Willamette River Combined Sewer Overflow (CSO) Program

City Council Update
April 14, 2010

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

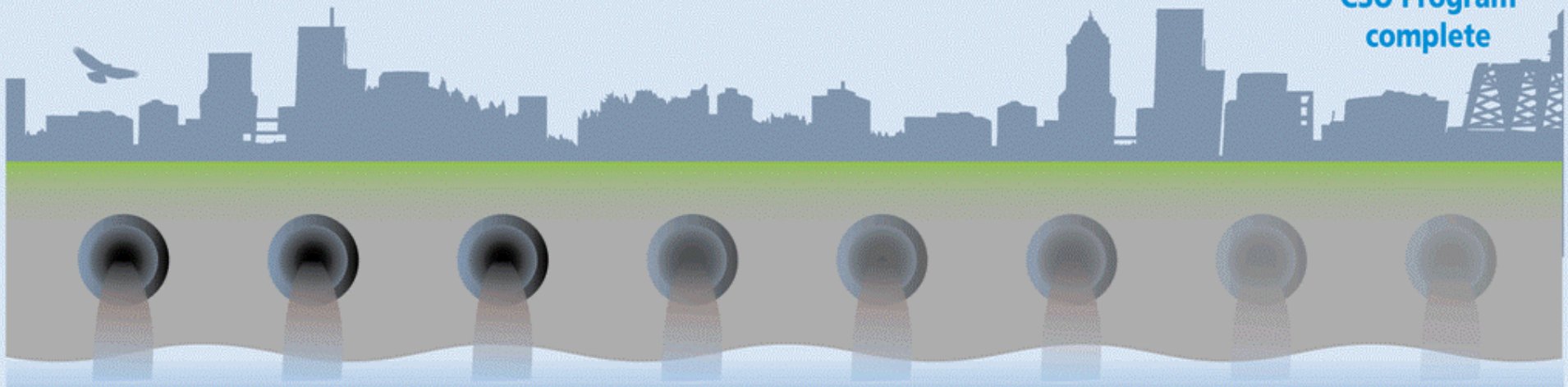
1996
focused Willamette River planning begins

2000
Columbia Slough outfalls controlled

2006
Willamette River west side outfalls controlled (16)

2011
Willamette River east side outfalls controlled

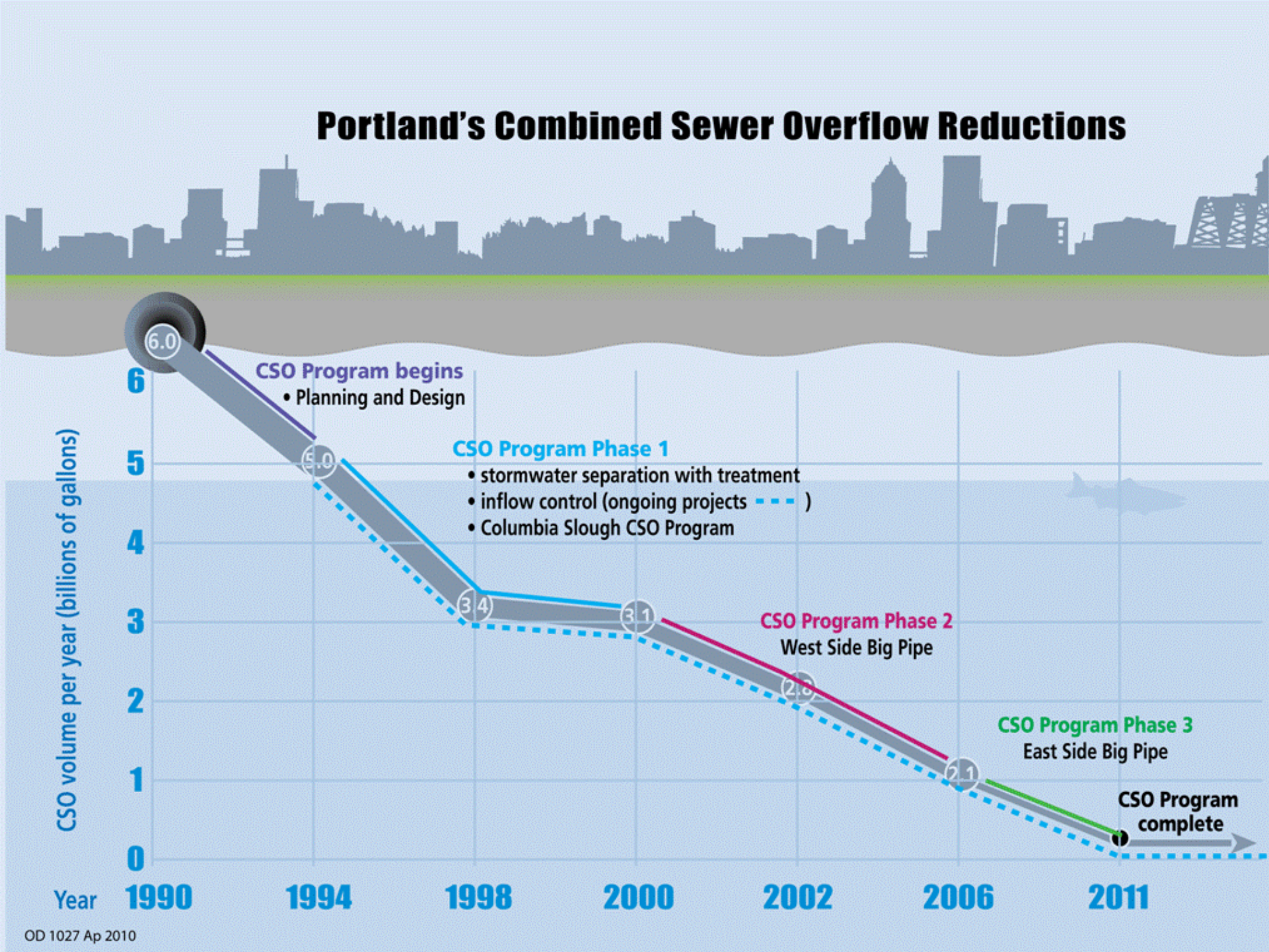
CSO Program complete



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

OD 1027 Ap 2010

Portland's Combined Sewer Overflow Reductions



OD 1027 Ap 2010

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

Downspout Disconnection Program

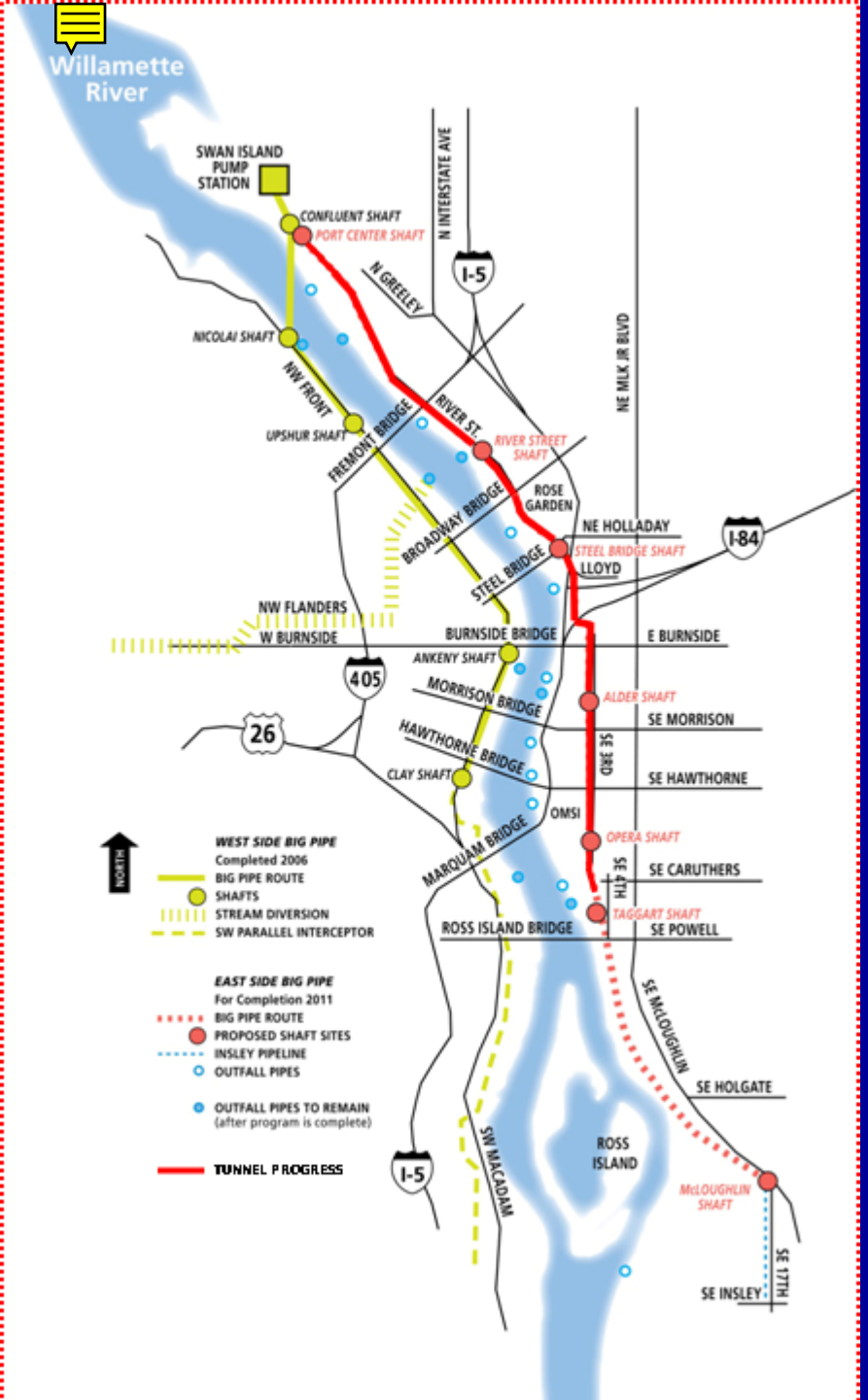
- Began in 1996 - one of the CSO Cornerstone Programs
- Nearly 26,000 property owners have disconnected more than 52,000 downspouts
- Disconnections keep 1.5-billion gallons of stormwater out of sewers annually

Green Infrastructure

- Ecoroofs
- Swales
- Planters
- Green Streets

Ecoroofs

Green Streets



East Side CSO Tunnel Project

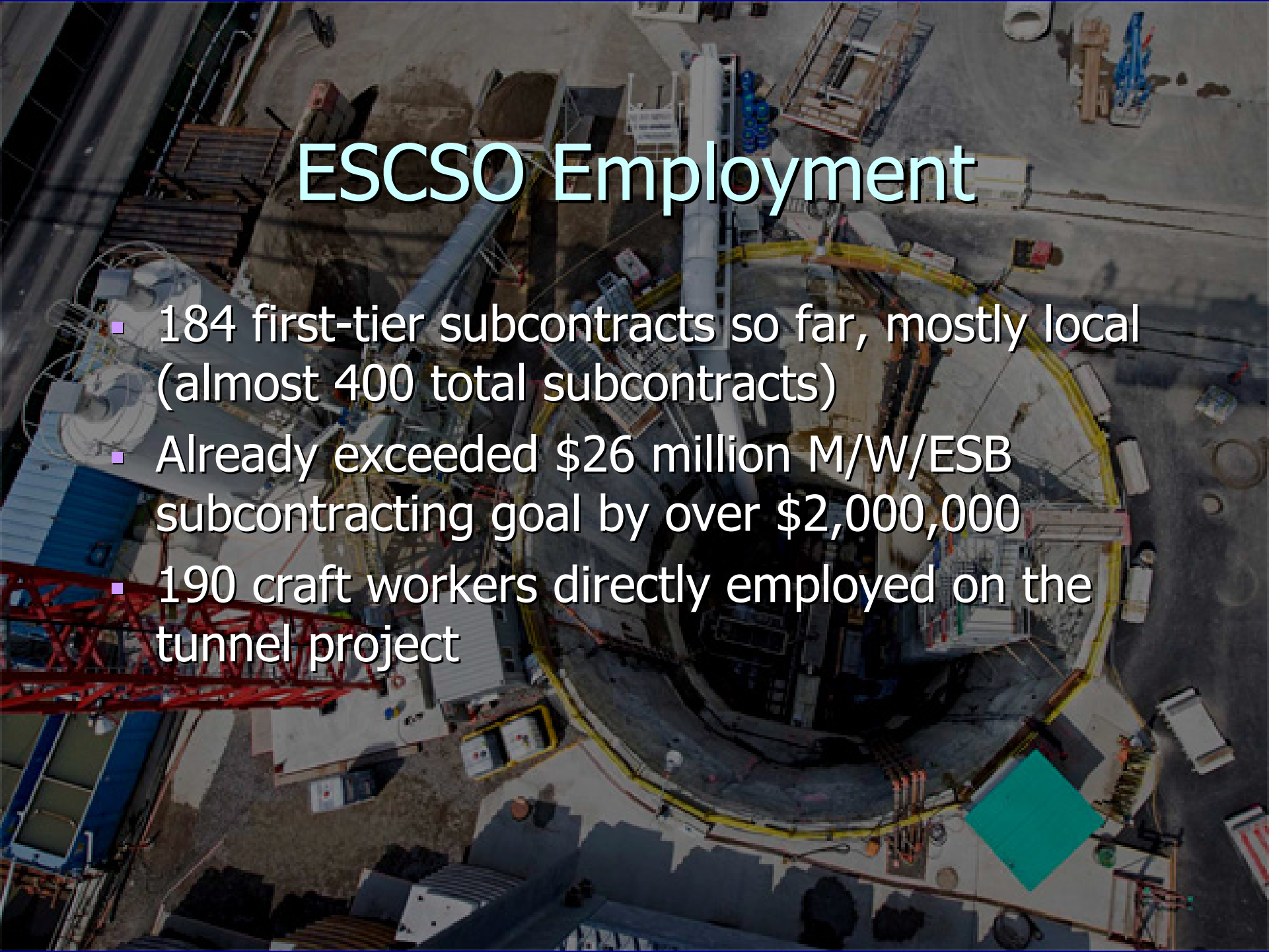
- 6 mile long tunnel
- 22 foot diameter
- 85 to 165 feet deep
- Seven large shafts – approximately 50 feet in diameter
- Tunneling is approximately 75% complete

ESCSO Construction Contract

- Contractor: Kiewit/Bilfinger Berger JV
- Base Contract Amount (2011 $): $426,291,149
- Current Construction Contingency: $16,000,000
  - (Reduced from $38,000,000)

ESCSO Contingency Budget

- Original contingency to cover project risks: $38 million
- Updated risk analysis performed every six months
  - Eliminate risks already passed
  - Evaluate any new risks
- Revised contingency at 80% completion: $16 million



ESCSO Employment

- 184 first-tier subcontracts so far, mostly local (almost 400 total subcontracts)
- Already exceeded $26 million M/W/ESB subcontracting goal by over $2,000,000
- 190 craft workers directly employed on the tunnel project

Other CSO Projects Employment

- Portsmouth Force Main
  - Segment 1: 25 construction jobs
  - Segment 2: 40 construction jobs
- Swan Island PS Ph 2 - 15 construction jobs
- Sellwood Projects – 50 construction jobs
  - Pump Station
  - Lents Trunk Sewer
  - Umatilla Pump Station
- Balch Consolidation Conduit - 50 construction jobs

Positive Impacts to the Local Economy

- Job equivalent based on construction expenditures*
  - ESCSO 4,000
  - Portsmouth 500
  - SIPS 70
  - Sellwood 250
  - Balch 650

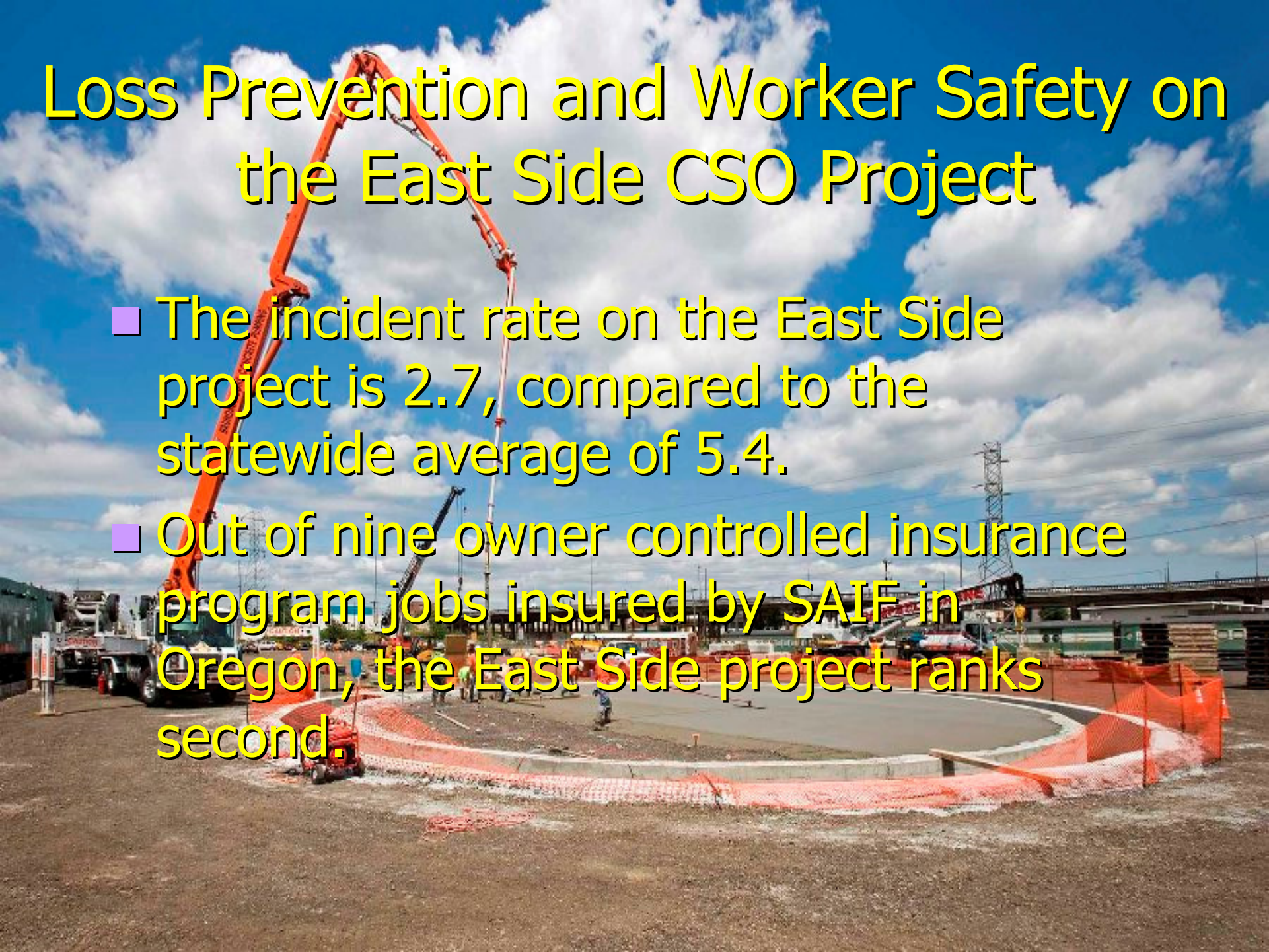
  5,500

*includes economic ripple effects of construction expenditures in jobs created

Green Infrastructure Jobs

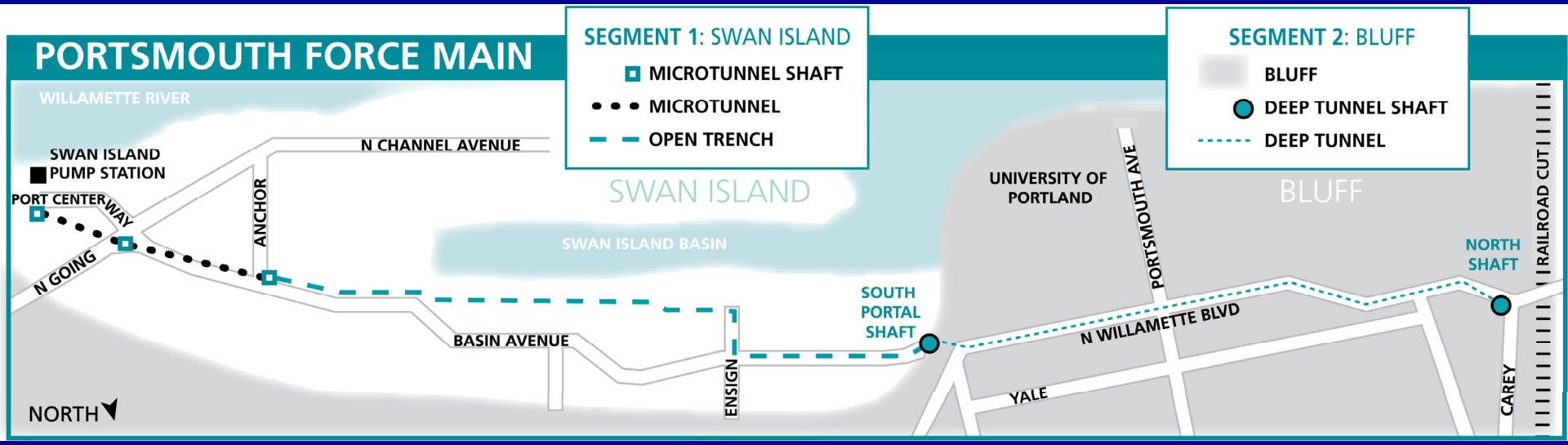
- Estimated Environmental Services FY 2010 Green Infrastructure Jobs: 85
- Estimated FY 2010 Private Sector Jobs Created by BES Capital Program Related to Green Investments: 210
- Total Green Jobs Created in FY 2010: 295

Loss Prevention and Worker Safety on the East Side CSO Project



- The incident rate on the East Side project is 2.7, compared to the statewide average of 5.4.
- Out of nine owner controlled insurance program jobs insured by SAIF in Oregon, the East Side project ranks second.

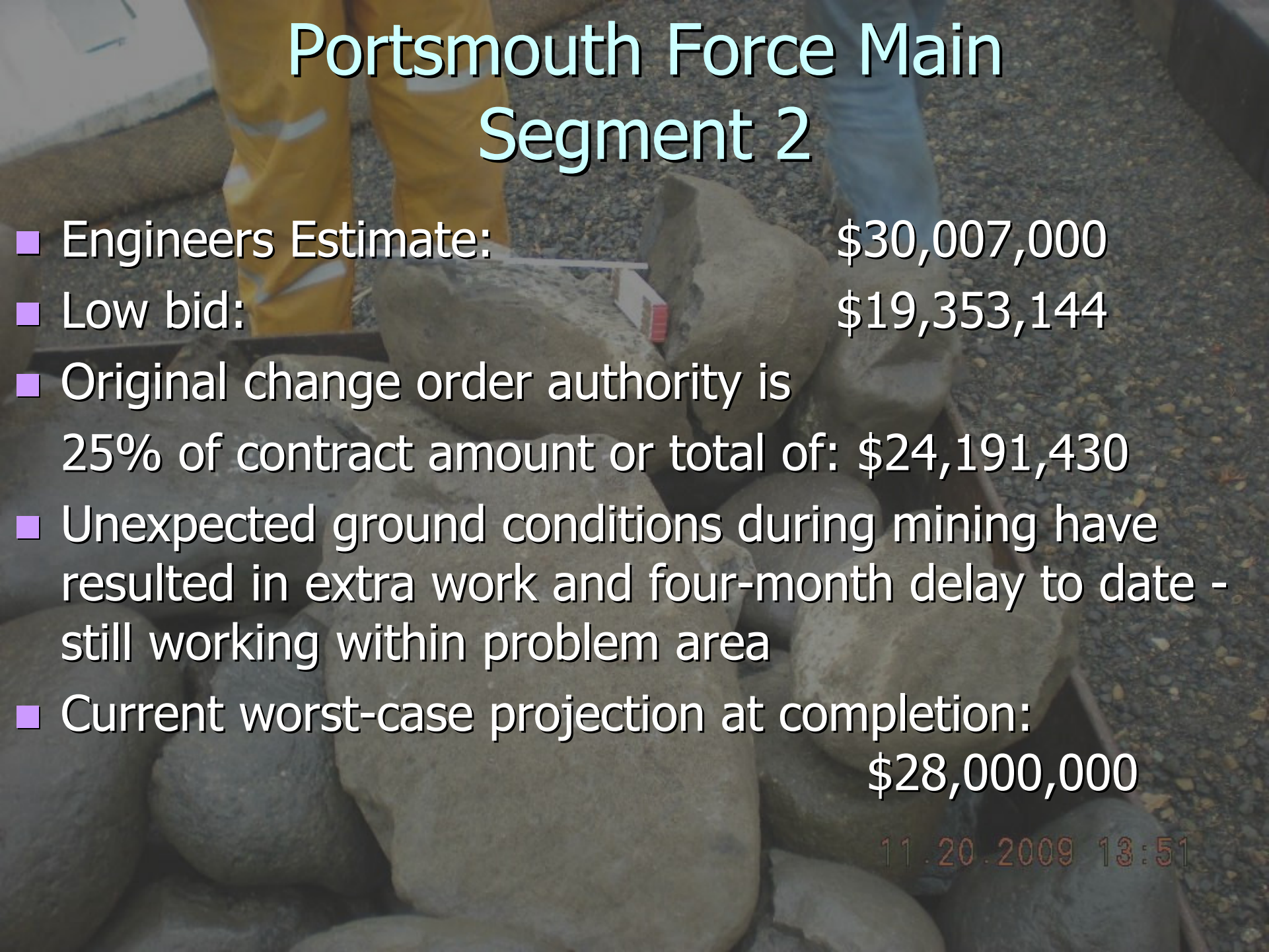
Portsmouth Force Main



- Install and test a 3-mile, 66-inch diameter pressurized pipeline
- Will carry flow from east and west side tunnels to the Portsmouth Tunnel and on to the treatment plant
- Difficult construction across Swan Island and under bluff - mining delays already encountered

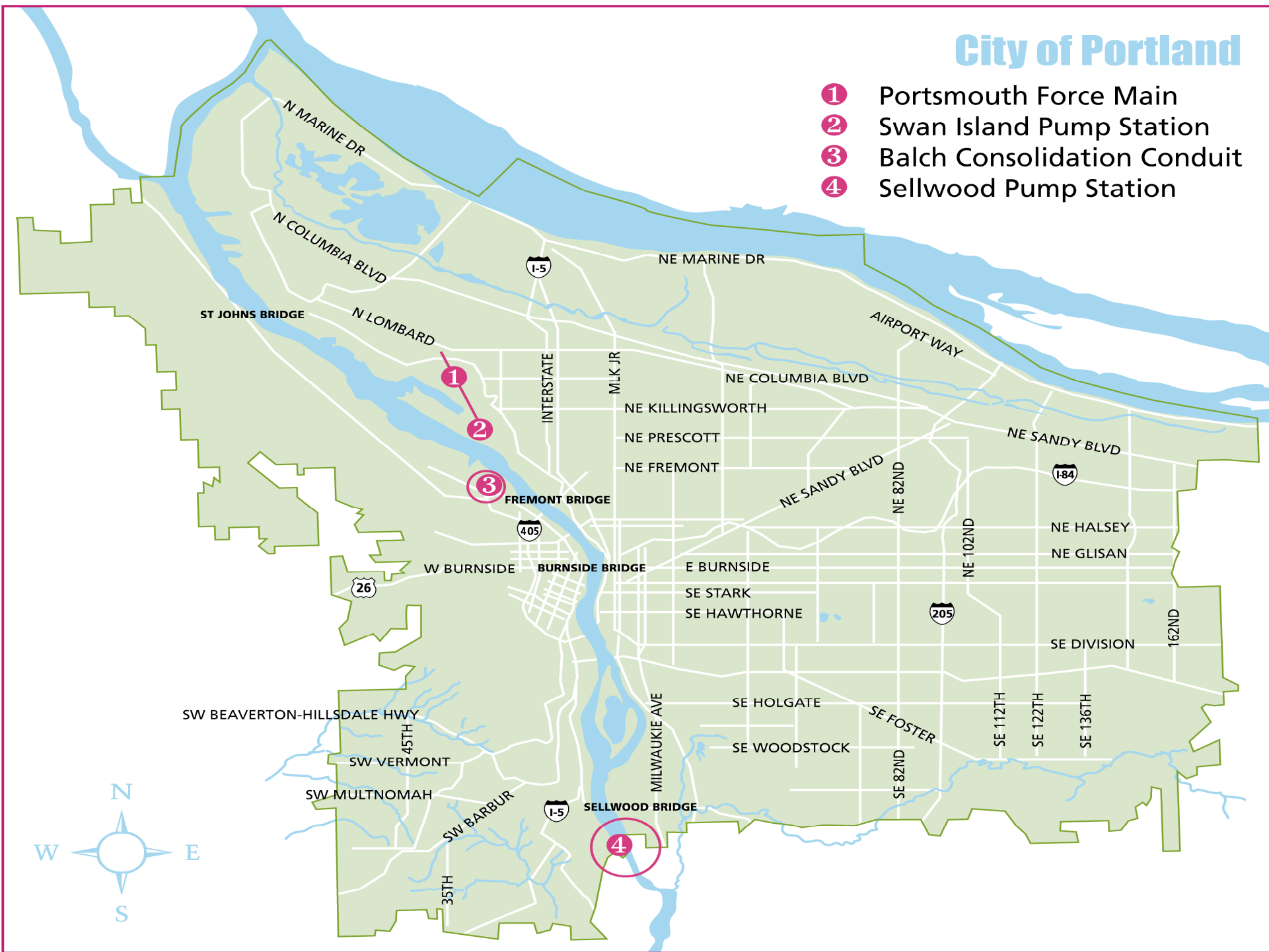
Portsmouth Force Main Segment 2

- Engineers Estimate: $30,007,000
- Low bid: $19,353,144
- Original change order authority is
  25% of contract amount or total of: $24,191,430
- Unexpected ground conditions during mining have resulted in extra work and four-month delay to date - still working within problem area
- Current worst-case projection at completion: $28,000,000

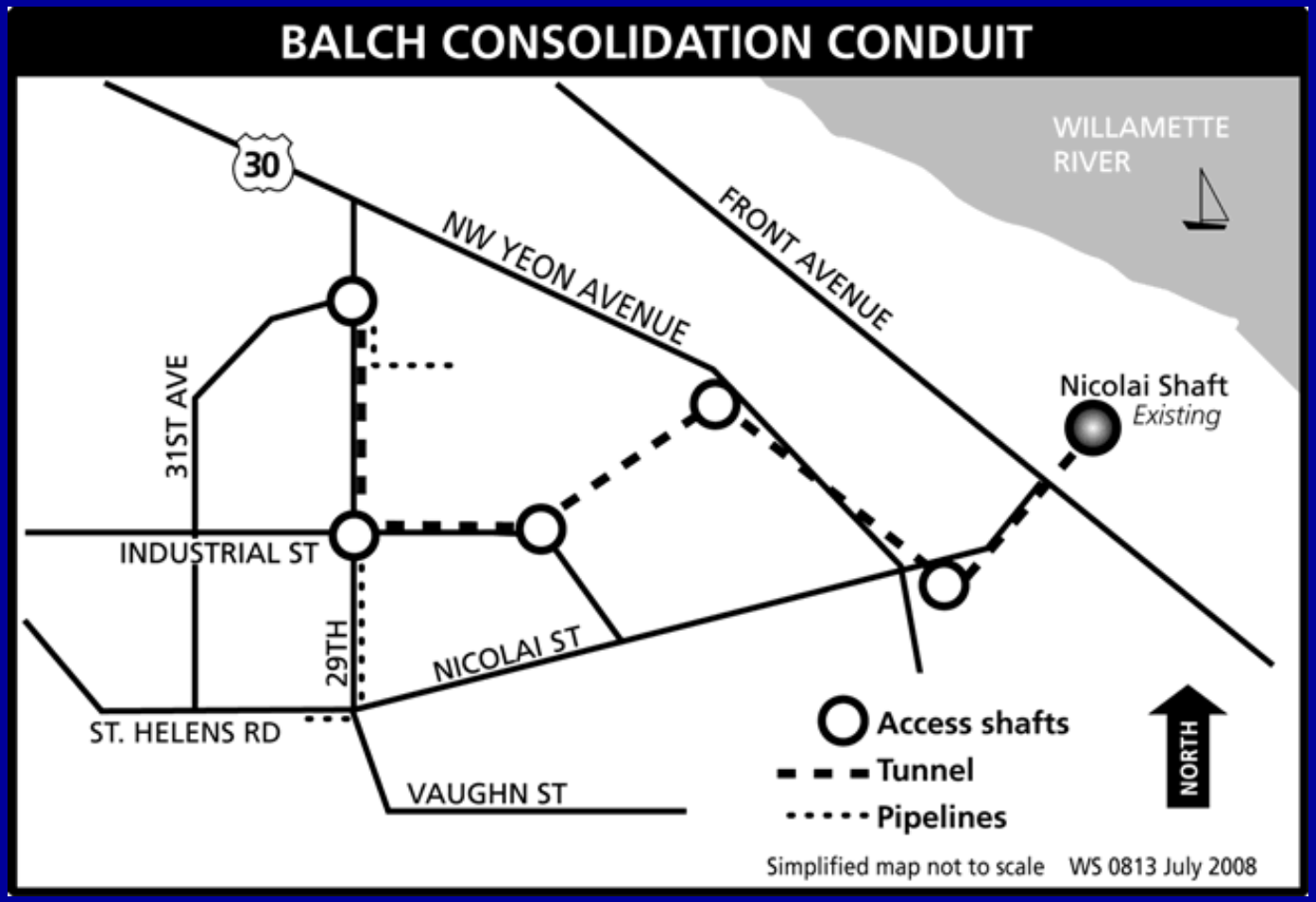


Remaining Challenges to Meet the 2011 ASFO

1. Sellwood CSO Pump Station
2. Balch Consolidation Conduit (construction underway)
3. Portsmouth Force Main Segments 1 and 2 (construction underway)
4. Swan Island CSO Pump Station Phase 2 (construction underway)
5. Impacts from Portland Streetcar and Light Rail work in ESCSO staging area starting in 2010


City of Portland
1 Portsmouth Force Main
2 Swan Island Pump Station
3 Balch Consolidation Conduit
4 Sellwood Pump Station
N MARINE DR
N COLUMBIA BLVD
NE MARINE DR
I-5
ST JOHNS BRIDGE
N LOMBARD
AIRPORT WAY
INTERSTATE
MLK JR
NE COLUMBIA BLVD
NE KILLINGSWORTH
NE PRESCOTT
NE FREMONT
NE SANDY BLVD
I-84
FREMONT BRIDGE
405
NE 82ND
NE HALSEY
NE GLISAN
W BURNSIDE
BURNSIDE BRIDGE
E BURNSIDE
NE 102ND
26
SE STARK
SE HAWTHORNE
205
SE DIVISION
162ND
SW BEAVERTON-HILLSDALE HWY
45TH
SE HOLGATE
SE FOSTER
SE 112TH
SE 122TH
SE 136TH
SW VERMONT
MILWAUKIE AVE
SE WOODSTOCK
SE 82ND
SW MULTNOMAH
SW BARBUR
I-5
SELLWOOD BRIDGE
35TH
N
W
E
S

Balch Conduit

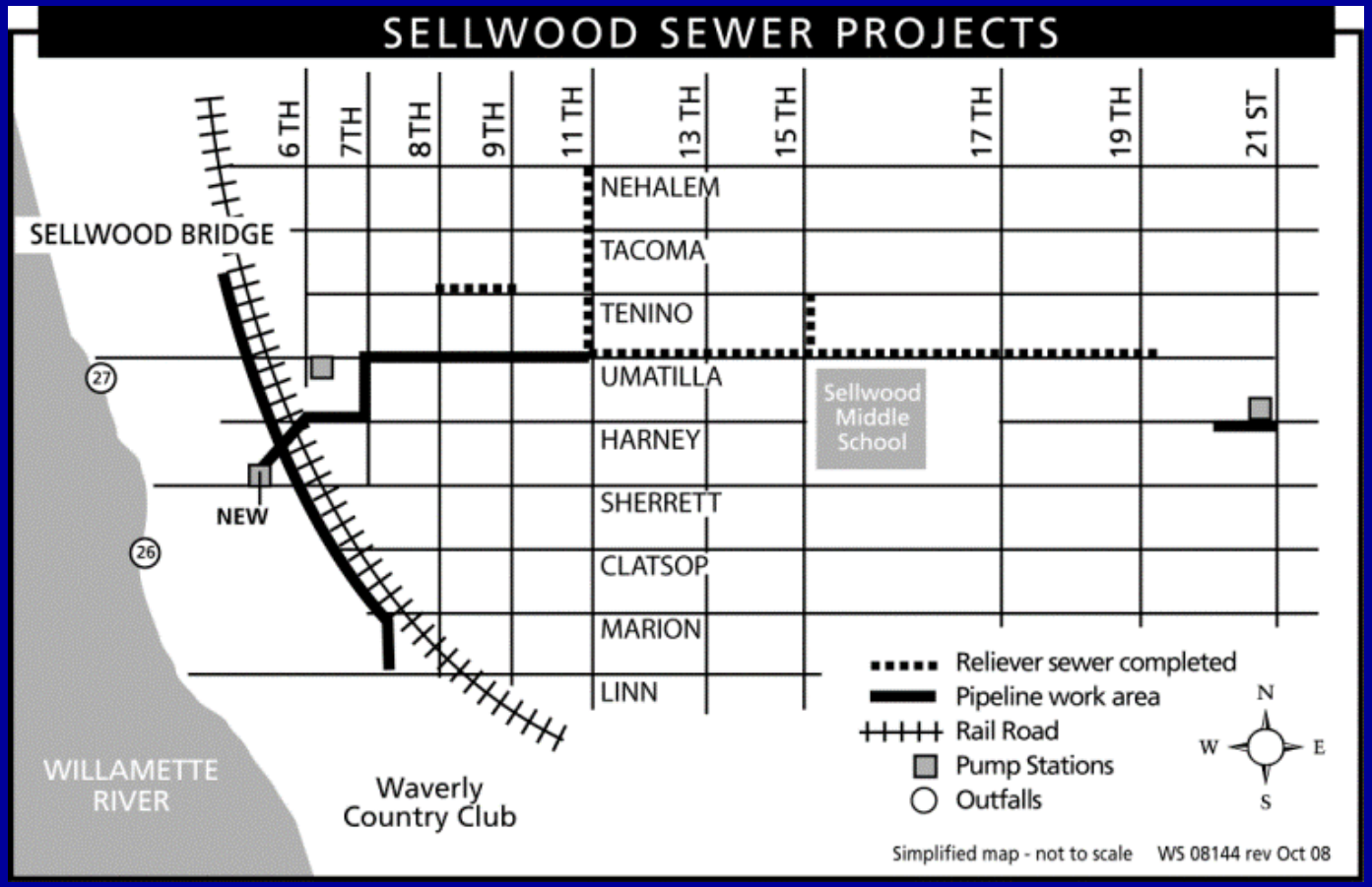


- 84-inch diameter pipe to carry combined sewage from the Balch Drainage Basin to the West Side Big Pipe
- Construction has begun, complete in August 2011

Cutter Soil Mixing (CSM) Machine

Microtunnel Boring Machine (MTBM)

Sellwood Pump Station



- Wet weather pump station construction and sewer tunnel rehabilitation
- Controls CSO outfall just south of the Sellwood Bridge
- Construction starts this spring, complete by mid 2011.


Opera Shaft Site - Feb 3, 2007


2010
Future Portland
Streetcar Loop
OMSI Station
SE CARUTHERS ST
SE DIVISION PL
SE 4TH AVE
SE MAR


2011
Future Portland to Milwaukie Light rail Bridge Crossing
Future Portland Streetcar Loop OMSI Station
Permanent relocation of Water Avenue (connecting to SE 4th Avenue
SE CARUTHERS
SE 4
SE MAR

East Side CSO Review Committee

City Council Report

April 14, 2010

Bill Martinak, Chair