide activities, Columbia Slough activities and Willamette River activities.

The activities that benefit the entire combined sewer system control include:

- Continued implementation of the Cornerstone Projects to reduce stormwater inflow into the combined sewer system including Westside stream, local street separation, and extensive residential downspout disconnection.
- Completed construction of new wet weather treatment facilities at the Columbia Boulevard Wastewater Treatment Plant (CBWTP).
- Initiated design of the CBWTP Wet Weather Headworks for CSO flows in Year 2006.
- Continued CSO operation and maintenance activities to reduce the environmental impacts of current CSO discharges, including modifying diversion structures.
- Continued implementation of a comprehensive program for public information, public education, and public involvement.

The activities performed in the Columbia Slough system to control CSO include:

- Completed the Columbia Slough Consolidation Conduit (CSCC) and initiated operations in the fall of 2000.
- Completed the Columbia Boulevard Wastewater Treatment Plant Influent Pump Station (IPS)and initiated operations. The IPS pumps from the CSCC and delivers the flow into the main headworks of the treatment plant.

The activities performed in the Willamette River system to control CSO include:

- Completed work on the Willamette River Basin CSO Predesign Project (WRPP), which redefined the CSO control facilities to be designed for the West and East Willamette.
- Continued design of the Westside CSO Tunnel, the Swan Island Pump Station and the Peninsular Forcemain
- Continued design and construction of the Tanner Creek Stream Separation Project
- Completed design of the Southwest Parallel Interceptor which controls CSO flows from the southwestern area of the system.
- Initiated design of the California Pump Station to control CSO from Outfall #01.
- Continued design of the Carolina Stream Separation Project

The program to control CSOs is currently on schedule.

The planned activities for the current fiscal year that will help to minimize and/or eliminate CSO discharges to the Columbia Slough and Willamette River will include:

System-wide Activities:

- Continue to implement remaining Cornerstone Projects including Westside stream separation, local street separation and residential downspout disconnection.
- Complete design of the CBWTP Wet Weather Headworks
- Continue CSO operation and maintenance activities to reduce impacts of CSO discharges
- Continue program for public information, education and involvement.

Columbia Slough CSO Control Activities:

- Begin design of the upgrade for the CBWTP Influent Pump Station to handle additional flows from the Willamette in 2006
- Monitor and track performance of the Columbia Slough CSO system including the Consolidation Conduit, the Influent Pump Station, and the outfalls controlled by local separation.

Willamette River CSO Control Activities:

- Begin construction of the southern segment of the Southwest Parallel Interceptor
- Complete design of the California Pump Station
- Complete design of the Carolina Stream Separation Project
- Begin Design-Build phase for the Willamette CSO Tunnel, Swan Island Pump Station, and the Peninsular Forcemain
- Complete design of the Tanner Creek Stream Separation Project and continue construction.
- Monitor and track performance of the seven Willamette outfalls controlled by local separation.

II. Introduction

Requirement for Annual Progress Report

This report is submitted to the Oregon Department of Environmental Quality (DEQ) as required in the Amended Stipulation and Final Order (ASFO) No. WQ-NWR-91-75 issued to the City of Portland (City) by DEQ on August 11, 1994. The ASFO requires the City to submit by September 1 of each year the agreement is in effect an annual progress report summarizing the City's efforts to eliminate CSO discharges. The report is to contain information on activities performed during the past fiscal year and identifies the work planned under the CSO Program for

the current fiscal year. To meet this intent, this report contains information on the CSO Program activities that are performed under the Capital Improvement Program (CIP) and the planning, operation and maintenance activities performed by the Bureau of Environmental Services (BES) operating fund.

Portland's Capital Improvement Program (CIP)

The City of Portland's Bureau of Environmental Services manages the planning, design, construction, and implementation (startup) of all capital projects. The CIP is divided into specific area categories including CSO, Maintenance and Reliability and Surface Water Management. The number of capital improvement projects, listed by program area, are shown in Table 1 below.

Table 1 : Projects in Current Capital Improvement Program

Category	Projects Listed at End of FY 00-01	Projects Open During FY00-01
Combined Sewer Overflow	249	22
Maintenance and Reliability	344	50
Mid-County Sewer	86	0
Sewage Treatment	282	39
Surface Water Management	118	17
Systems Development	196	23
Total	**1,275**	**151**

At the end of fiscal year 2000-2001, there were 1,275 individual projects listed in the CIP and 151 projects listed as "open projects" during the year. For the CSO Program, there were 249 CSO projects listed in the CIP (see Appendix A for the CSO Projects in the current five year CIP). These 249 projects represent the CSO Management Plan in terms of CIP activities as it currently exists within the City of Portland. This report focuses primarily on the accomplishments on those projects. It should be noted, however, that there are projects in other CIP categories that have or will have a positive impact on the control and/or handling of CSO such as basement flooding control projects and CBWTP improvements. The status of those projects that do not have CSO reduction as a primary objective are not covered in this report.

III. CSO Program Background

When the Stipulation and Final Order (SFO) was issued by DEQ in 1991, approximately 60% of Portland's population was being served by a combined sewer system that collected both municipal wastewater (residential, commercial, and industrial sewage), municipal stormwater (roof runoff; street and paved surface runoff) and some urban streams. At that time, 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. Approximately 20% of the content of CSO discharges is estimated to be untreated municipal wastewater.

By June 30, 2001, the significant efforts by the City in implementing stormwater inflows controls (the Cornerstone Projects), improving interceptor system performance, and completing large CSO conveyance, storage and treatment facilities, have resulted in the CSO discharges being reduced by more than half city-wide. In the Columbia Slough, CSO events have been eliminated for all storms with less than 5-year winter or 10-year summer storms intensities (as estimated by computer modeling). Willamette overflows have been reduced from 4.8 billion gallons per year (1990 estimate) to 2.8 billion gallons per year (based on average annual rainfall).

The current ASFO is a continuation of the 20-year compliance schedule initiated in 1991 by the original SFO to reduce overflow from the City's combined sewer system. The ASFO includes the following major milestones:

- By December 1, 2000, the City must eliminate all CSO discharges to the Columbia Slough storms equal to or less than the 5-year winter storm and 10-year summer storm intensities. [This milestone has been completed.]
- By December 1, 2001, the City must eliminate CSO discharges at 20 of the CSO outfalls (including the 13 Columbia Slough outfalls) for storms less than or equal to a 3-year summer storm and limiting winter overflows to less than four per winter on average.
- By December 1, 2006, the City must eliminate CSO discharges at 16 of the remaining CSO outfalls along the Willamette River for storms less than or equal to a 3-year summer storm and limiting winter overflows to less than four per winter on average.
- 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 limiting winter overflows to less than four per winter on average.

Also included in the ASFO are a number of intermediate milestones, including the submittal of annual progress reports to DEQ by September 1 of each year that the ASFO is in effect. Other submittal milestones to be addressed soon include:

- The City must report to the Environmental Quality Commission (EQC) in a public forum on its progress for achieving further reductions in CSO discharge frequency and volume beyond the ASFO level as outlined in paragraph 23 of the Agreement. The public meeting shall be at a time agreed upon by the Commission and the City in the years 2001 and 2010.
- By no later than December 1, 2001, the City shall submit final engineering plans and specifications for construction work required to comply with section 12.a.(7)
- The City 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 is available.

IV. Past Fiscal Year Activities

The CSO abatement activities performed during the period beginning July 1, 2000 and ending June 30, 2000 can be categorized into the following 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

Two ASFO milestones were achieved on schedule during the past fiscal year:

1. ASFO Section 12.a (4): The City shall eliminate all untreated CSO discharges to the Columbia Slough, subject to the storm return frequencies specified in Paragraph 12.a. of this Amended Order, by no later than December 1, 2000.
    - CSO discharges to the 13 Columbia Slough Outfalls have been eliminated for storms equal to or less than the 5-year winter and 10-year summer storm frequency.
    - The outfalls that have been controlled by the construction of the Cornerstone Projects and the Columbia Slough Consolidation Conduit and Influent Pump Station include:
        - OF65: NE 13th
        - OF64: NE Mallory
        - OF63: N Vancouver
        - OF62: N Albina
        - OF62A: N Albina
        - OF61: N Fenwick
        - OF60: N Kenton
        - OF59: N Bayard
        - OF58: N Chautauqua
        - OF57: N Fiske
    - The outfalls controlled by the Cornerstone Projects coupled with street and roof separation with treatment of the separated stormwater at the Ramsey Lake Wetland include:
        - OF56: N Oregonian
        - OF55: N Oswego
        - OF54: N St Johns A – Pier Park

2. 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.

B. Program Planning Accomplished

Planning continues to be an important aspect of the bureau's work in supporting the CSO Program. Program planning is important to insure that the technical requirements of the ASFO are met within the schedule and budget constraints of the CSO Program. Important planning activities accomplished during the fiscal year were as follows:

- Completed the Willamette River Predesign Project which significantly refined the CSO control alternatives for the Willamette system identified in the 1994 CSO Management Plan. The Willamette River Predesign Report documents the analyses, findings and recommendations for the Willamette CSO system. The major changes to the 1994 Plan recommended by the Willamette Predesign include:
    - Build a Southwest Parallel Interceptor to serve the southwest portion of the CSO area including California, Carolina, Lowell, Woods and Sheridan basins.
    - Treat all Willamette CSO at Columbia Boulevard Treatment Plant instead of placing a wet weather treatment plant on the Willamette.
    - Utilize more of the existing system and the new Columbia Slough Consolidation Conduit capacity to deliver Willamette CSO to the treatment plant.
- Portland's Clean River Planning Efforts: The Clean River is a draft strategic approach addressing multiple regulatory requirements and works towards integrating the activities of Environmental Services including: CSO control, watershed restoration, stormwater management, operations and maintenance, stewardship, coordination, and flood protection.
    - The BES Planning Group has initiated several planning efforts to further refine the Clean River Plan including the Tryon-Fanno Watershed Plan, the Willamette Watershed Plan, the Monitoring Plan and the Revegetation Plan. These efforts, initiated during this fiscal year, will provide specific guidance to the bureau for helping to meet the requirements of the ASFO, Endangered Species Act, and the city's NPDES permits.
    - The City of Portland is also working to integrate multiple efforts that impact watershed health under an "umbrella" process called the "River Renaissance." The focus of the River Renaissance is to develop common work plans that address watershed health, water quality, the City's response to ESA-listings, Willamette Greenway, Portland Harbor Superfund efforts, and the Clean River Plan activities. The effort is being led by the River Renaissance Management Team consisting of management level representatives from all of the major city bureaus.

C. CSO Control Projects in Predesign, Design and/or Construction

As noted in Section II, 22 of the 249 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
- Close Out/Startup

A review of the schedules in the Appendix A information will provide a visual indication of the status of each of the 22 projects. The following text provides a narrative summary for some of the major projects and project groups.

Downspout Disconnections

During FY 00-01, the City implemented the Program in a large area of the East Willamette Watershed focusing on the areas projected to be done under the 1994 CSO Facilities Plan but also performing disconnections in neighboring combined sewer areas that are in addition to the CSO Plan area.

In the East Willamette watershed, downspouts were disconnected at 3,431 homes removing over 68 million additional gallons of stormwater per year from the combined sewer system. Of these homes, 2127 were located in the sumped (CSO Plan) areas removing over 42 million gallons of stormwater per year from the combined sewer system. An additional 1600 homeowners (840 from sumped areas) signed up to disconnect downspouts but the work was not completed before the end of the fiscal year. 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, 2001, downspouts have been disconnected at over 12,800 homes removing over 256 million gallons of stormwater per year from the combined sewer system. Of these homes, 10,785 were located in the sumped (CSO Plan) areas removing over 216 million gallons of stormwater per year from the combined sewer system. A map of the downspout disconnections performed during the entire program period as well as during the past fiscal year is provided in Figure 1.

Tanner Creek Stream Separation

Continued to work on the various components of the Tanner Creek stream separation work that has been divided into 5 phases. Phase 1 (segment under Jefferson Street MAX line) has been completed in previous fiscal years.

- Tanner Creek Phase 2: Began construction of tunnel in NW Portland to connect Phase 1 (under Jefferson MAX line) to Tanner Outfall.
- Tanner Creek Phase 3: Continued design of upper Canyon Road segment that will collect main Tanner Creek flows and discharge into Phase 1 segment.

- Tanner Creek Phase 4: Revised design of northern segment that collects streamflow from upper Nicolai basin and connect with Tanner Phase 2 segment.
- Tanner Creek Phase 5: Continued construction of 72" CSO pipe to connect existing combined system to the Westside CSO tunnel and preserve the outfall for the separated Tanner Creek flows.

West Side CSO Projects

With the completion of the Willamette River Predesign Project, BES created several new projects and immediately initiated design work on the facilities required to control the Westside Willamette CSO discharges. The specific projects and work accomplished include:

California Pump Station Upgrade

Initiated design to upgrade this facility to control CSO from California Outfall #01.

Carolina Stream Diversion Project

Initiated design to separate stream and stormwater from the Carolina Basin (OF#03 & 04) including stormwater treatment and conveyance of both the stream flows and the treated stormwater to the river.

SW Parallel Interceptor

Finished design and initiated bidding process to begin building a parallel interceptor sewer from SW Taylors Ferry to the Marquam Bridge to control CSO overflows from OF #03 through #07.

West Side CSO Tunnel, Pump Station and Force Main

Initiated design of this integrated system which will include 20,000 feet of soft ground tunnel of 14-diameter pipe at depths from 70 to 120 feet below the ground surface. Project starts north of Marquam Bridge and terminates at proposed Swan Island Pump Station. The pump station will have a future capacity of 220 MGD but will initially only require 100 MGD capacity to pump the Westside CSO flows to the existing Peninsular Tunnel interceptor.

Influent Pump Station Capacity Improvements

Initiated design to upgrade the CBWTP Influent Pump Station from 105 MGD to 135 MGD capacity to manage the additional flows from the Westside CSO system.

CBWTP Wet Weather Headworks

Initiated design of new headworks structure to allow 150 MGD of wet weather flows to enter CBWTP in addition to the current 300 MGD headworks. This project is required to treat Westside CSO flows that will arrive at the plant in Year 2006.

NW CSO Pump Station and Forcemain

Cancelled the design of this pump station to lift CSO's from the West Side CSO Tunnel to the Portsmouth Tunnel in NW Portland. Project was replaced by the Swan Island Pump Station and Peninsular Forcemain.

Ankeny Pump Station Upgrade

Postponed this project to design the upgrade of the existing Ankeny Pump Station to handle CSO flows. This project was replaced by the new design for the West Side CSO Tunnel and Swan Island Pump Station.

Sellwood Basin CSO & Relief Projects

BES is performing several projects in the Sellwood Basin in Southeast Portland to control basement flooding and reduce CSO. The specific projects and work accomplished include:

Garthwick Combined Sewer Basin Relief

Continued design of relief project that will install new combined pipes, perform partial sewer separation, and implement a high level of downspout disconnection to eliminate basement flooding and control CSO to Outfall #26A.

Umatilla Pump Station Upgrade

Continued design of upgrades to existing pump station for increased capacity and to provide part of the control of CSO discharges to Outfall #27.

Sellwood Reliever

Continued design of this sewer separation and flow re-direction project to reduce flows that can cause CSO discharges from Outfall #27.

Sellwood Diversion Manholes

Continued design to reconstruct diversion manholes to divert Sellwood combined sewage into Insley Trunk and reduce Sellwood CSO discharges.

Sellwood Interceptor Upgrade

Continued design of project to replace and improve existing Sellwood gravity interceptor which conveys sewage to the Umatilla Pump Station. Project will reduce CSO discharges to Outfall #27.

Columbia Slough Program

The following are four of the main projects in the Columbia Slough Program that were completed during the past fiscal year and will be operated to capture, store, convey and treat the CSO from the Columbia Slough Basins.

Columbia Slough Consolidation Conduit (CSCC)

The Columbia Slough Consolidation Conduit will intercept and collect the flow from 10 outfalls that previously overflowed to the Columbia Slough. The 5 segments of the CSCC design and construction work that impacts CSO control was fully completed early in the last fiscal year.

Columbia Boulevard Wet Weather Treatment Facilities (CBWWTF)

The Columbia Blvd. Wet Weather Treatment Facility (CBWWTF) project consists of construction of new primary clarifiers to treat up to 120 MGD of dry weather flows, modifications of existing primary clarifiers to treat up to 240 MGD of wet weather flows, expansion of the existing chlorination system, modifications of the existing effluent pump station, construction of a new dechlorination facility, modifications of the screen house, odor control, and environmental enhancements as part of the commitment to the local communities. Each of the components was completed last fiscal year and operation was initiated as required to meet the ASFO schedule.

CBWWTF Influent Pump Station

The Influent Pump Station is intended to lift Combined Sewer Overflows from the Columbia Slough Consolidation Conduit into the plant influent channel. Construction and operation testing was fully completed during the last fiscal year.

Columbia Slough Outfall

This completed and operating facility is a second outfall pipeline/diffuser that expands the peak flow capacity of the Columbia Blvd. Wastewater Treatment Plant outfall system. The new pipeline consists of an underwater crossing of the Oregon Slough; crossing of Hayden Island; connection to the new Hayden Island Dechlorination Facility; and a diffuser in the Columbia River. The project construction and startup was completed last fiscal year and the outfall is now in operation.

D. CSO Operation and Maintenance Activities

During the year the City continued implementation of operation and maintenance practices that reduced the impact of CSOs on the receiving streams. Although the following represents the citywide effort, the majority of this work was performed within the CSO area:

- Sewer Cleaning 162.5 miles
- Catch Basin/lnlet Cleaning 14,350 units cleaned
- Drainage Sump Cleaning 1,823 units cleaned
- Street Sweeping 55,697 curb miles

Diversion Structure Inspections and Modifications

BES weekly inspects the CSO diversion structures that can possibly result in dry or wet weather discharges to the receiving waters. A map of the location of Portland's CSO diversion structures is shown in Figure 2. During the past fiscal year, approximately 160 diversions were inspected each week totaling 8,320 inspections.

As a result of CSO Program planning and the performance of the diversion structures as determined by the weekly inspections, several modifications to the diversion structures were performed during the past fiscal year as well. The diversion structures that were modified are shown in Figure 2 and summarized below in Table 2.

Table 2 : Diversion Structures Modified During FY00-01

Diversion Number	Location	Date of Modification	New Dam Height (inch)	Description of Modification
SW99	SW Taylor's Ferry Road and Fulton Park (OF to Willamette)	October-2000	26	Removed old wood dam. Built new dam of bricks & rebar
SE145	SE 17th Avenue and SE Tibbets Street (OF to Willamette)	November-2000	40	Reshaped bottom, removed weir lip, reconstructed dam.
E12	N Borthwick south of N Russell (OF to Willamette)	December-2000	14.25	Replaced existing dam with new plastic dam
E17	N Borthwick north of N Russell (OF to Willamette)	December-2000	10.56	Replaced existing dam with new plastic dam. Baffle plate height is 5-5/8 inches.
E18	N Flint south of N Russell (OF to Willamette)	December-2000	11.19	Replaced existing dam with new plastic dam. Baffle plate height is 5 inches.
E21	N Russell west of N Williams (OF to Willamette)	December-2000	20.125	Replaced existing dam with new plastic dam. Baffle plate height is 8-1/8 inches.
E22	205 N Russell (OF to Willamette)	December-2000	18.56	Replaced existing wood dam with new plastic dam. Baffle plate height is 6-3/4 inches.
NW 9	N Oregonian Avenue and N Armour Street (OF to Columbia Slough)	February-2001	26	BOM raised dam to 26 inches above flow line elevation of outfall pipe.
LW1	N McKenna Avenue and N Yale Street	March-2001	n/a	BOM completed abandonment of storm outfall pipe. It was taken out of service as a Diversion MH.
NW 20	N Oswego Avenue 100ft south of N Columbia Blvd. (OF to Columbia Slough)	April-2001	26	BOM raised dam to 26 inches.
NW 20D	N Columbia Blvd and N Oswego Avenue (OF to Columbia Slough)	April-2001	19	Removed bottom of MH and DIP 90 degree elbow. Poured new trough. Installed dam to approximately springline of storm MS out of MH. Formed new channel.
NW 20A	N Mohawk 50ft south of N Columbia Blvd (OF to Columbia Slough)	April-2001	19	Removed bottom of MH DIP 90 degree bend. Raised existing dam 15 inches. Poured new MH bottom.
NW29	N James and Bruce in Pier Park (OF to Columbia Slough)	June-2001	2.67	BOM raised dam 14 inches. Reshaped downstream channel to improve hydraulic performance.
SE175	SE McLoughlin & Insley (OF to Willamette)	June-2001	4.04	Removed wooden extension from top of dam. Installed new 21-inch wooden extension on top of concrete dam.

E. Public Involvement, Education and Information Activities

CSO Program public involvement activities have expanded to meet the needs of individual projects identified by the Willamette CSO Predesign Project. As projects move from design to construction, the goals listed below are met through the public involvement activities:

Goal 1: Inform and involve residents and businesses within the proposed alignment area and the broader public about key issues such as alignment, construction schedules and traffic plans.

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

Goal 3: Meet design and 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.

Public involvement plans have been developed for each Columbia Slough and Willamette CSO project.

Columbia Slough CSO projects successfully involved citizens in project design decisions. The CBWTP Citizen Advisory Committee (CAC) met and provided input to CSO projects during the year. Several of the CAC members served on the Conduit Steering Committee and the Outfall Advisory Committee which provided input to outfall design and construction. Citizens provided input to the Columbia Slough Consolidation Conduit (CSCC) and the CBWWTF Outfall Project which are now constructed and fully operational. The Bureau and community members together celebrated the completion on the Columbia Slough projects by holding community fair at the Columbia Boulevard Treatment Plant.

Outreach activities Willamette River CSO Projects continued during the past fiscal year. The Willamette CSO Projects included the: Westside Stream Diversion, Southwest Parallel Interceptor, Ankeny Pump Station, Westside CSO Tunnel, Northwest CSO Pump Station, Northwest CSO Force Main, California Pump Station Upgrade, Cheltenham Storage, and Tanner Creek Stream Diversion.

Outreach activities have been and will continue to be conducted during predesign, design and construction of these projects to provide businesses, residents and neighborhood groups with project information and opportunities to give input on project decisions, including: pipe alignment, construction mitigation measures and traffic plans. These activities are tailored to the needs of and impact to area communities and have included:

- **Databases** - Developed 13 databases containing over 48,360 residents and businesses. This information helps the bureau keep business and residential property owners, neighborhood, business and tenants associations and other stakeholder organizations within the project area informed about the project.
- **Project Fact Sheets** - Developed 42 project fact sheets and distributed them to over 112,400 citizens and businesses to provide an overview of the CSO program, background information on the project, the purpose of the design and construction phases. Also provided a mail-in feedback form to solicit community input.

- **Community Presentations** - Provided 55 presentations for 1,450 meeting participants representing neighborhood, business and tenant associations as well as to other key stakeholder groups within the project area to provide an overview of the CSO program, the project and design and construction issues.
- **Public Meetings** - Held 15 meetings during project design and construction phases to provide more detailed information on the recommended alignment and solicited concerns and ideas regarding the project.
- **Site Visits** - Conducted 245 site visits with businesses and residents along construction routes and within the project area to resolve design and construction issues. These issues include business and residential access, parking, construction hours and issues and traffic management.
- **Watershed Walks and Tours** - Provided 12 walks and tours attended by 185 citizens to them gain better understanding of the CSO program and learn how they can help protect Portland watersheds.

In addition to involving impacted communities in CSO project decisions, the Bureau is committed to educating the public about environmental issues.

- **Educational Presentations** focusing on water quality issues were provided to Portland schools and community groups. Environmental Educators made over 500 presentations. A special Combined Sewer Overflow presentation is available for students in grades 6 to 12. Students learn the history of the CSO problem, talk about solutions, and discuss how to pay for improvements. More than 10,000 students were contacted with information about river pollution problems during the fiscal year.

- **A Clean Rivers student art contest** was held in April. The students were 4th grad students from schools in North Portland. The winning students were awarded prizes at the Big Pipe Party and Fish Friendly Fair. All student artwork was displayed in the lobby of the Columbia Boulevard Treatment Plant Headworks Lobby during the Fair.

- **Educational Tours** of the Willamette River have been provided to classrooms and youth groups who have received educational presentations and learned about the City's CSO program.

- **OMSI display** – OMSI exhibit staff developed the concept for a 5 year exhibit that would be housed in the museum's main science section (just outside the Watershed Lab). The exhibit would highlight the CSO program components. OMSI will work with BES to seek partners to sponsor the construction of the exhibit.

The City also has an ongoing public information program that provides CSO program information to the general public.

- **Public Notification/River Alert Program** includes 55 CSO identification signs that indicate where outfall pipes are located. It also includes 14 folding signs with the message "WARNING: SEWAGE" and the River Alert Hotline number, 503-823-2479. The public can call the hotline at any time to hear a message about the CSO program and to learn if a CSO advisory is in effect. The folding signs are opened and closed every time there is an overflow from May 15 to October 15 each year. During the winter months, the signs remain open with the message in view for boaters and other river users. The River Alert program notifies the media (by fax) every time there is an overflow from May 15 to October 15. The Oregonian newspaper publishes an overflow icon on the top of the weather page when overflows occur. In addition, 5 CSO warning signs on the Columbia Slough remain open year round.

- **Clean River Works Construction Signage** requires contractors to post signage at any sewer system-related construction site with the Clean Rivers message to inform the public that the construction is a sewer project designed to keep our rivers and streams clean.

- **Media Relations** draw the media's attention to CSO projects. Media advisories, news releases 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. This past year, 33 media notifications regarding combined sewer overflow projects were released. Thirteen were related to actual combined sewer overflows during the summer notification period.

- **Five major media events** were held this year. In September 2000 local news reporters were invited to view the Columbia Slough Consolidation Conduit (The Big Pipe). They were allowed to enter the pipe (before it was in use) and walk it a quarter mile to the Influent Pump Station. In November 2000 a media event was held to highlight the Tanner Creek Sewer Project. Reporters were able to take footage of the exposed original 100-year old Tanner Pipe. In January 2001 the City announced the use of a micro-tunnel boring machine for use on the CSO projects in NW Portland. Use of this technology allowed the City to avoid open cut construction in many areas of NW and SW Portland. In January 2001 the City announced reaching the halfway mark on the CSO project. In May 2001 the City celebrated the completion of the Columbia Slough CSO clean up with a dedication ceremony and hosted the Big Pipe Party and Fish Friendly Fair.

- **The Big Pipe Party and Fish Friendly Fair** was held on Saturday, May 19, 2001. The fair was attended by more than 300 North Portland neighbors. More than 25 organizations participated in the event. It included tours of treatment plant, displays, booths and information and awards.

- **Bill Inserts** were enclosed in water/sewer bills to provide 165,000 residential customers with information about the combined sewer overflow program.

- **Web Site (**www.enviro.ci.portland.or.us) provided current information about the City's CSO programs to the general public.

V. Planned Efforts for Current Fiscal Year

The current fiscal year's efforts for CSO control will initiate one of several consecutive years of increasing activity, design and construction of CSO control facilities. The bureau's activity for CSO reduction for this fiscal year will be dominated by the design-build work for the Westside Willamette CSO facilities. Portland will continue to aggressively implement inflow controls such as downspout disconnections, and the new Columbia Slough CSO facilities will be operated and monitored to assure compliance with the ASFO. The current year's work is divided into the same five subsections used for the previous year's efforts.

A. ASFO Milestones to be Achieved

This fiscal year contains multiple milestones in the ASFO covering both required submittals and outfalls to be controlled. The ASFO milestone for controlling CSO discharges this fiscal year focuses on 7 Willamette Outfalls to be added to the 13 Columbia Slough Outfalls already controlled by December 2000:

- ASFO Section 12.a (4): By no later than December 1, 2001, the Respondent [City] shall eliminate untreated CSO discharges, subject to the storm return frequencies specified in Paragraph 12.a. of this Amended Order, at 20 of the CSO discharge points, including discharges to Columbia Slough, consistent with the facilities plan approved by the Commission.

The submittals that are required by ASFO this fiscal year include:

- 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.
- ASFO Section 12.a (5): By no later than December 1, 2001, the Respondent [City] shall submit final engineering plans and specifications for construction work required to comply with section 12.a.(7) [Control of 16 additional outfalls on the Willamette.]
- ASFO Section 12.d: Requiring Respondent to demonstrate that each untreated CSO discharge has been eliminated, subject to the storm return frequencies specified in Paragraph 12.a. of this Amended Order, by a means approved by the Department, within twelve months of the scheduled date when compliance is required in this Amended Order
- ASFO Section 24: Report to the Environmental Quality Commission (EQC) in a public forum its progress for CSO reductions as outlined in paragraph 23 (environmental improvements beyond the required storm frequency) at a time established by the Commission and the City in the years 2001 and 2010.

The City is committed and positioned to achieve each of these ASFO milestones. In addition, the City 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 is available.

B. Program Planning to be Accomplished

CSO Program level planning will continue during the current fiscal year. The activities that will directly impact the CSO Program include:

- Portland's Clean River Planning Efforts: The CSO Program staff will be working with the BES Planning Group to further integrate the stormwater elements of the CSO Program into the watershed approach directed by the Clean River Plan.
- The BES Planning Group will continue the top priority planning efforts to further refine the Clean River Plan. These efforts consist of the Tryon-Fanno Watershed Plan, the Willamette Watershed Plan, the Monitoring Plan and the Revegetation Plan.
- The City of Portland will also continue the new efforts to integrate key city functions that impact watershed health under the "River Renaissance." BES will continue to lead and participate in the River Renaissance Management Team which will direct the work to integrate the city activities. BES is one of three bureaus serving as the executive committee for the River Renaissance Management Team.

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:

- Final design of the Westside CSO Facilities consisting of the Westside Tunnel, Swan Island Pump Station and the Peninsular Forcemain. These projects will also quickly move into the "Design-Build" phase that will allow construction to begin sooner as needed to meet the ASFO schedule.
- Continuation of the inflow reduction projects (including stormwater infiltration sump construction, downspout disconnections, stream diversion projects, and sewer separations). Specifically, the Downspout Disconnection Program will initiate Phase III of the Program which will expand the downspout disconnection work into the combined areas that have not been sumped or separated.
- The Eastside Inflow Controls Predesign Project is a new effort to specifically define the stormwater inflow control sites, technologies and activities that will meet the direction of the Clean River Plan's Action #3. The Predesign project will examine site-specific stormwater inflow controls for all Eastside Willamette CSO basins and determine their effectiveness in reducing basement flooding facilities and CSO operating costs. The recommended inflow controls are expected to provide watershed benefits by increasing natural functions of runoff infiltration and areal coverage of vegetation.
- Design will continue on the Columbia Boulevard Wet Weather Headworks Project.

- Design will be completed and construction will continue on the Tanner Creek Stream Separation Project
- Construction will begin on the Southwest Parallel Interceptor
- Design will be completed and construction will be begin on the Sellwood Basin CSO & Basin Relief Projects

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 will include the following project work:

- Sewer Cleaning: 189 miles
- Catch Basin/inlet Cleaning: 19,000 catch basin/inlets
- Drainage Sump Cleaning: 1,940 sumps/sedimentation manholes
- Street Sweeping: 62,300 curb miles
- Diversion Structure Inspections: Perform weekly inspections on all active diversion structures

E. Public Involvement Activities Planned

The public involvement planned for this year 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 continue with previous activities and 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:

- Working with citizen committees and work groups to improve CSO project designs and construction plans;
- Developing informational materials that explain CSO projects, time lines, construction mitigation plans and opportunities to develop enhance impacted communities;
- Conducting watershed walks and boat tours;
- Recruiting and training volunteers for watershed restoration projects;
- Developing and implementing the Willamette Stormwater Control Program which will encourage and provide assistance to commercial and industrial property owners in the combined area who are willing remove stormwater from the combined system by creating on-site stormwater infiltration facilities. These facilities will use more natural systems like swales, wetlands and native vegetation to detain and treat stormwater;
- Providing educational CSO classroom presentations;

- Continuing the CSO River Alert signage and notification program; and
- Distributing a City-wide newsletters and quarterly bill inserts that help inform citizens about the CSO program, watershed restoration activities and how they can help protect Portland watersheds.

VI. Conclusions

This past fiscal year, the City met some of the most significant ASFO milestones to control CSO discharges to the Columbia Slough by December 2000. The City continues to make good progress and is on schedule towards the target reduction of Willamette CSO discharges as indicated by the list of accomplishments described above and the planned work for this current fiscal year. The progress by the City in reducing CSO discharges is demonstrated by these specific accomplishments.

- The Columbia Slough CSO discharges are now eliminated for storms up to the 5-year winter and 10-year Summer storm intensities.
- All 12 of the 38 SFO/ASFO milestones that have become due have been met on schedule.
- With the completion of the Columbia Slough CSO Facilities, the implementation of the Cornerstone Projects, interceptor system improvements, and diversion structure modifications, the City has eliminated an estimated 3.2 billion gallons/year of CSO from the Columbia Slough and Willamette River. This represents 100% of the required control for the Columbia Slough, 42% of the required Willamette River control, and a total city-wide level of control of 53% in terms of CSO volume.
- The City is carrying out the more detailed planning efforts required to refine the Clean River Plan while also coordinating with the city-wide River Renaissance program to integrate the workplans of the different bureaus to enhance watershed health in Portland. Implementation of the Clean River Plan will depend on available revenue beyond that which is required for the mandated CSO projects.
- The City conducted substantial operation and maintenance of the CSO collection system during the past fiscal year to reduce the environmental impact of current CSO discharges, and the City plans to continue with this effort during the current fiscal year.
- The public involvement/public outreach activities will continue to expand and improve the public's understanding of the City's combined sewers and the impact of CSO discharges on water quality in the Columbia Slough and the Willamette River.

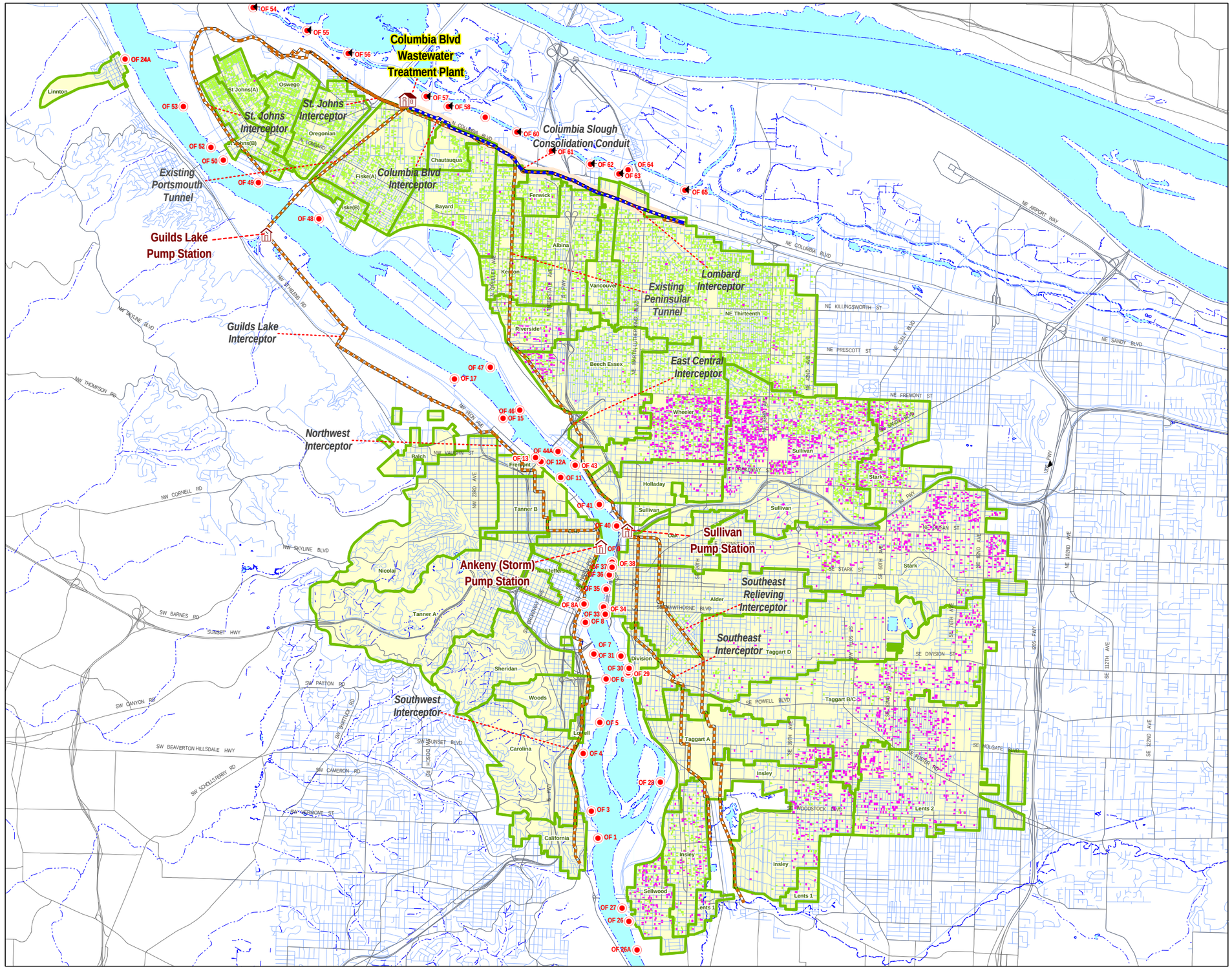
APPENDIX A

CITY OF PORTLAND - BES

CSO Capital Improvement Program Implementation Schedule

(Appendix A contains 30 pages including this title page)

FIGURE 1
Downspout Disconnection Program Activities
FY 2000 - 2001



Legend

- CSO Outfalls and Number
- Exisiting Major Interceptors
- Columbia Slough Consolidation Conduit
- Columbia Blvd Wastewater Treatment Plant
- All Properties Inspected by Downspout Disconnection Program During 07/01/2000 - 06/30/2001
- All Properties Inspected by Downspout Disconnection Program up to Present Date
- Combined Sewer Basin Boundary

N
W E
S

0 3000 6000 9000 ft

Workspace:
Disco_Activities.WOR

Systems Analysis

Produced In MapInfo(\\OberonGis2\Projects\145-31-030\Virgil\A082701\Disco_Activities.WOR) ATT August 2001

FIGURE 2
Existing CSO System and Diversions Modified FY 2000 - 2001

N
W E
S

0 1000 2000 3000 ft

Systems Analysis

Columbia Blvd Wastewater Treatment Plant

St. Johns Interceptor

Columbia Blvd Interceptor

Columbia Slough Consolidation Conduit (CSCC)

Lombard Interceptor

Guilds Lake Interceptor

East Central Interceptor

Northwest Interceptor

Southwest Interceptor

Ankeny Pump Station

Sullivan Pump Station

Southeast Relieving Intterceptor

Southeast Interceptor

AAB545
AAA797
AAB717
AAA806
AAB719
AAH039
ABC437
ABC448
ABC331
ABC443
ABC518
ABZ093
ACH894
ACY274

St Johns(A)
Oswego
Oregonian
St Johns(B)
Fiske(A)
Fiske(B)
Chautauqua
Bayard
Fenwick
Albina
Kenton
Vancouver
NE Thirteenth
Riverside
Beech Essex
Wheeler
Balch
Fremont
Tanner B
Holladay
Sullivan
Oak
Nicolai
Mill/Jefferson
Alder
Tanner A
Sheridan
Woods
Lovell
Carolina
California
Division
Taggart A
Insley

W ST JOHNS BRDG
N MARTIN LUTHER KING
N INTERSTATE AV
NE MARTIN LUTHER KING BLVD
N LOMBARD ST
I405 RP
I5 FRWY
NE WEIDLER ST
BROADWAY BRDG
I84 FRWY
I84 RP
CBD
BURNSIDE BRDG
W BURNSIDE ST
NW LOVEJOY ST
SE 12TH AV
SE 11TH AV
SE MADISON ST
SE HAWTHORNE
HAWTHORNE BRDG
SW BROADWAY DR
SW FRONT AV
I5 RP
SW BARBUR BLVD
SW BEAVERTON HILLSDALE HWY
SW CAPITOL HWY
SW BERTHA BLVD

Willamette River

Legend

- Columbia Blvd Wastewater Treatment Plant
- Major Pump Stations
- Diversion Structures Modified FY 2000-2001

Existing Diversion Structures
- Combined
- Storm
- Sanitary

- Columbi Slough Consolidation Conduit

Major Interceptors
- Columbia Blvd Interceptor
- East Central Interceptor
- Guilds Lake Interceptor
- Lombard Interceptor
- Northwest Interceptor
- Southeast Interceptor
- Southeast Relieving Intterceptor
- Southwest Interceptor
- St. Johns interceptor
- Tryon Creek Interceptor

- Combined Sewer Basin Boundary

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