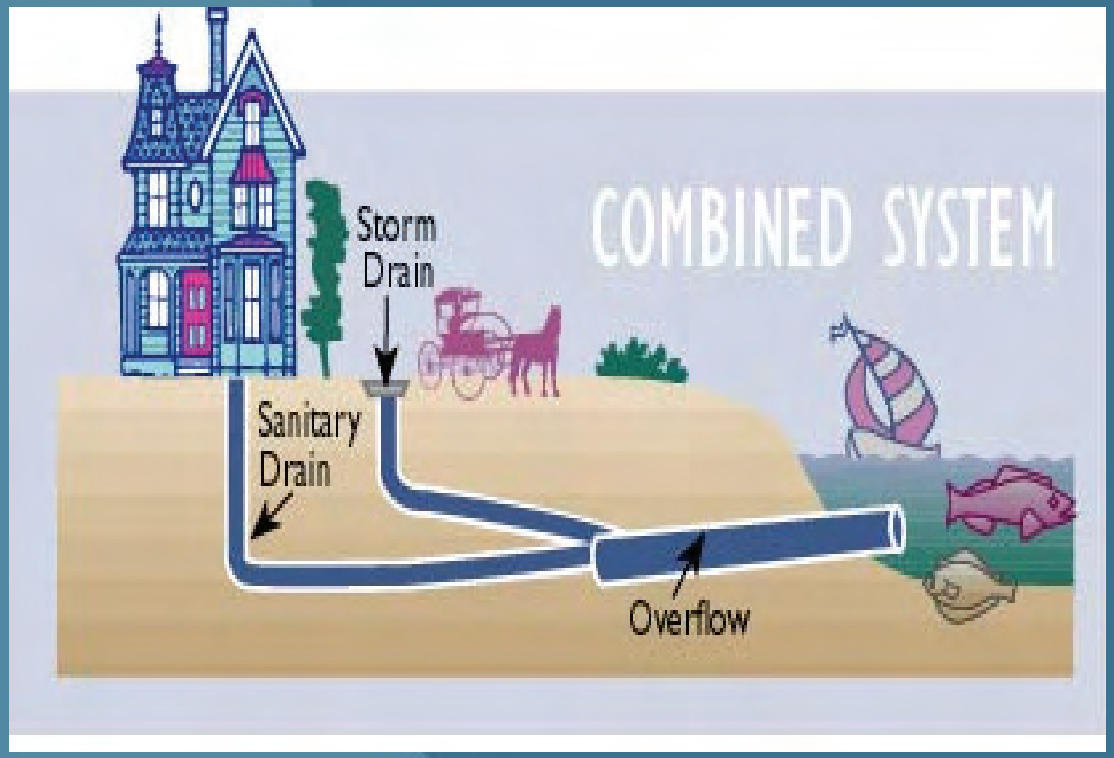
King County 2008 CSO Plan Update

Status & News

MWPAAC E&P Committee

July 2, 2008

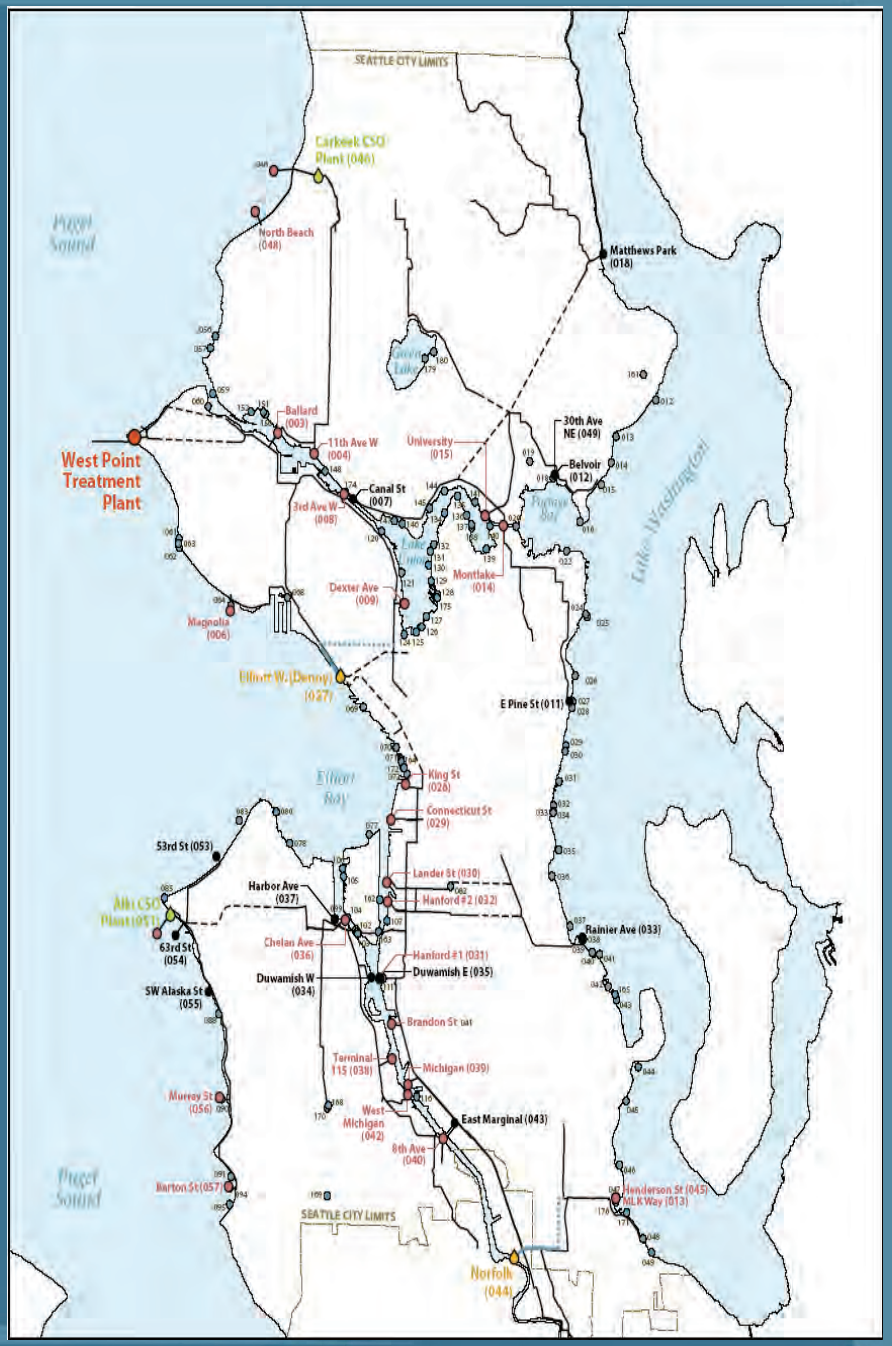
Why Were Combined Systems Built?



- "Managing Sewage" meant moving wastewater to nearest waterway
- Built when horses were main transport
- Manage sewage with horse manure and stormwater

Where are CSOs?

- Combined System exists only within City of Seattle
  - 20% of County system is combined
- Both agencies have responsibilities to manage CSOs
  - Seattle has ~90 CSOs
  - King County has 38 CSOs

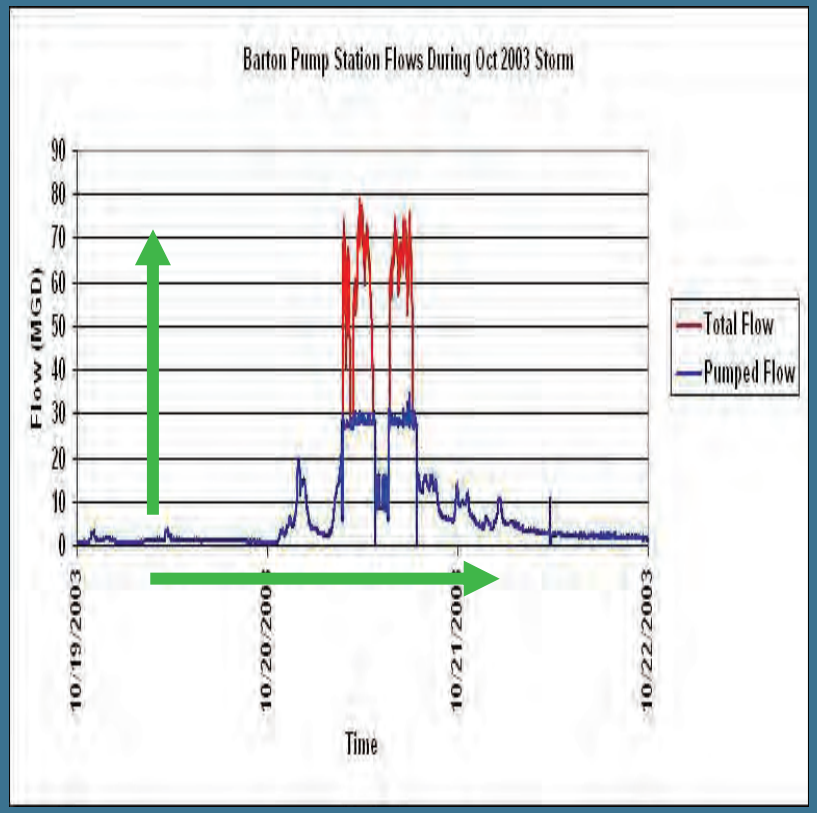


This is University CSO Overflowing

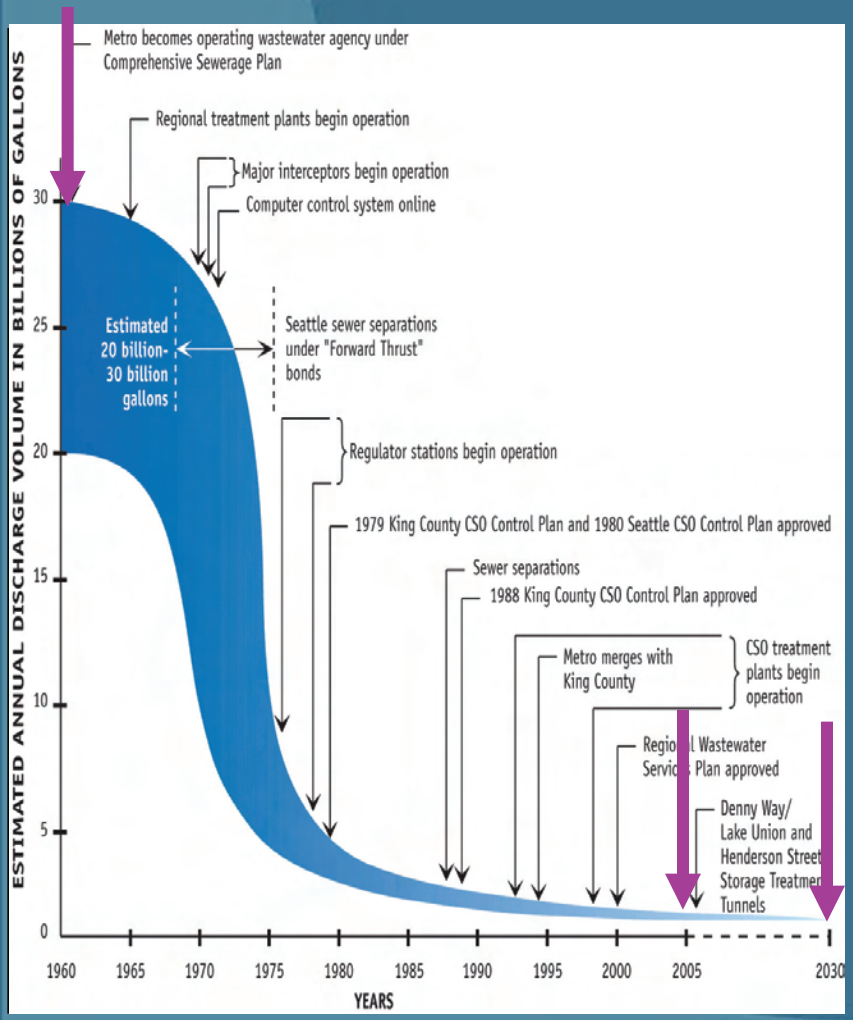
- Click button after about 30 sec. to stop and move forward

Why Are Combined Systems a Challenge?

- Stormwater causes large fluctuations in volume
- This is called a Hydrograph – it shows:
  - Flow Volume
  - Over Time
- The red lines show more flow than the pipeline can carry – it overflows – that must be controlled

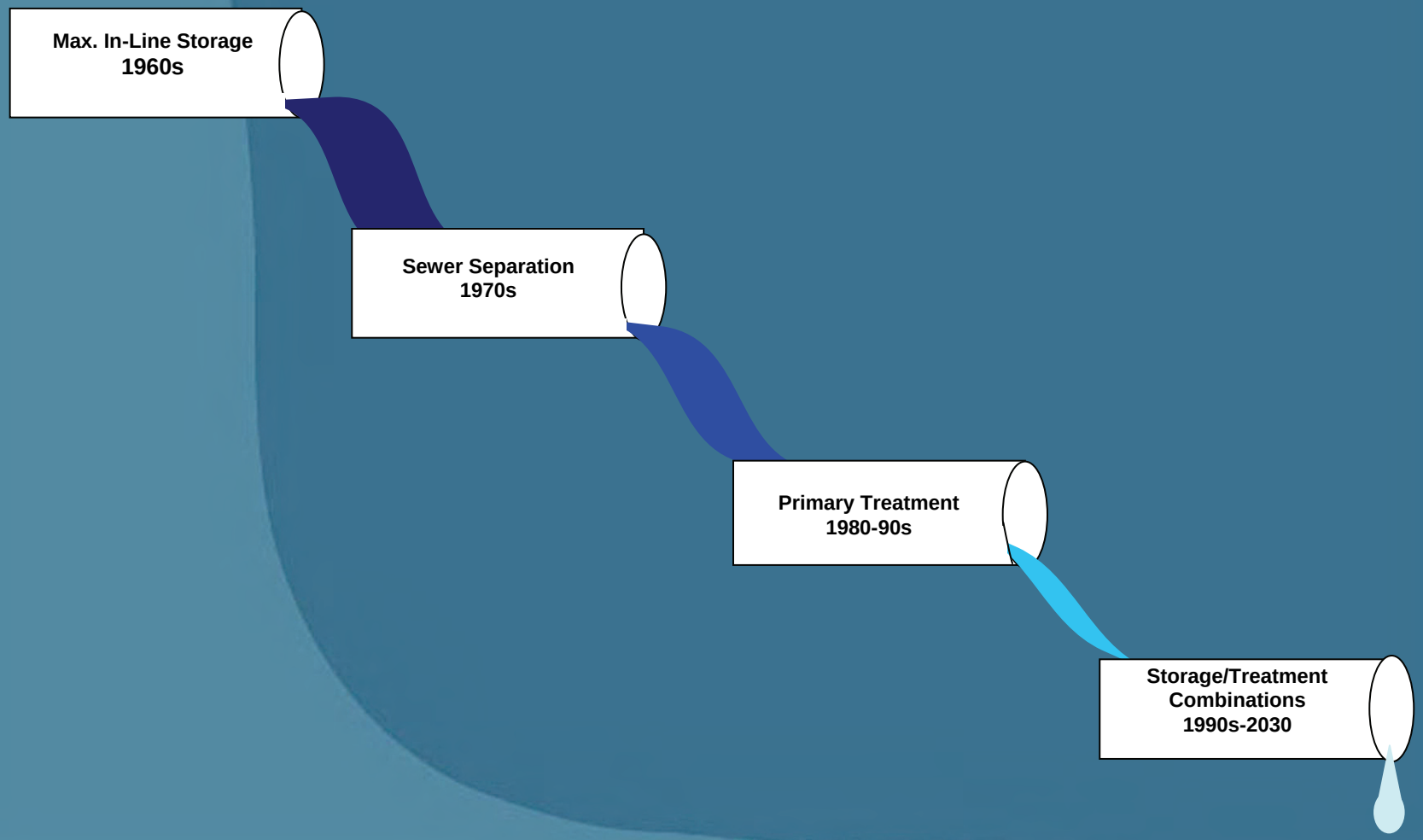


What Have We Been Doing About CSOs?



- In 1958 20-30 Billion gallons/y of wastewater released to waterways
- Reduced to 1.5 Bg/y by 2000
  - $97M for completed projects
- Finished 2 large projects in Spring 2005
  - $233M
- Beach projects next
  - Barton, Murray, Magnolia, North Beach
- Full system control (1 y) by 2030
  - $378M

Changing Control Philosophy Over Time



The Future: Regional Wastewater Services Plan

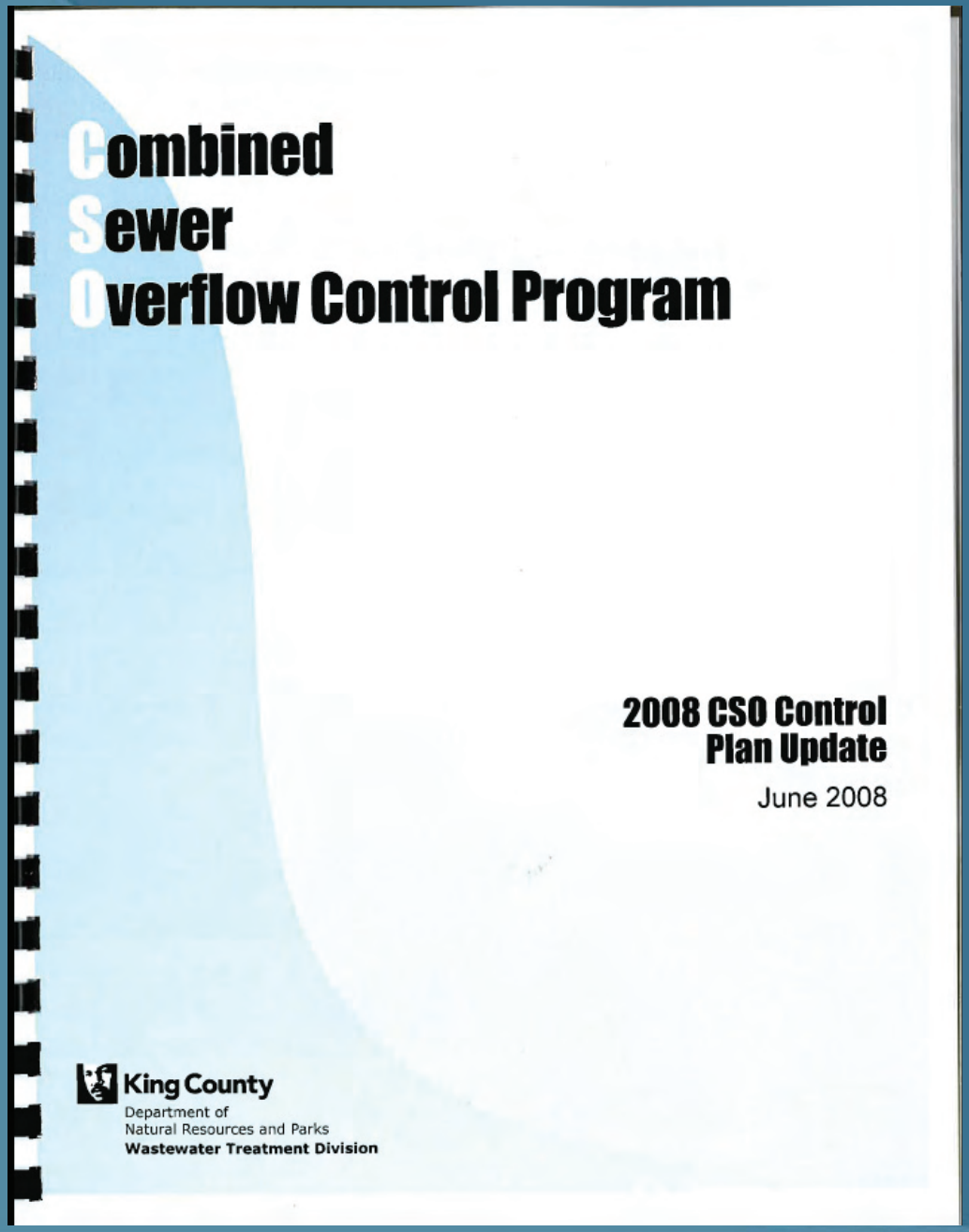
- Approved RWSP includes 21 CSO control projects
  - Includes conveyance upgrades, storage, and treatment projects
  - All CSOs controlled to one event per year by 2030
  - Cost is $378 million (2005$)
- “Whole System” approach

Schedule set to protect public health, the environment, and endangered species

1. Puget Sound Beaches 2010-2012
2. East Ship Canal 2015
3. Duwamish 2017-2027
4. West Ship Canal 2029-2030

Program Reviews & Plan Updates

- RWSP policy CSO-8 called for Program Review with next Plan Update (expected in 2005)
- Ecology changed due date for Plan Update to 2008
- Program Review was submitted to Council & RWQC in April 2006
- CSO Plan Update to Ecology submitted June 30, 2008 with the NPDES permit renewal application



CSO Control Plan Update Submitted to Ecology

Progress

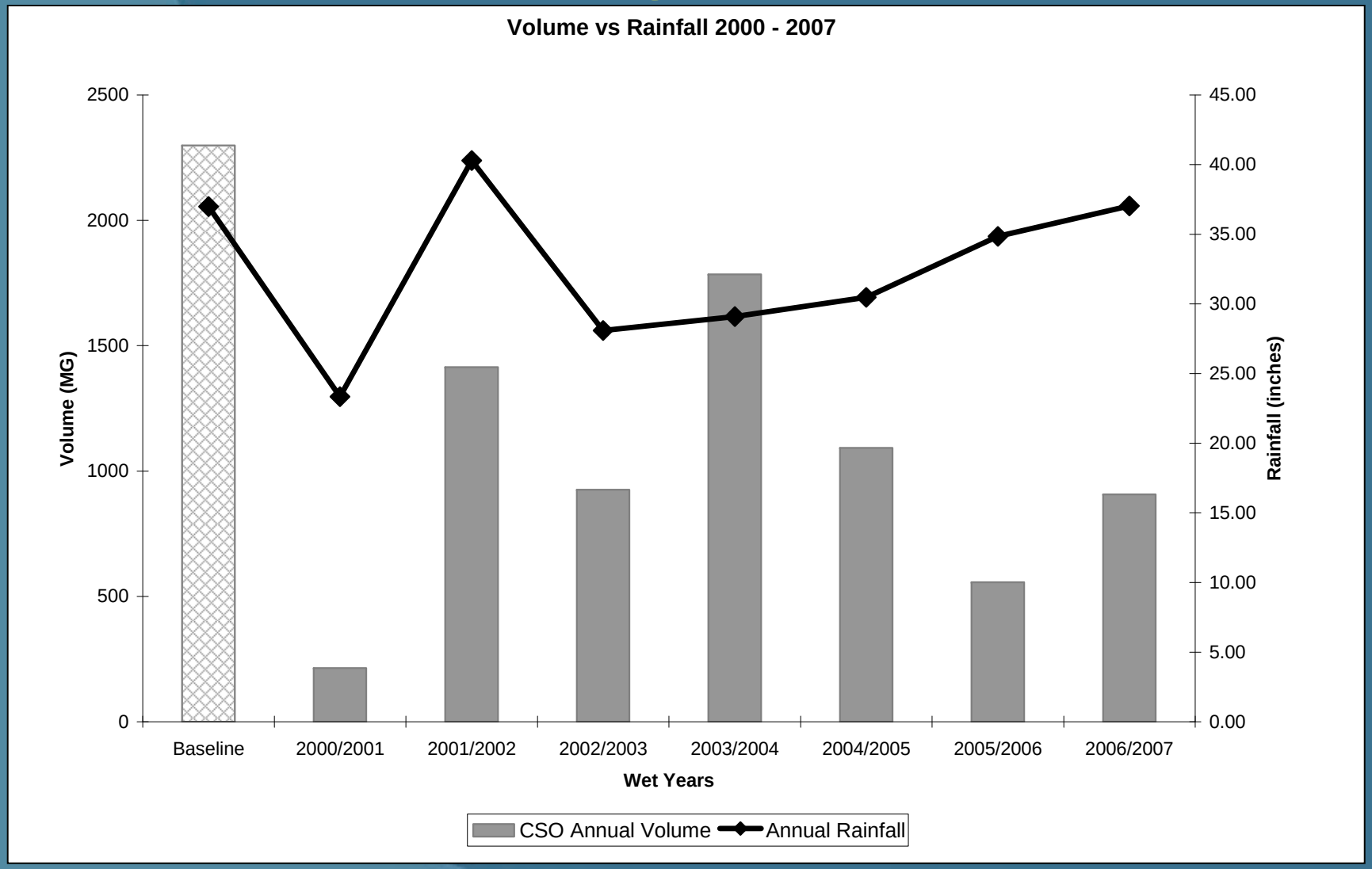

Volume vs Rainfall 2000 - 2007
Volume (MG)
2500
2000
1500
1000
500
0
Rainfall (inches)
45.00
40.00
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
Baseline
2000/2001
2001/2002
2002/2003
2003/2004
2004/2005
2005/2006
2006/2007
Wet Years
CSO Annual Volume
Annual Rainfall

Table 2-1. Annual Average Frequency and Volume of Untreated CSOs: Monitored CSOs Compared to Modeled CSOs (2000–2007)

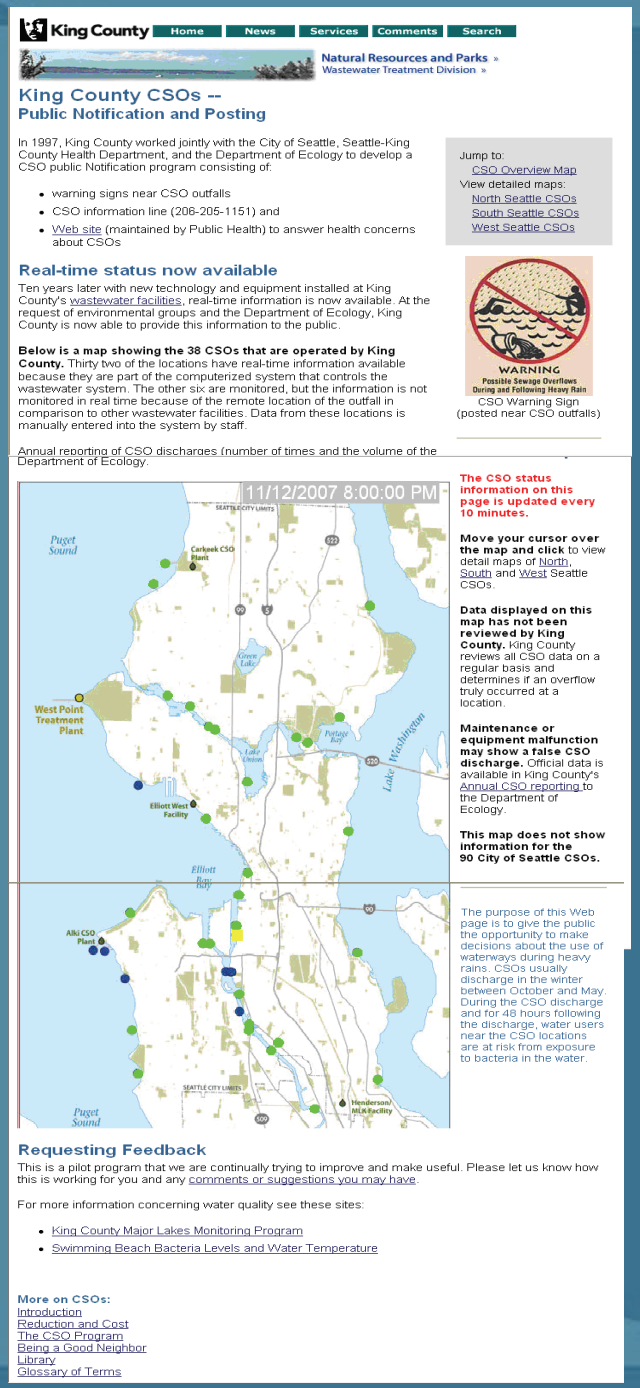
Pages 2-19 & 2-20 of Report

Station	DSN	Volume of Overflows (Annual Average in millions of gallons)			Frequency of Overflows		
		Monitored (2000-2007)	Modeled Baseline (1981-1983)	Modeled 1999	Monitored (2000-2007)	Modeled Baseline (1981-1983)	Modeled 1999
TOTAL		**919.52**	**2299**	**1535**	**285**	**471**	**332**

38 County CSOs
13 (18) Controlled

- 30th Avenue Northeast (049)
- 53rd Avenue Southwest (052)
- 63rd Avenue Pump Station (054)
- Alaska Street Southwest (055)
- Belvoir (012)
- Canal Street (007)
- Duwamish Siphon West (034)
- Duwamish Pump Station (035)
- East Marginal (043)
- Harbor Avenue (037)
- Matthews Park (018)
- East Pine Street (011)
- Rainier Avenue (033)
- Denny, Dexter, Henderson, MLK and Norfolk CSOs are currently undergoing startup

Public “Real Time” Overflow Website



- 2004-06 Technology Improvements: New SCADA hardware/software for facility control and data management
  - Telemetered data from 32 sites
- First opportunity to look at “real-time” data outside of plants
- Convergence with Ecology feasibility study requirement in NPDES permit
- http://dnr.metrokc.gov/WTD/cso/status/index.htm

Webpage Dialog

Start 6/3/2008 9:20:16 PM End 6/4/2008 5:50:20 aM Apply Ad hoc Trend

Next Steps

- Puget Sound beach projects in pre-design
  - Awarded state revolving loans for 3 of 4
  - Will look at "green" & "grey" infrastructure alternatives
- CSO Plan update to Ecology – June 30th
- Hydraulic model update – end of 2008
- Pilot treatment technologies – 2009
  - Chemically enhanced primary w/ & w/o lamella plates
  - Ready to begin October 1st
- Consultant procurement for next Review in Fall 2008
  - Update project definitions, sizes & costs
  - Stand-alone task for EPA audit response
- Next program review in 2010
- Next CSO Plan Update to Ecology ~2013

The EPA Audit

- Both King County and Seattle notified of audit in Fall 2007
  - This is being done across the US – it was our turn
- EPA investigated King County in January 2008, Seattle in March
- Focus was on wet weather management, including CSO & SSO
- Expected to hear findings in June, but EPA has been delayed to at least August
- Other US agencies have had resulting consent decrees with requirements that greatly tightened schedules, increased effort and increased costs
- Our scope for the 2010 Program Review will include tasks to respond to possible EPA requirements – task activated if needed

For More Information Contact:

Karen Huber
CSO Control Program Manager
King County WTD
karen.huber@kingcounty.gov
(206)684-1246