

Combined Sewer Overflow (CSO) Program

**City Council Update
June 1, 2011**



ENVIRONMENTAL SERVICES
CITY OF PORTLAND

working for clean rivers

Combined Sewer Overflow (CSO) Program Milestones

1991

DEQ issues SFO

CSO Program
starts

1994

CSO Facilities
Plan
completed

DEQ issues ASFO

1996

focused
Willamette
River
planning
begins

2000

Columbia
Slough
outfalls
controlled

2006

Willamette
River
west side
outfalls
controlled (16)

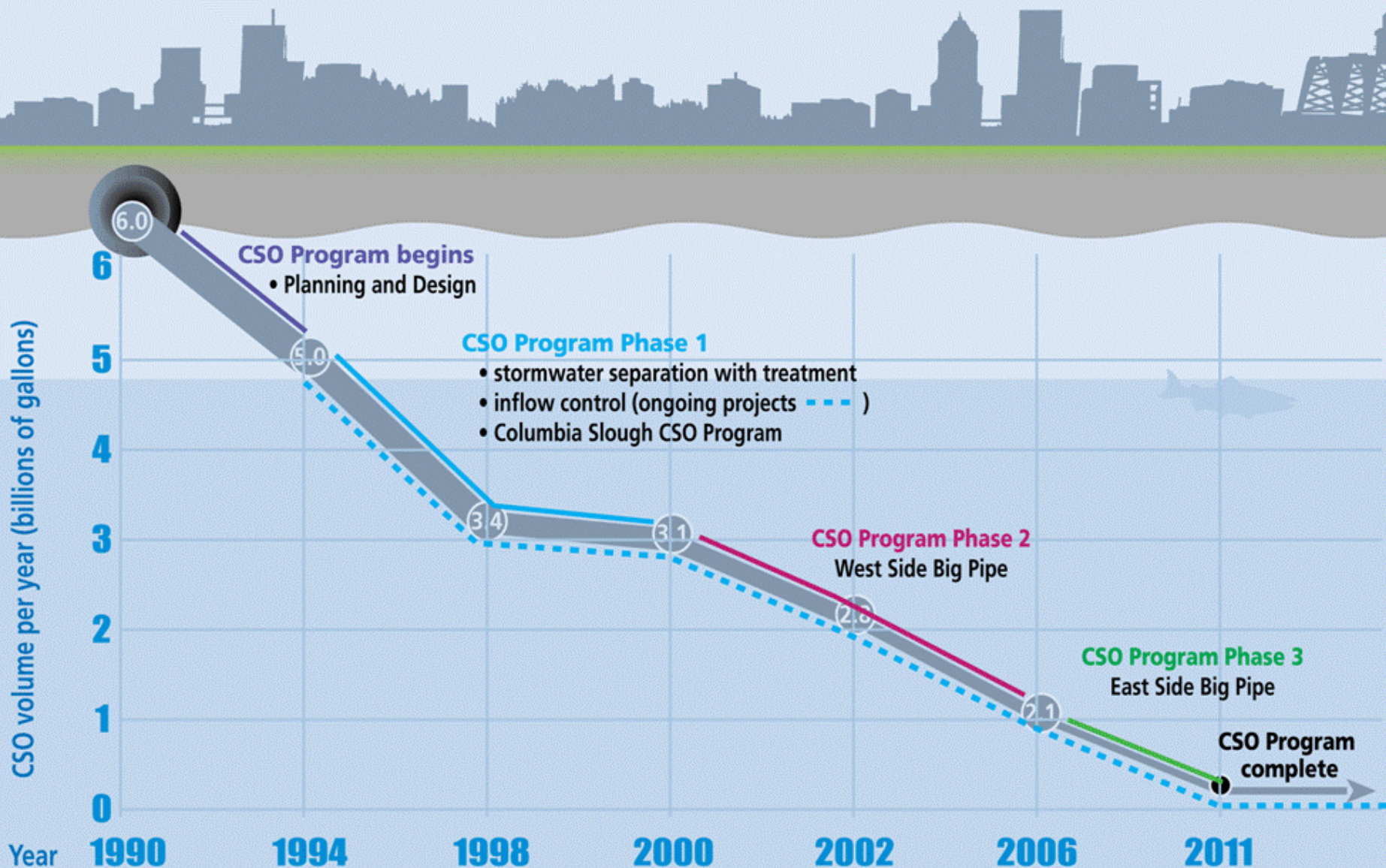
2011

Willamette
River
east side
outfalls
controlled

**CSO Program
complete**

ASFO Allowable Overflows
Winter: 4 per year
Summer: 1 every 3 years

Portland's Combined Sewer Overflow Reductions



Countdown to Control CSO Outfalls

- All 13 Columbia Slough Outfalls controlled by
✓ December 2000 - Completed
- 7 Willamette River Outfalls controlled by
✓ December 2001 - Completed
- Next 16 Willamette River Outfalls controlled by
✓ December 2006 - Completed
- Final 19 Willamette River Outfalls controlled by
December 2011 - Underway

Cornerstone Projects

- Downspout Disconnection Program
- Infiltration Sumps – UICs
- Stormwater Separation with Water Quality Facilities
- Tanner Creek Stream Diversion
- Eliminated 2 billion gallons of CSO volume per year

Portland's Downspout Disconnection Program

1993-2011



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Early History

- Planned in 1993 as one of four Cornerstone Projects to remove stormwater from the sewer system
- Limited to east side CSO properties
- Two years of pilot testing to develop safety standards
- Program adopted by council in 1995 for residential properties
- Expanded to small multifamily and commercial properties in 2004



Meeting Targets

Target Area	Deadline	Original Roof Disconnection Goal	Completed Rate
St. Johns	1999	80%	86%
Columbia Slough	2000	51%	54%
Sellwood	2006	70%	72%
Willamette	2011	1127 acres	1130 acres to date



Community Building and Engagement

- Community engagement through financial incentives
 - Technical assistance and reimbursement to property owners
 - Community groups receive reimbursement to disconnect at no cost to property owners
 - Gutter contractor completes more complicated work at no cost to property owners
- Over 100 community, neighborhood, youth and church groups disconnected over 14,000 downspouts
- Weekend event, school day and ongoing intern opportunities for involvement
- Consistent and persistent outreach and education



Safe and Cost Effective

- Cumulative program budget spent: \$13M
- All disconnections inspected and approved by field staff
- Easy and simple solutions that meet safety guidelines
- Average \$0.02 per gallon or \$7,000 per acre managed



Wrapping Up

- Over 56,000 downspouts disconnected at over 26,000 properties
- 1.2 billion gallons of stormwater per year are removed from the combined sewer system (20% of total CSO volume)
- Countless hours of one-on-one engagement with local residents



Where do we go from here?

- Those downspouts are still important!
 - Tunnels sized based on disconnection goals
 - Need to keep downspouts disconnected
- Maintenance and reliability phase
 - Fixes, repairs, maintenance reminders
 - Spot surveys of disconnected downspouts
 - Maintain, maintain, maintain
- Targeted private property partnerships to manage stormwater



Green Infrastructure

Ecoroofs

Swales

Planters

Green Streets

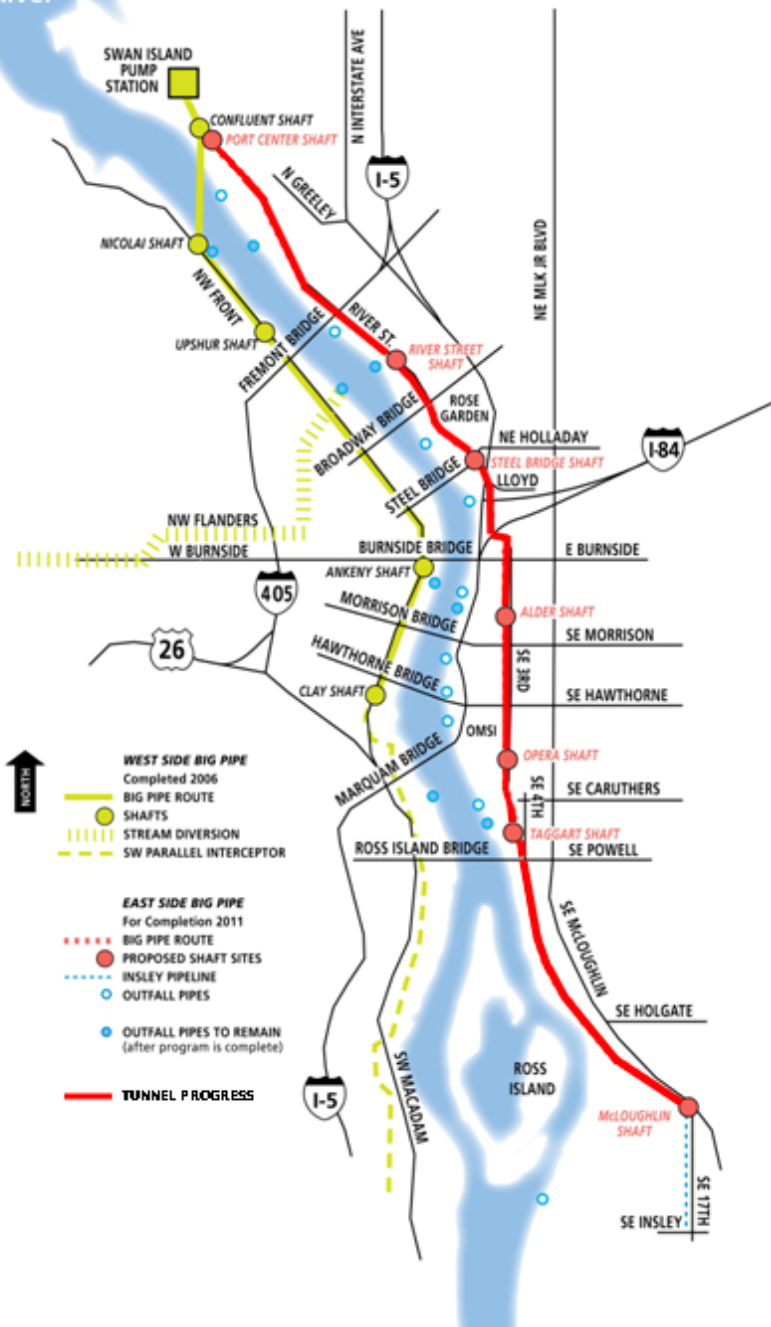


Green Infrastructure Jobs

A photograph of two construction workers installing a stormwater management system. One worker in a red shirt and orange helmet stands in the background, while another in a green shirt and orange helmet is kneeling in the foreground, working on a black plastic liner. A large pile of gravel is on the left, and a yellow excavator is partially visible in the top left corner. The scene is outdoors on a paved area.

- Estimated FY 2011 Public and Private Sector Jobs Related to Green Infrastructure Investments: 200

Willamette River



East Side CSO Tunnel Project

- 6 mile long tunnel
- 22 foot diameter
- 85 to 165 feet deep
- Seven large shafts – approximately 50 feet in diameter
- Overall project is 96% complete
- Expected Completion - August 2011

ESCSO Construction Contract

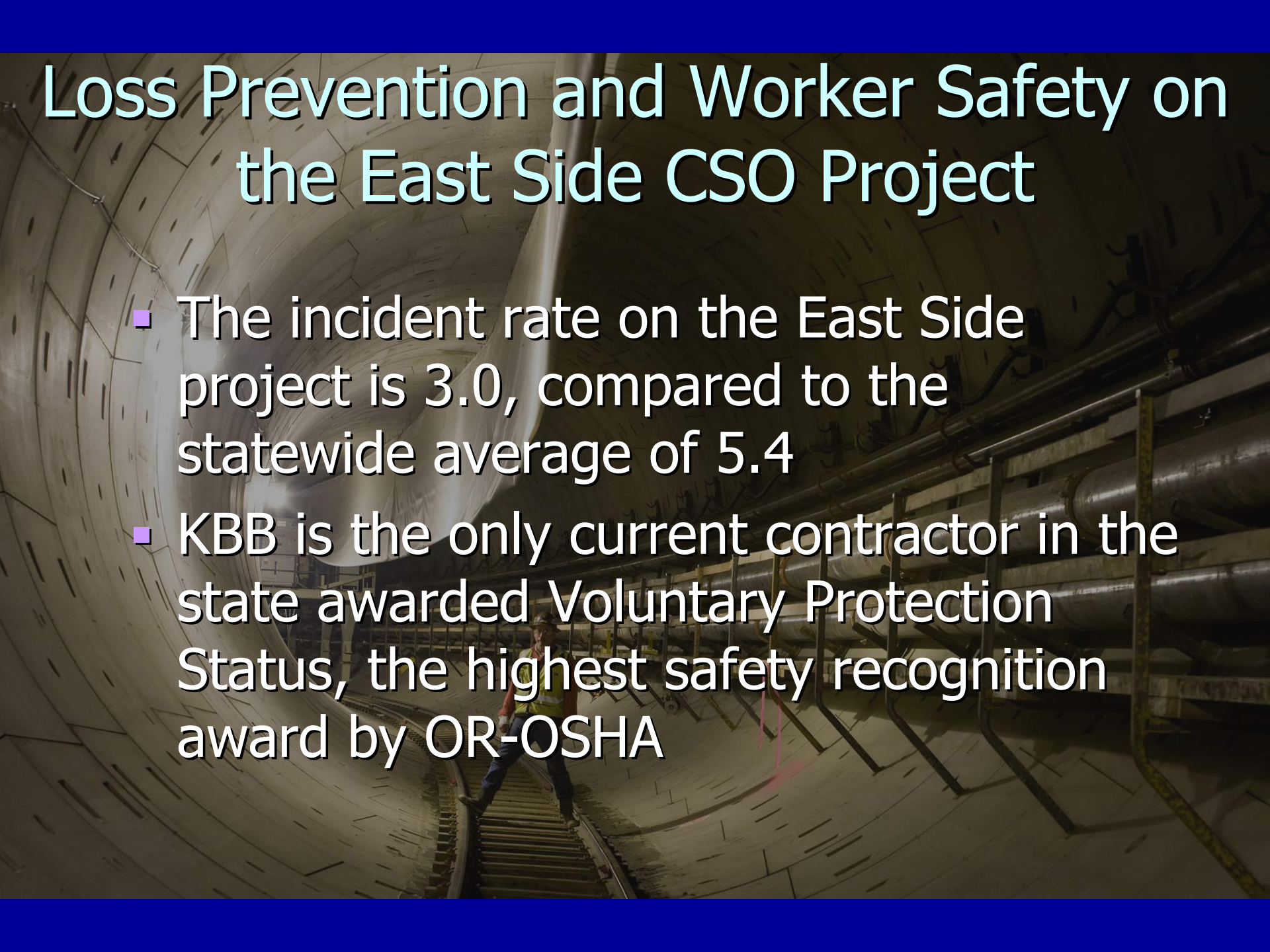
- Contractor: Kiewit/Bilfinger Berger JV (KBB)
- Base Contract Amt. (2011 \$): \$426,291,149
- Risk Contingency: \$ 38,000,000
- Original Constr. Budget: \$464,291,149
- Estimate at completion: \$390,000,000

ESCSO Employment

- 200+ first-tier subcontracts, mostly local (over 400 total subcontracts)
- \$30,980,000 M/W/ESB subcontracting to date exceeds goal by over \$4,000,000
- 100 craft workers currently employed on the tunnel project

Loss Prevention and Worker Safety on the East Side CSO Project

- The incident rate on the East Side project is 3.0, compared to the statewide average of 5.4
- KBB is the only current contractor in the state awarded Voluntary Protection Status, the highest safety recognition award by OR-OSHA



Portsmouth Force Main

- 66-inch line across Swan Island and under N. Willamette Blvd
- Will carry CSO flow from Swan Island Pump Station to the existing Portsmouth gravity line



Segment 1 – Swan Island Alignment

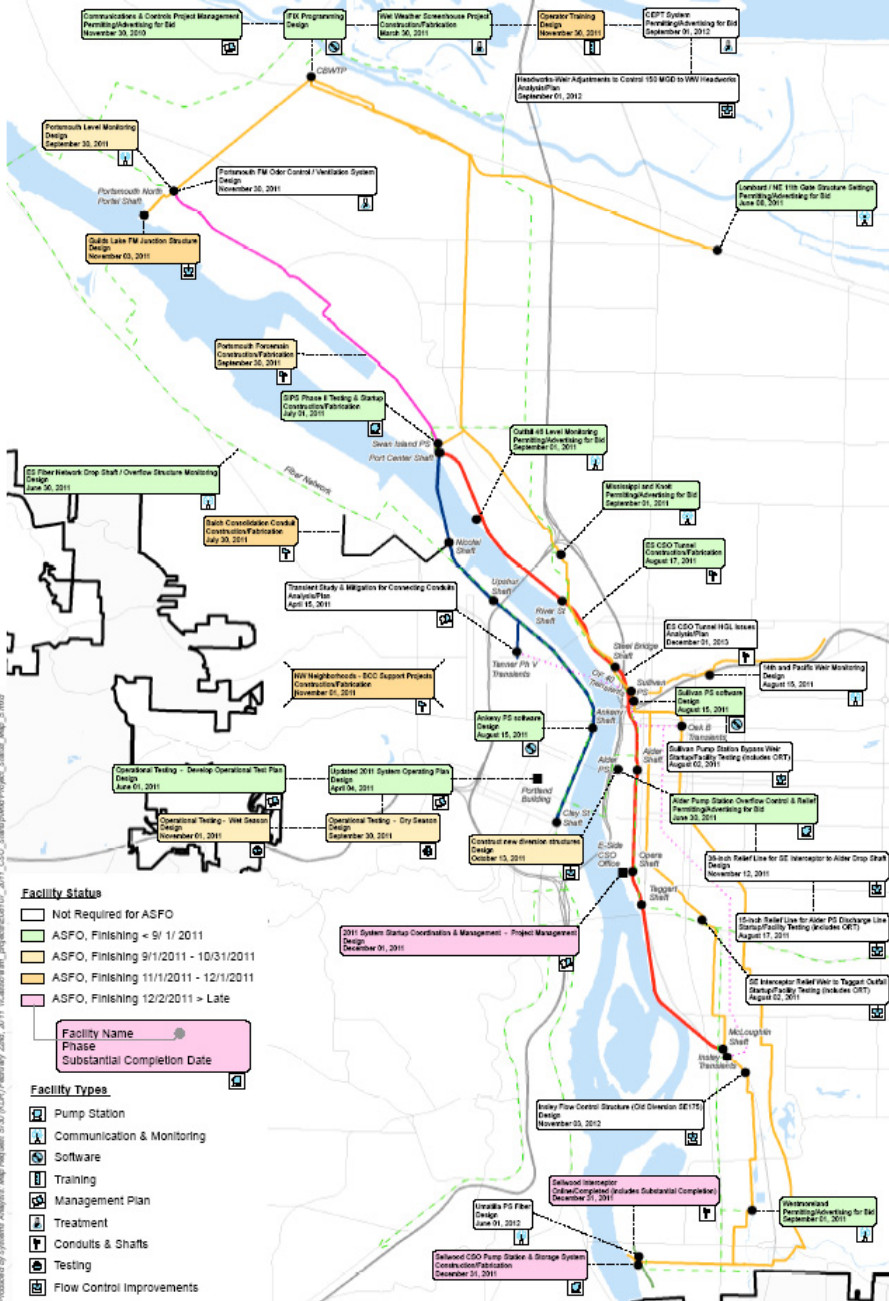


■ Projected completion June 10, 2011

Segment 2 – Bluff Alignment

- Accelerated construction due to difficult ground conditions
- Projected completion – Sept. 30, 2011





- All areas shown coming together by Dec. 1, 2011
- Extensive instrumentation and control to coordinate operation of major CSO projects

Council Item No. 544

- Portland Streetcar and TriMet Light Rail also working in ESCSO staging area
- Permit-of-Entry and property sublease agreement between BES and TriMet is on today's agenda for Council approval
- Allows ESCSO and Light Rail to proceed simultaneously on same project site

A large construction crane is the central focus of the image, its lattice structure extending from the bottom left towards the top right. The crane's arm is horizontal, and its vertical tower is prominent. The background is a bright blue sky with scattered white clouds. In the lower right, a small figure of a person is visible on a rope or cable, adding a sense of scale to the massive crane. The overall scene is a construction site at dusk or dawn.

East Side CSO Review Committee

City Council Report

June 1, 2011

Bill Martinak, Chair