



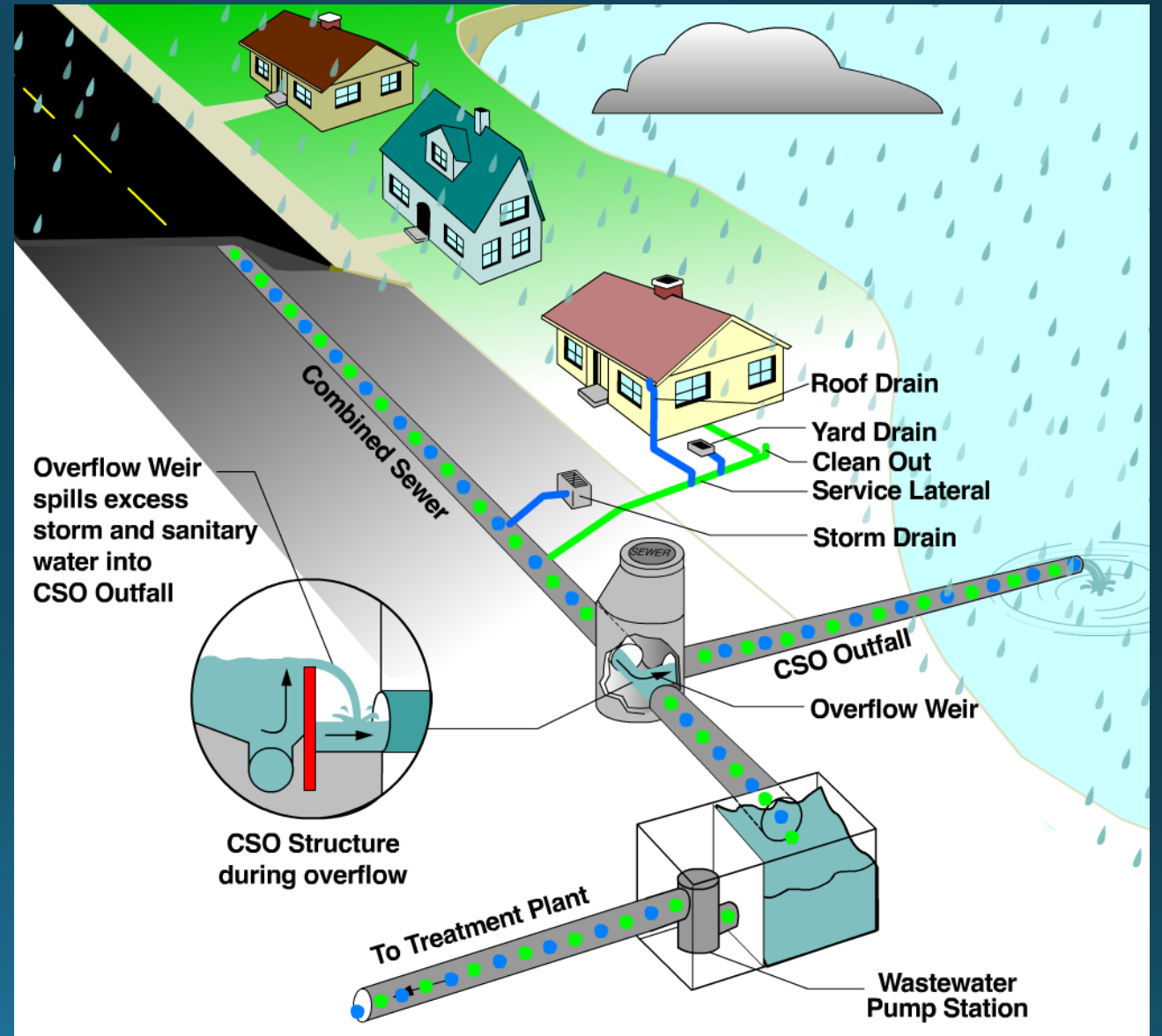
The City of Bremerton Combined Sewer Overflow (CSO) Reduction Program



April 2021

What are Combined Sewers?

Combined sewers convey both sanitary sewage and stormwater. Before 1945 cities independently developed their sewer systems – combined sewers were common. Pump stations were sized to convey flow base sanitary flow and combined sewer overflows (CSOs) occurred at CSO outfall sites during heavy storms.



CSO Reduction Timeline

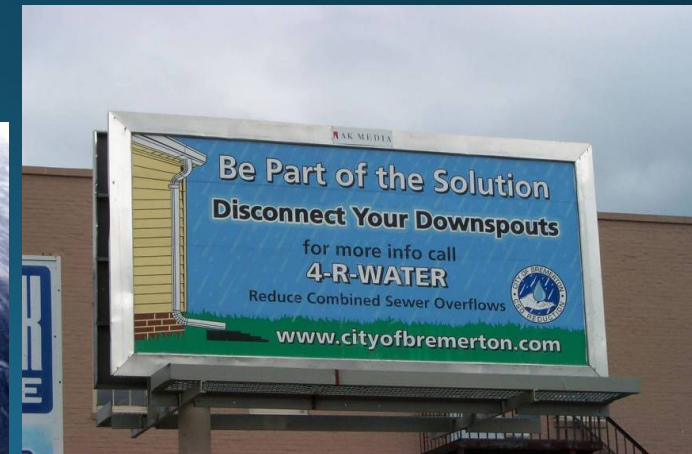
- 1945 State regulations begin formal pollution control
- 1947 Bremerton constructs its first Wastewater Treatment Plant (WWTP)
- 1972 Clean Water Act enacted – basis for current regulations
- 1986 Washington mandates CSO reduction to one overflow per CSO outfall site per year
- 1992 Bremerton develops a program to reduce CSOs and begins constructing projects
- 2003 State Department of Health re-opens shellfish beds in Dyes Inlet – Bremerton's reduction in CSOs is cited as a reason for opening the beds
- 2009 Compliance with State CSO Reduction mandate achieved
- 2009+ Ongoing system improvements continue



City's Investment for Compliance

The \$50.3M program included the following:

- Planning and Program Development - \$710K
- Cooperative approach program - \$450K program to work with homeowners to remove inflow from downspouts and driveway drains
- 23 Capital Projects Constructed totaling \$48.5M:
 - 2 New pump stations, 7 major pump station upgrades
 - 275,000-gallons of storage
 - 12.5-miles of new sanitary and storm sewers ranging from 6-inch to 84-inch
 - New Eastside WWTP
 - Major upgrade to the Westside WWTP
- Litigation - \$640K



Expenditure and Achievement

“It is clear that Bremerton has worked diligently and expended considerable resources on its CSO reduction program. As a result, Bremerton has established itself as a regional leader in stormwater pollution prevention”

*Chris Wilke
Executive Director
Puget Soundkeeper Alliance*

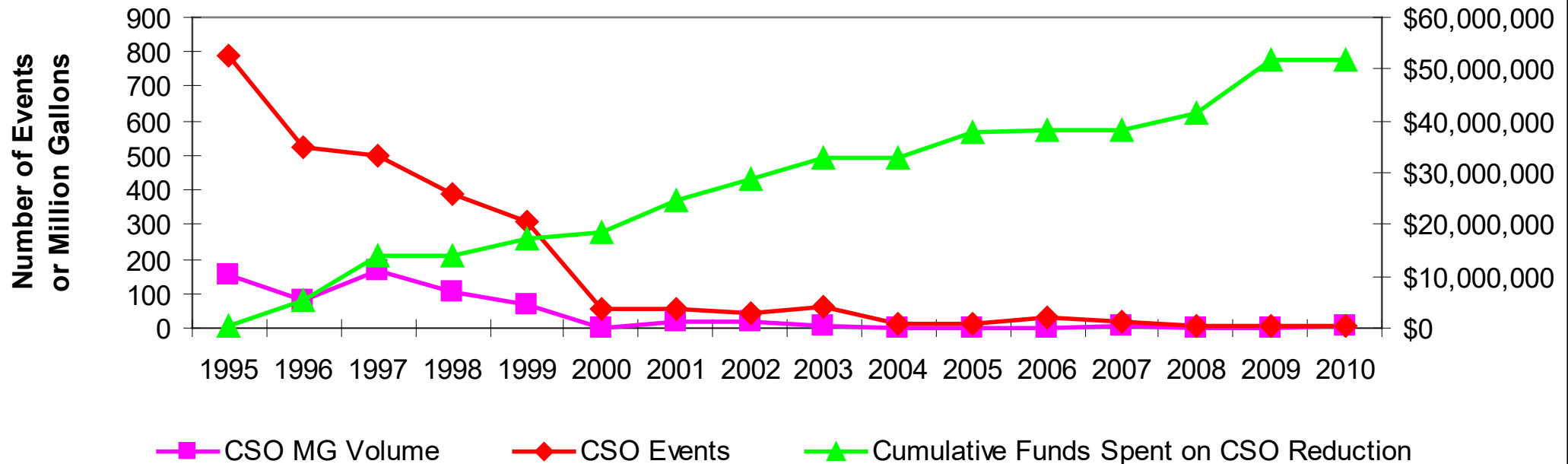
“Of the eleven communities operating combined sewer and stormwater systems in the state of Washington, the City is a leader and should take justifiable pride in the reduction of overflow volumes and frequency by more than 99 percent”

*Ted Sturdevant
Director
Department of Ecology*

“Bremerton is the first complex CSO community in Washington to complete all CSO reduction projects designed to meet the State requirement of no more than an average of one event per year at all outfalls.”

*Karen Burgess
Municipal Section Supervisor
Department of Ecology*

**Bremerton Combined Sewer Overflows
Funds Spent and Overflow Reductions Achieved**



Current Compliance Status

CSO REDUCTION COMPLIANCE REPORTING TABLE

CSO Site	Completion yr	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	CSO events 20yr AVG	
OF1	2000	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0.10	
OF2	2002	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.15
OF3	2005	1	0	0	1	0	0	0	1	1	0	0	0	1	3	1	0	0	1	1	0	0	0.55
OF4	2003	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.20
OF6	2005	1	1	1	1	1	0	0	1	0	1	1	1	0	0	0	1	0	0	0	0	0	0.50
OF7A	2004	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.20
OF7B	2004	1	1	1	1	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.35
OF8	1999	1	0	1	0	0	0	2	1	0	0	1	1	0	0	0	1	0	0	0	0	0	0.40
OF9	2008	1	0	1	1	1	0	0	1	0	0	1	1	1	0	0	0	0	0	1	1	0	0.50
OF10	2008	1	1	1	1	1	1	1	1	1	1	1	1	1	2	0	0	0	0	1	0	0	0.80
OF11	2008	1	0	1	1	1	1	1	1	1	1	1	1	2	1	1	1	2	3	0	1	0	1.10
OF12	1999	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.05
OF13	2002	1	1	0	0	1	1	0	1	1	1	1	0	1	0	0	1	0	1	0	0	0	0.55
OF16	2009	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.40
OF17	2003	1	1	1	1	0	1	0	1	0	0	1	1	1	0	0	0	0	0	0	0	0	0.45

Recently completed Pump station CW-4 project will reduce this value.

Other CSO/Capacity Projects Since 2009

- 2011 – \$700K Pipe and Pump Improvements at CE-1
- 2012 – \$2.8M Crosstown Pipeline Upper Reach Repair
- 2013 – \$1.3M beach main replacement in East Bremerton (3000 feet)
- 2015 – \$2.6M Washington Ave Beach Main; eliminated approximately 5000 feet of beach main
- 2017 – \$350K replace inverted siphon at KL-1
- 2018 – \$1.1M capacity improvement at Eastside Treatment Plant Outfall
- 2019/2020 - \$2.6M CW-4 upgrade and Beach main abandonment. Completed March 2020.



Ongoing projects include \$700K+/- annual Cure-in-Place-Pipe (CIPP) program to replace pipe and reduce infiltration, on-going annual system improvements.

Recently completed CSO Reduction Project (March 2020)

Pump Station CW-4 Upgrade and Beach Main Abandonment:

- \$2.6M Project, completed in March 2020, reduces CSOs at overflow sites OF10 & OF11.
- Reduces overall flow in beach sewer system.
- Abandons 1800 feet of beach sewer
- Transfers flow from 15 homes to new upland sewer
- Reconstructs pump station in upland location where easy to access/maintain and adds back-up power



Future CSO and Beach Sewer Projects in CIP

- **2021 - \$5.2M Oyster Bay Beach Sewer – Phase 1:** Convert 50 to 60 properties to upland sewer. Install new upland force main for OB-2 for future. Potential elimination of 3500 feet of beach main and future abandonment for Oyster Bay OB-2 force main.
- **2022 - \$2.3M Manette Beach Sewer Abandonment:** Eliminate 1300 feet of beach sewer north of the Manette Bridge
- **2025/26 - \$3M Oyster Bay Beach Sewer – Phase 2:** Convert 17 residential properties. Potential elimination of 5000 feet of beach main
- **2026+ - \$2.2M Oyster Bay Beach Sewer – Phase 3:** Convert 15 residential properties to upland sewer. Potential elimination of 1200 feet of beach main (scope of this project still under consideration)
- **Other:** New in-house annual lateral replacement program (CIPP), on-going \$700K annual CIPP main program, on-going annual system improvements



Questions

