



Massachusetts Water Resources Authority

# ***CSO Program Update***

**July 2006**



## On April 27, 2006, Judge Stearns Approved the Long-Term CSO Plan

*“With this agreement in place, we are taking a giant step towards . . . a model of environmental remediation.”*

- U.S. District Court Judge Richard G. Stearns



## The CSO Problem: 1985

- 84 combined sewer overflows
- Thousands of discharges per year
- Over 3 billion gallons of untreated discharges





## CSO Control Plan - Progress to Date

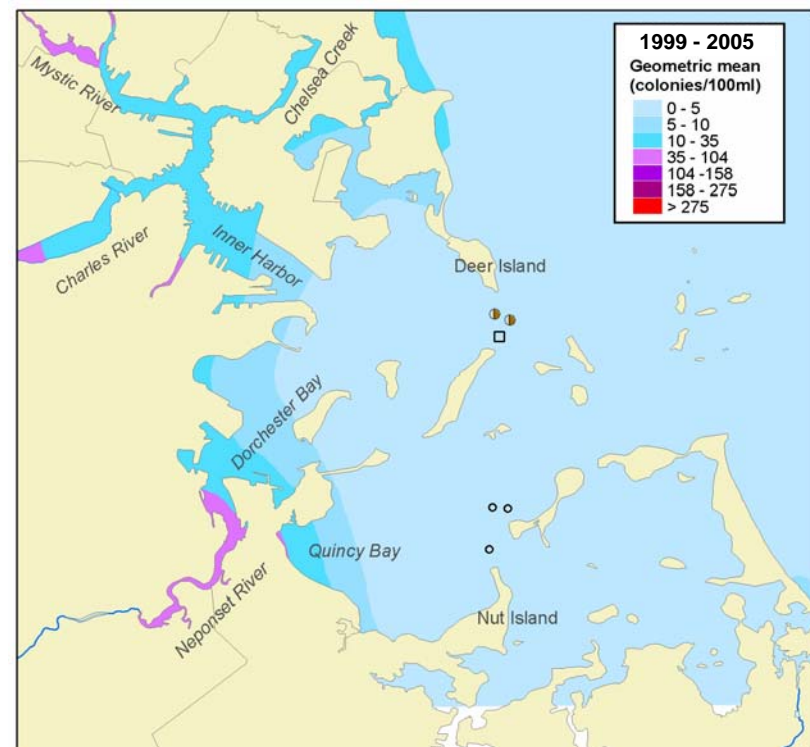
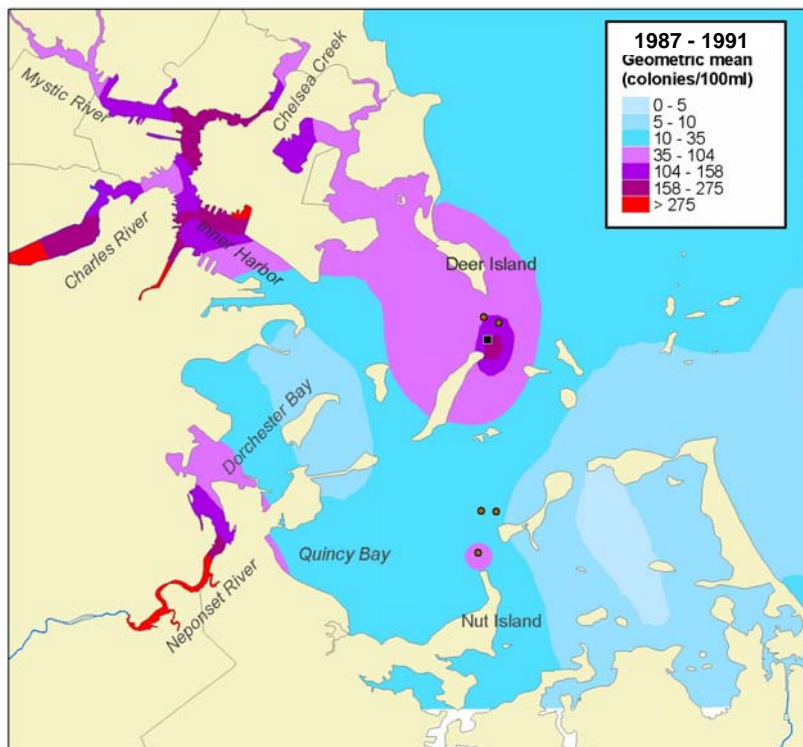
- 23 of 29 projects completed or in construction
- 21 CSO outfalls closed
- Dry weather overflows eliminated
- Constitution Beach and Neponset River CSOs eliminated
- Annual CSO volume reduced by 2.5 billion gallons (76% reduction)
- More than 60% of remaining overflows receive treatment
- \$340 million spent to date
- Dramatic improvement in receiving water quality



# Dramatic Improvements In Bacterial Water Quality: Wet Weather

1987-1998 (Before Secondary Treatment  
and South System transfer)

1999 - 2005 (After Secondary Treatment  
and New Outfall)

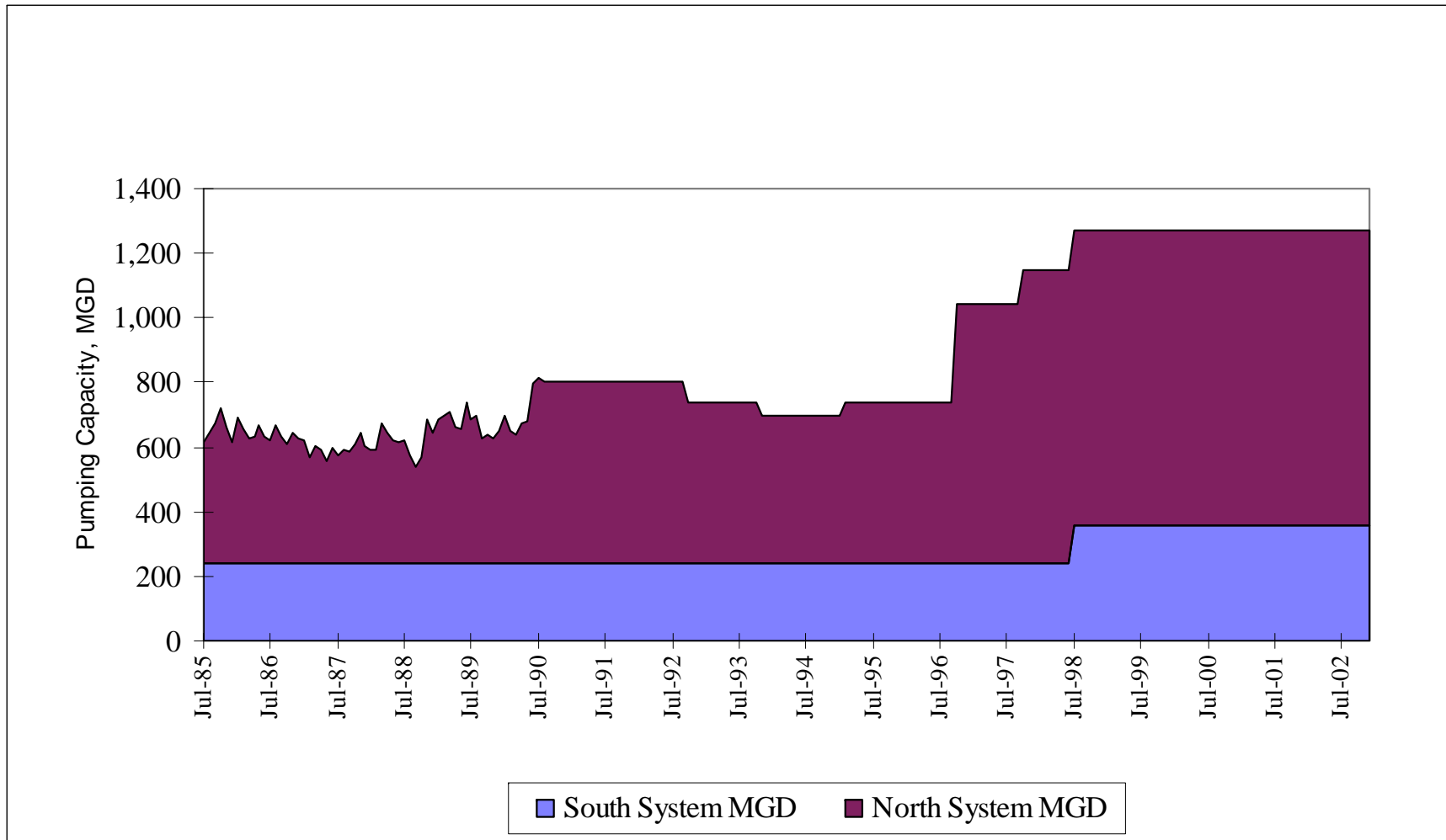


Average *Enterococcus* counts in Boston Harbor in wet weather

***The lighter the blue, the better***



## Deer Island Pumping Capacity Has Doubled Since 1985





# MWRA's CSO Projects





## 23 Projects Have Been Completed Or Are In Construction

<b>Completed Projects</b>			
<i>Hydraulic Relief at CAM005</i>			
<i>Hydraulic Relief at BOS017</i>			
<i>Chelsea Trunk Sewer Replacement</i>			
<i>Chelsea Branch Sewer Relief</i>			
<i>CHE008 Floatables Control and Outfall Repair</i>	<b>In Construction</b>		
<i>Cottage Farm CSO Facility Upgrade</i>	<i>Pleasure Bay Drainage Improvements (87% complete)</i>		
<i>Prison Point CSO Facility Upgrade</i>	<i>Union Park Treatment Facility (90% complete)</i>		
<i>Somerville Marginal CSO Facility Upgrade</i>	<i>Charlestown BOS019 Storage Conduit (33% complete)</i>		
<i>Commercial Point CSO Facility Upgrade</i>	<i>East Boston Branch Sewer Relief (10% complete by Contract 1)</i>		
<i>Fox Point CSO Facility Upgrade</i>	<i>South Dorchester Bay Sewer Separation (88% complete)</i>		
<i>MWRA Floatables/Outfall Closing Projects</i>	<i>Stony Brook Sewer Separation (87% complete)</i>		
<i>Neponset River Sewer Separation</i>	<i>Fort Point Channel Sewer Separation (10% complete)</i>	<b>In Design</b>	<b>In Design Procurement</b>
<i>Constitution Beach Sewer Separation</i>	<i>Cambridge/Alewife Brook Sewer Separation (25%)</i>	<i>North Dorchester Bay CSO Tunnel and Facilities</i>	<i>E. Boston Branch Sewer Relief (Contracts 2 and 3 only)</i>
<i>Somerville Baffle Manhole Separation</i>	<i>Regionwide Floatables Control (75% complete)</i>	<i>Morrissey Boulevard Storm Drain</i>	<i>Reserved Channel Sewer Separation</i>





## 7 CSO Projects Still To Come

- Three projects are in design:
  - North Dorchester Bay Storage Tunnel
  - Reserved Channel Sewer Separation
  - Morrissey Boulevard Storm Drain
- New projects:
  - Bulfinch Triangle Sewer Separation
  - Brookline Sewer Separation
  - Cottage Farm Inflow Controls
  - Interceptor Gate Controls



## CSO BOS019 Storage Conduit, Charlestown



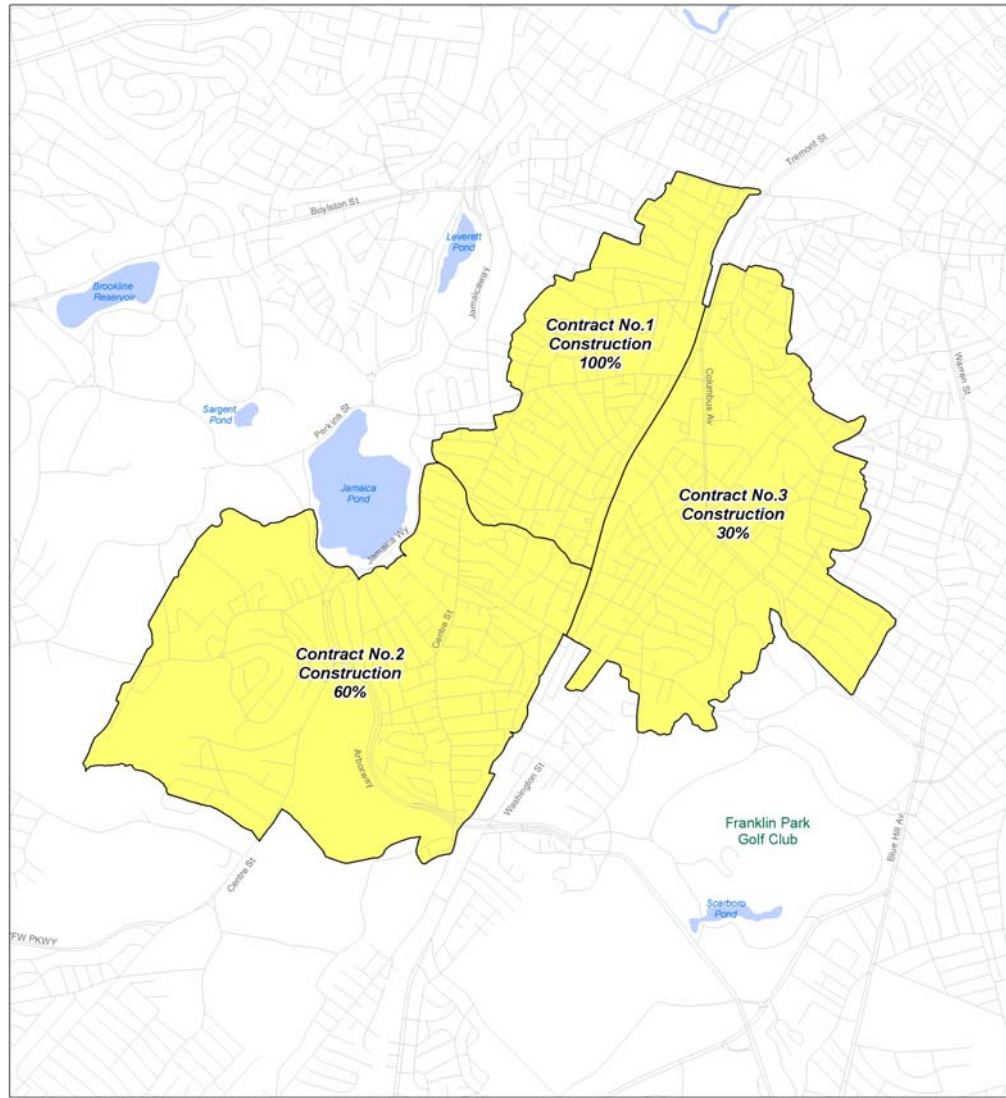


## Stony Brook Sewer Separation





# Stony Brook Sewer Separation



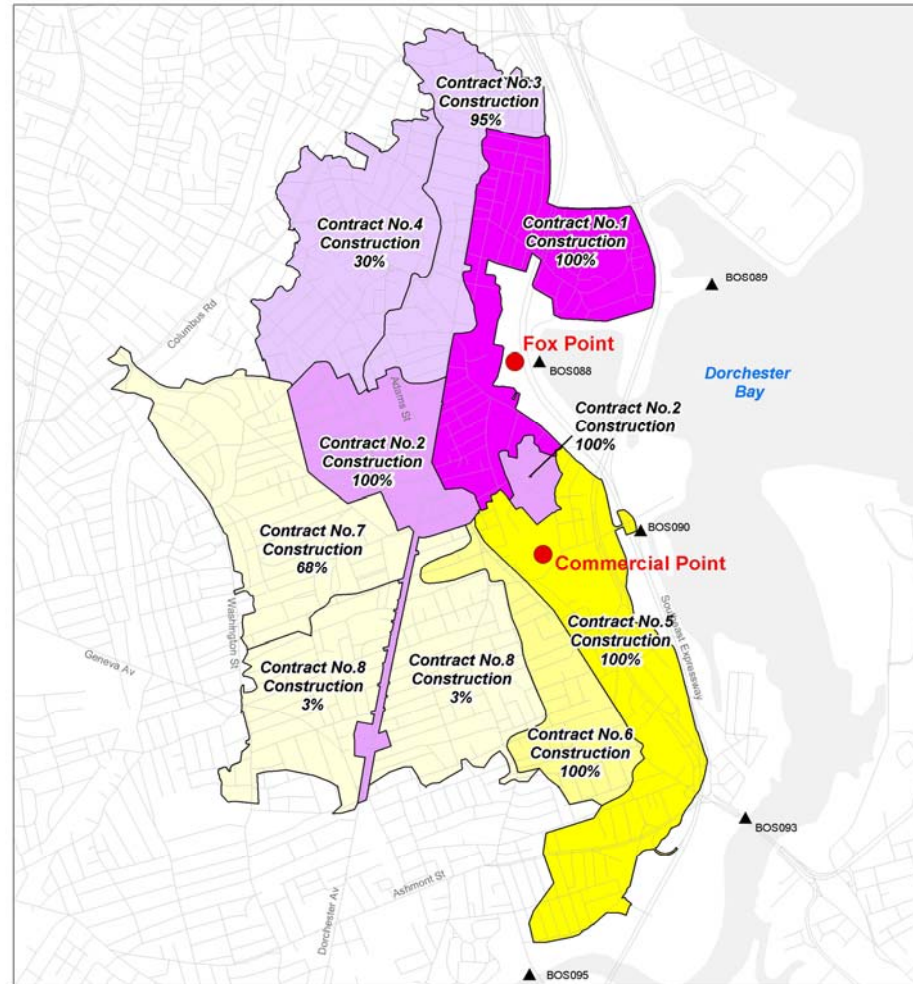


## South Dorchester Bay Sewer Separation





# South Dorchester Bay Sewer Separation



Contract 1 - Sewer separation complete  
Contract 2 - Sewer separation complete  
Contract 3 - Sewer separation 95% complete  
Contract 4 - Sewer separation 30% complete

Contract 5 - Sewer separation complete  
Contract 6 - Sewer separation complete  
Contract 7 - Sewer separation 68% complete  
Contract 8 - Sewer separation 3% complete



## CSO Facilities

- Commercial Point



- Fox Point





# Union Park CSO Facility

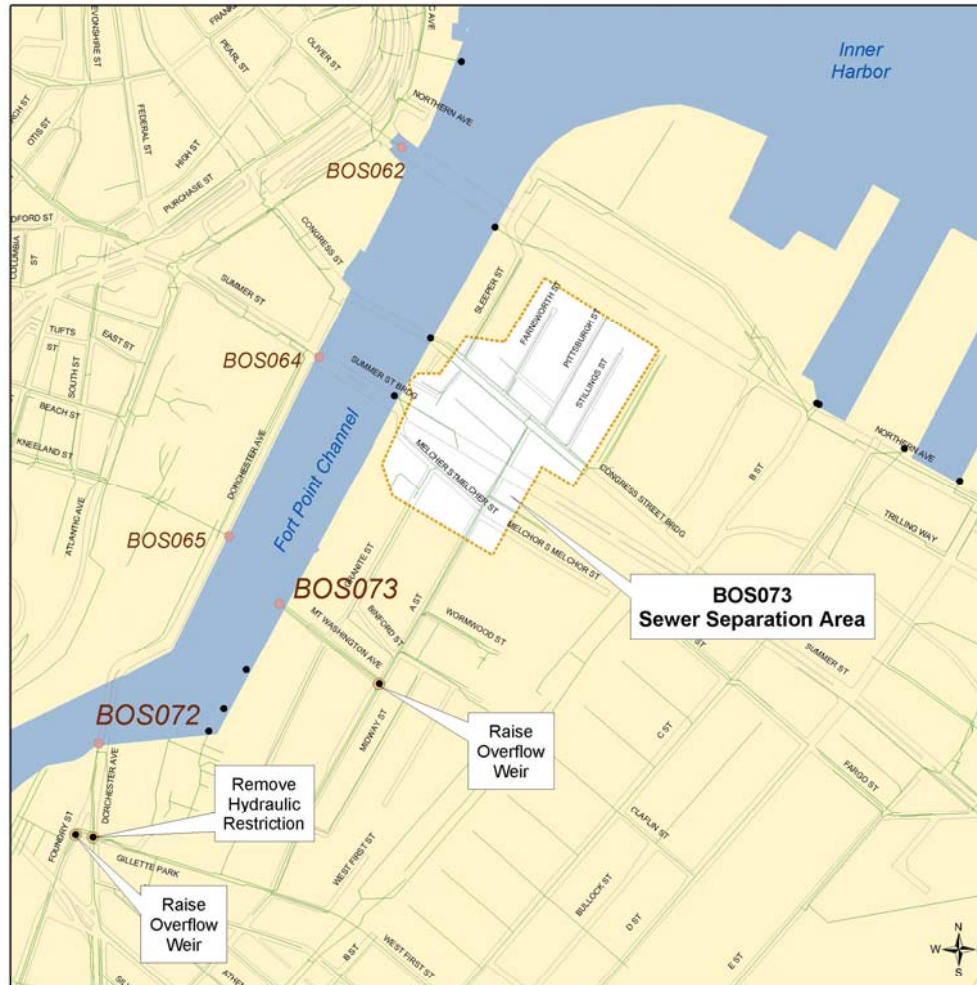


MWRRA UNION PARK DETENTION/TREATMENT FAC.  
CONTRACTOR BARLETTA ENGINEERING CORP.  
PHOTO # 31 DATE 11/09/05 CONTRACT #6285  
SCREENING ROOM, NEW BUILDING





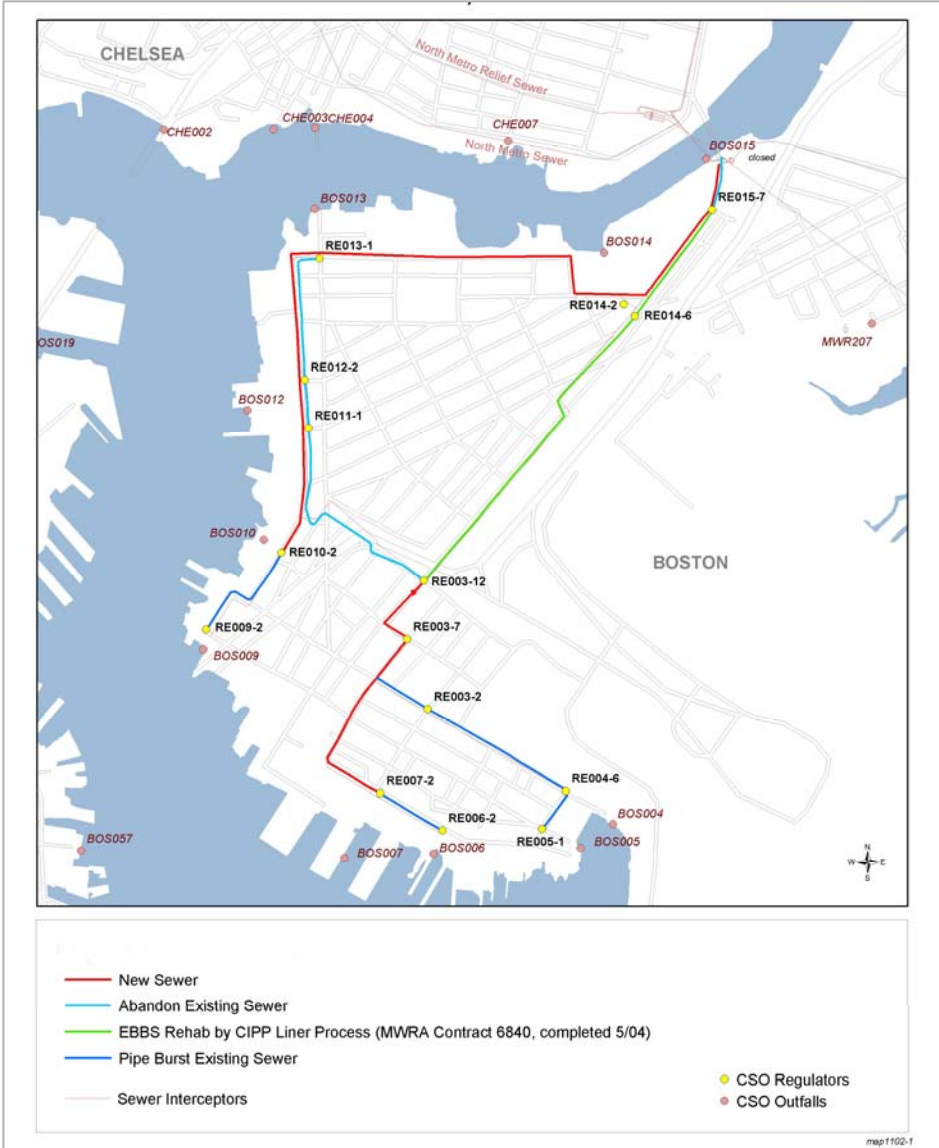
# Fort Point Channel Sewer Separation



- BWSC Pipes
- Weir
- CSO Outfalls
- Storm Drain Outfalls

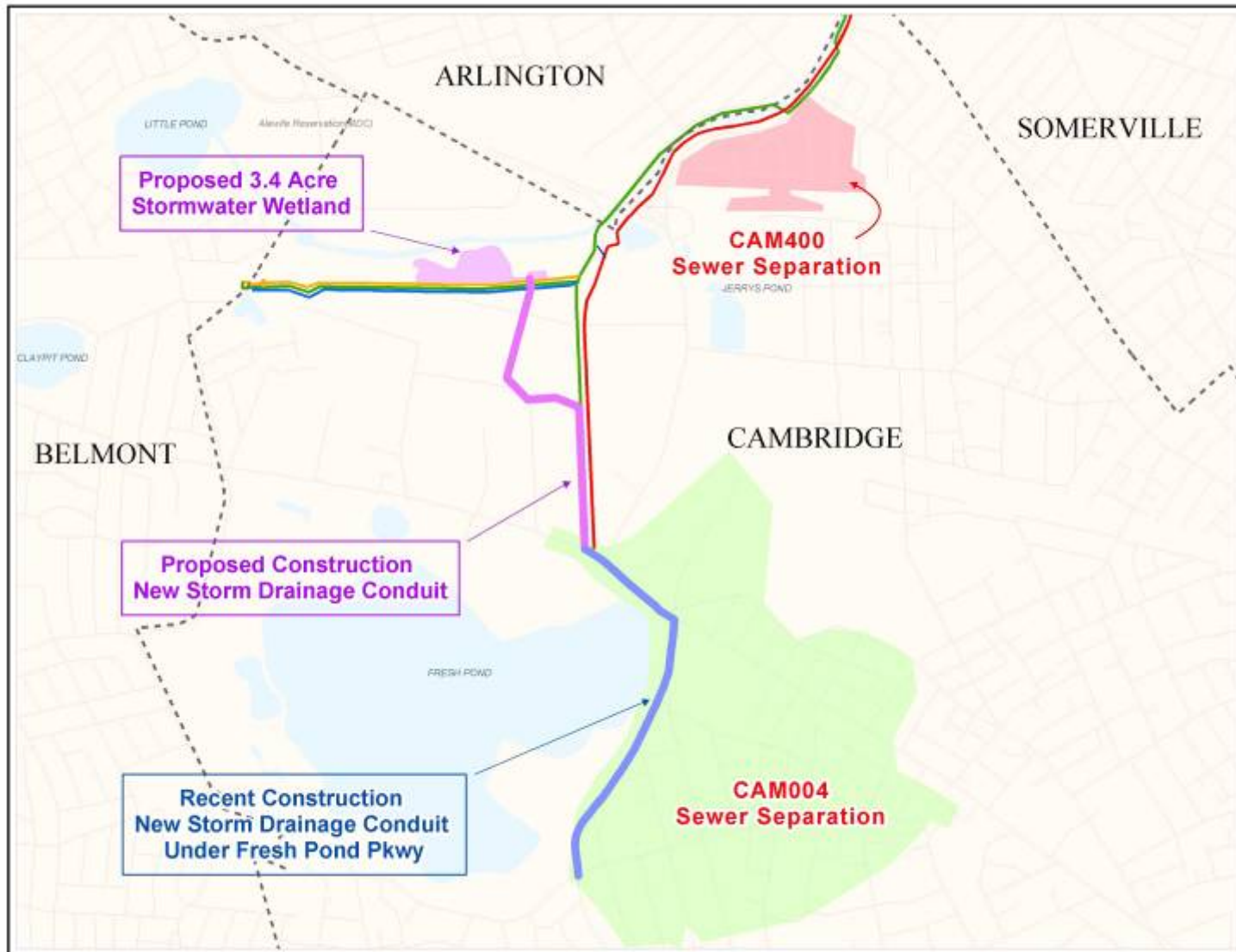


# East Boston Branch Sewer Relief





# Alewife Brook CSO Control: CAM002-004 Sewer Separation





# Pleasure Bay Storm Drain Improvements



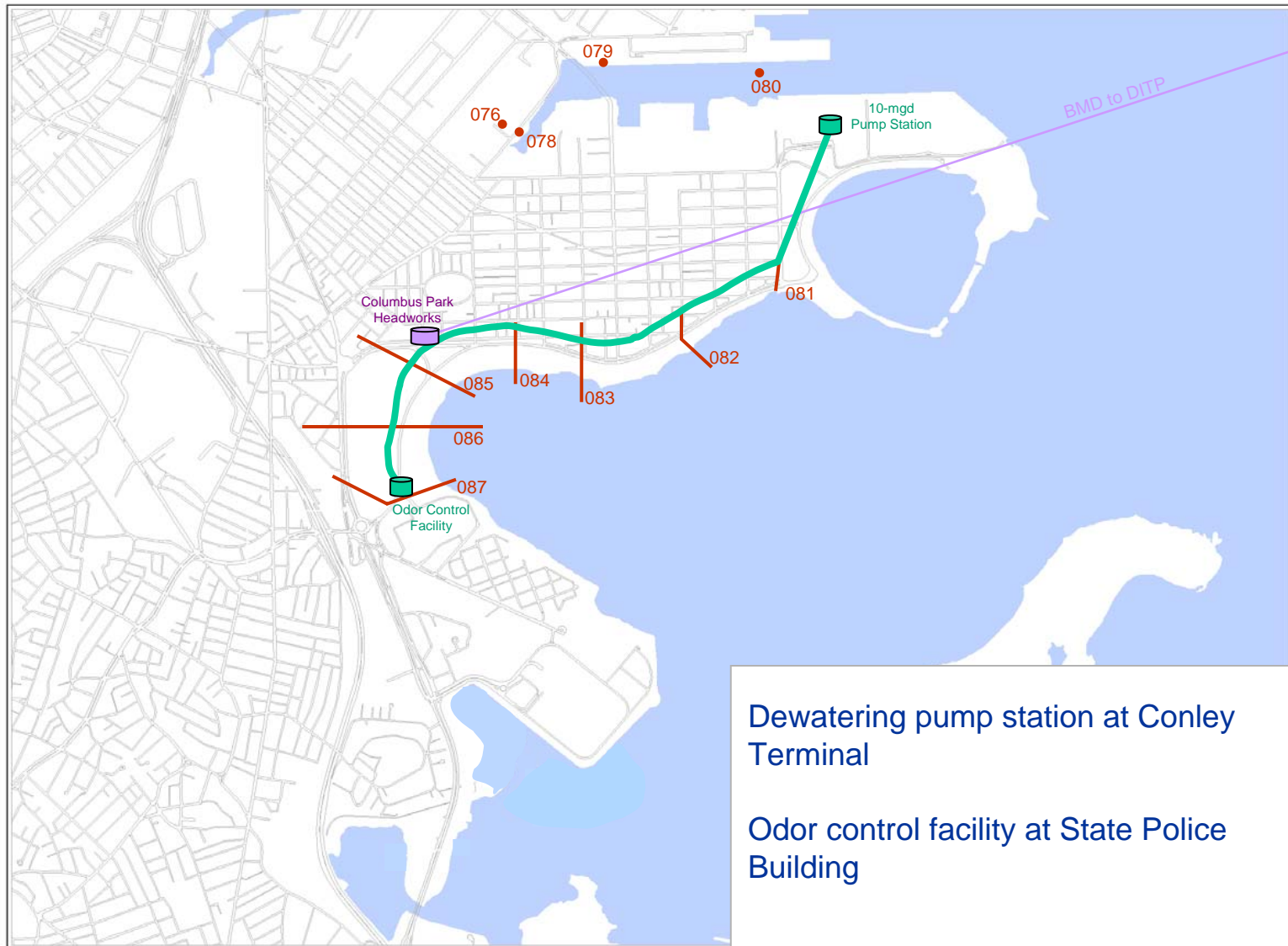


## North Dorchester Bay/Reserved Channel: 17-Foot Diameter, 2.1-Mile Soft Ground Tunnel



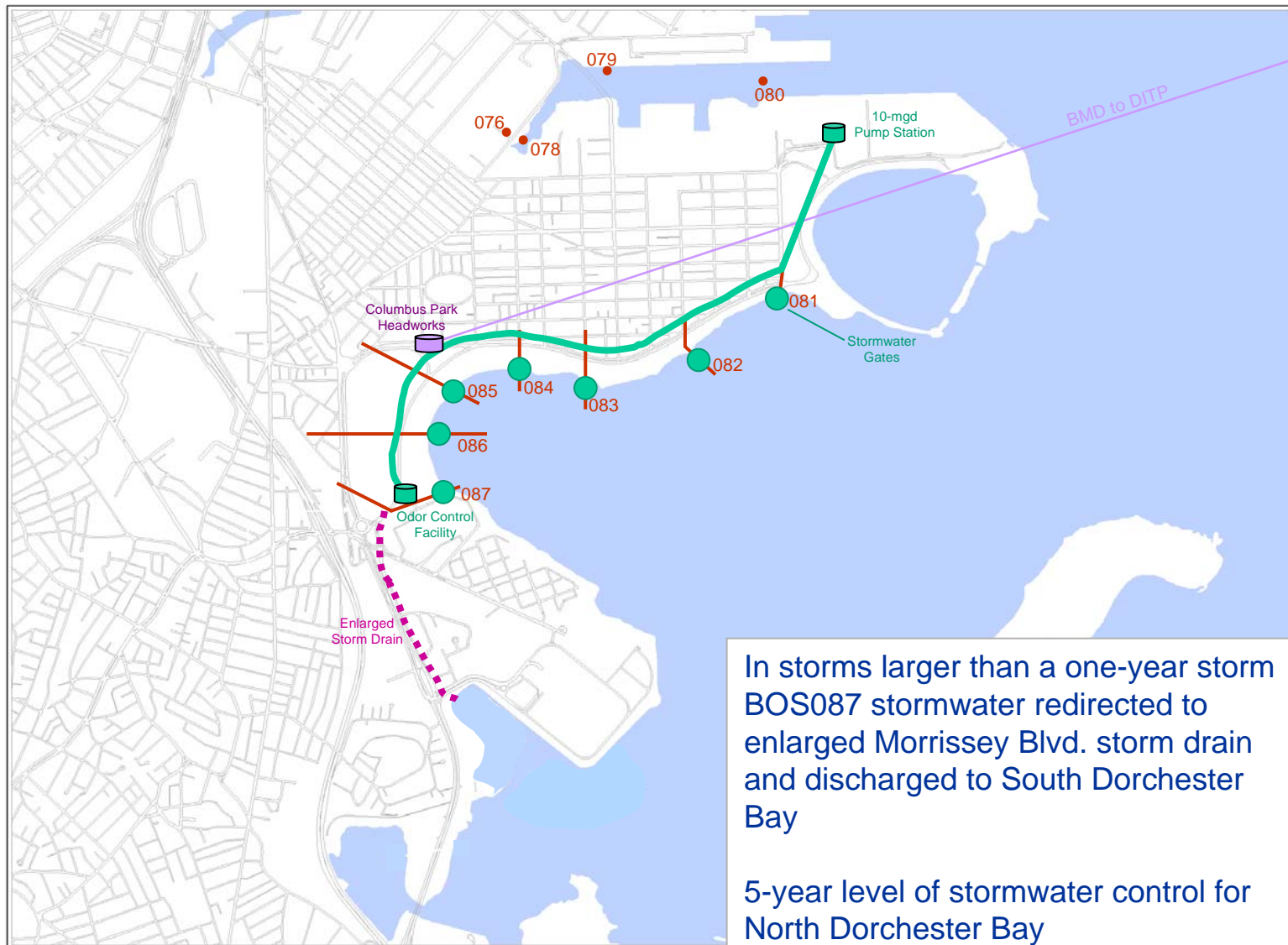


## North Dorchester Bay/Reserved Channel: Dewatering and Odor Control



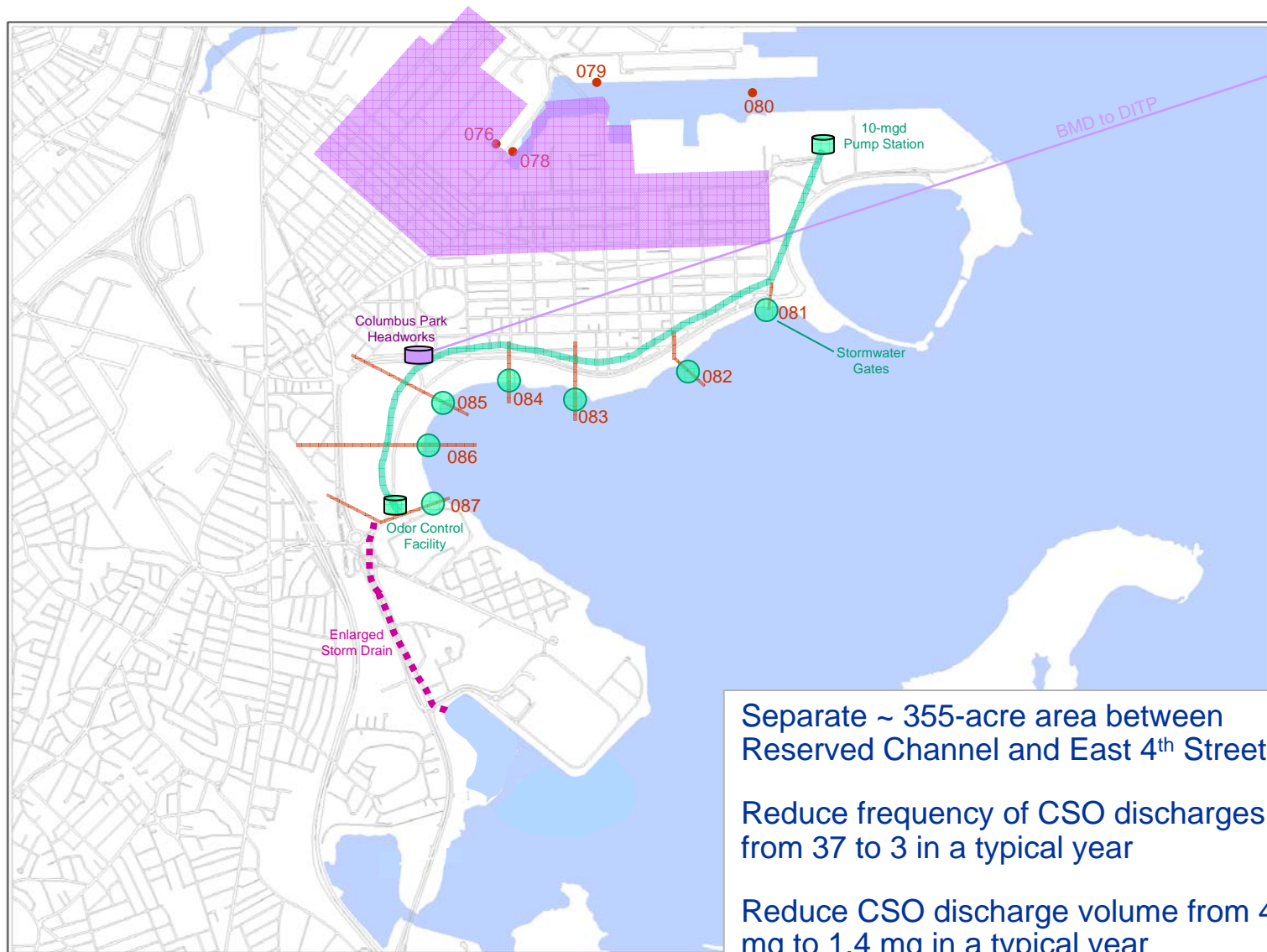


## North Dorchester Bay/Reserved Channel: Enlarged Morrissey Boulevard Storm Drain





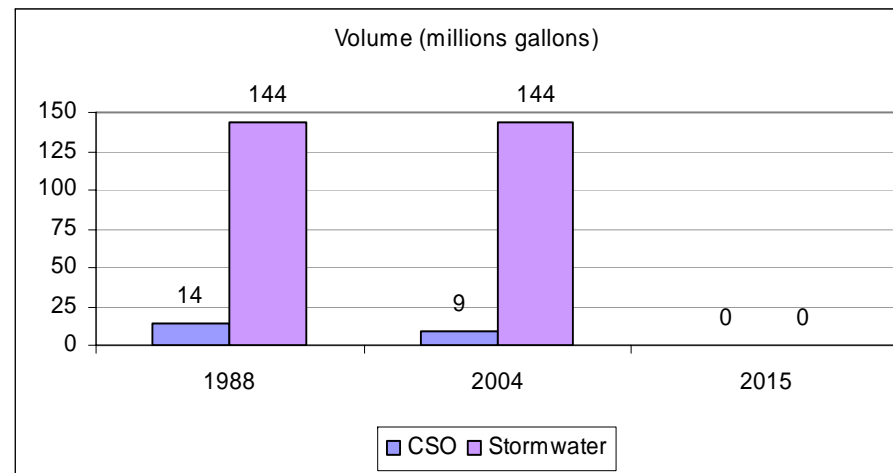
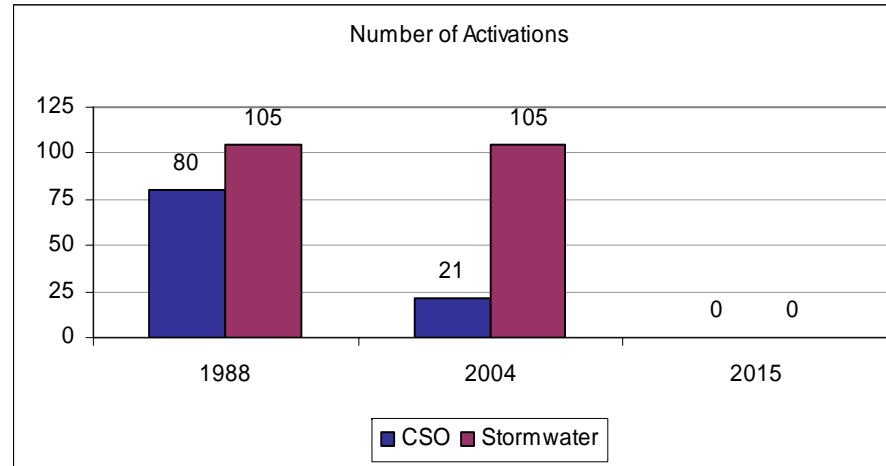
## North Dorchester Bay/Reserved Channel: Reserved Channel Sewer Separation







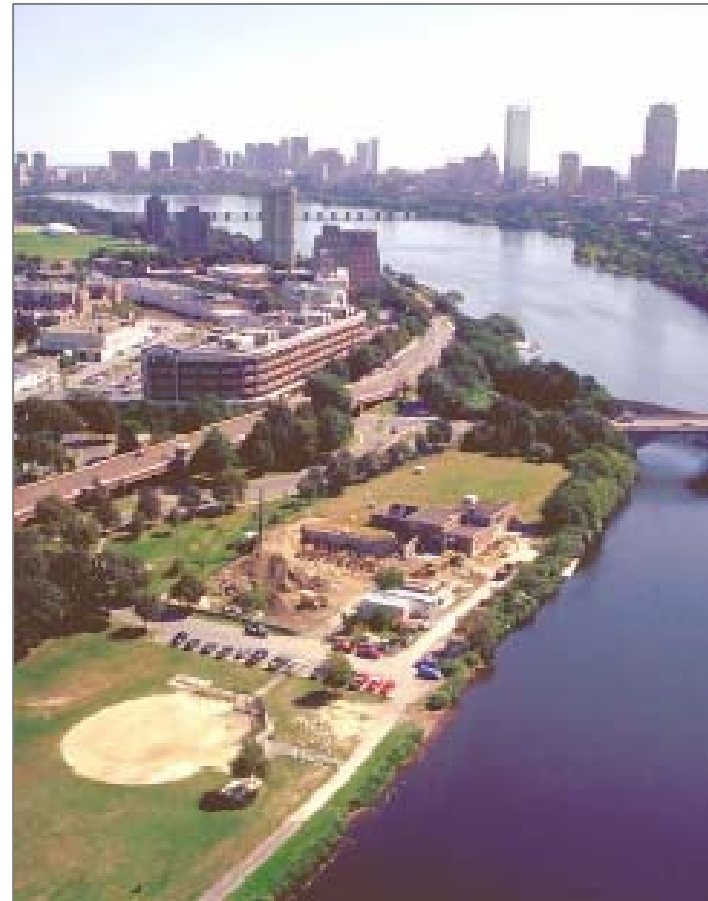
## Reductions in Overflows at South Boston Beaches in a Typical Year





## Charles River: A National Model For CSO Control

- The MWRA has already achieved significant reduction of CSO related impacts to the Charles River:
  - Sewer separation and hydraulic relief projects have dramatically reduced combined sewer overflows
  - Much more flow is sent to MWRA's new Deer Island Treatment Plant
  - Upgrades to Cottage Farm and Prison Point facilities have improved disinfection





## Charles River Report Card: B+ for 2005



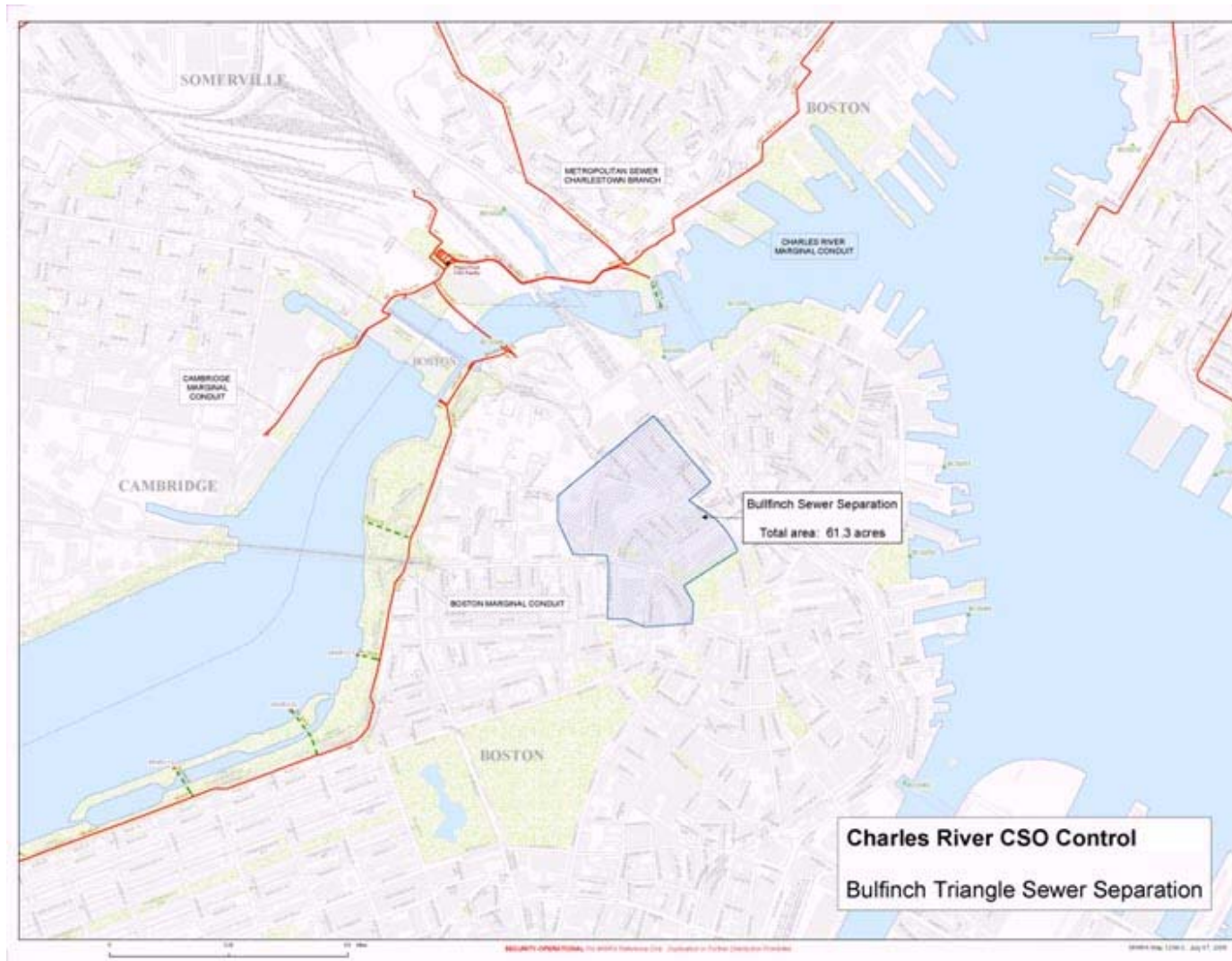


# Charles River: System Optimization





# Charles River: Bullfinch Triangle Sewer Separation



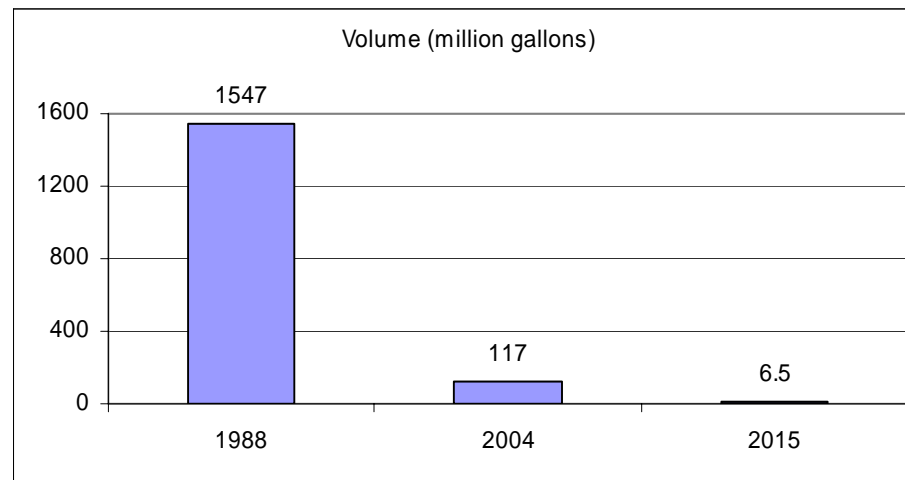
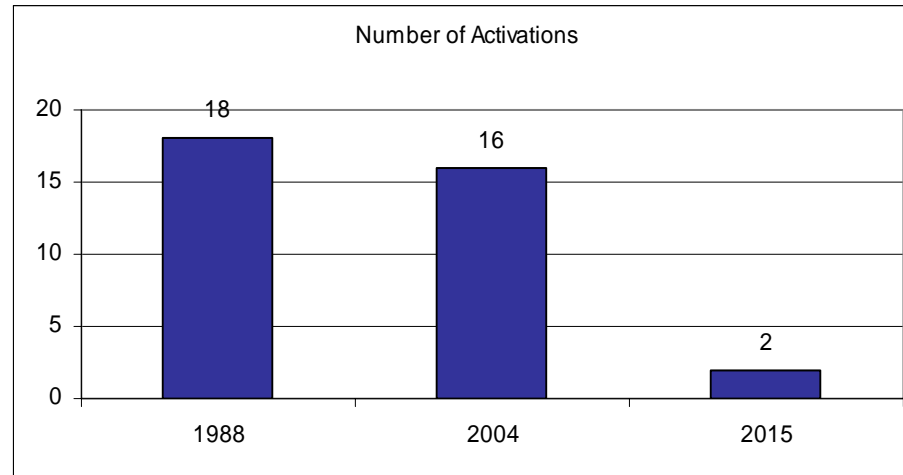


# Charles River: Brookline Sewer Separation





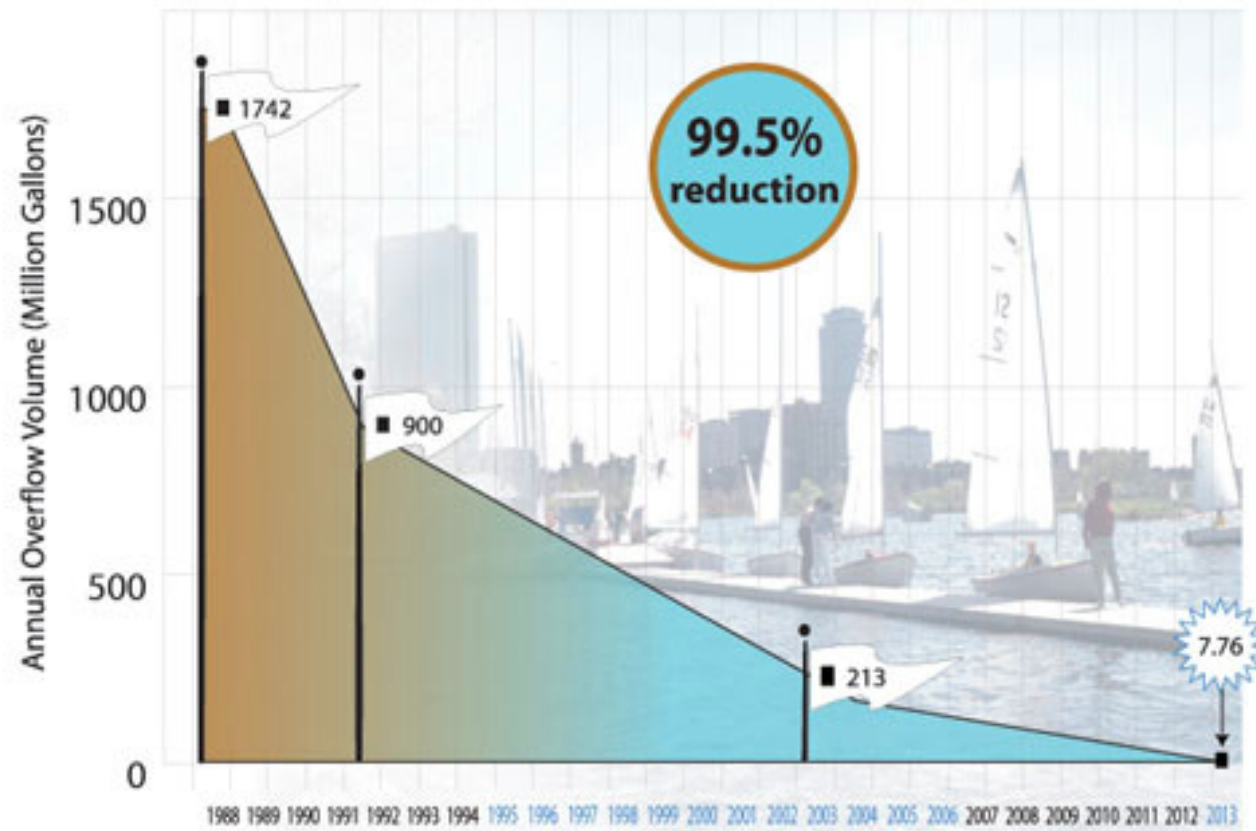
## Reductions in Overflows From Cottage Farm in a Typical Year





## Reductions in Overflows to Charles River

### Reduction of Combined Sewer Overflow Discharges to Charles River

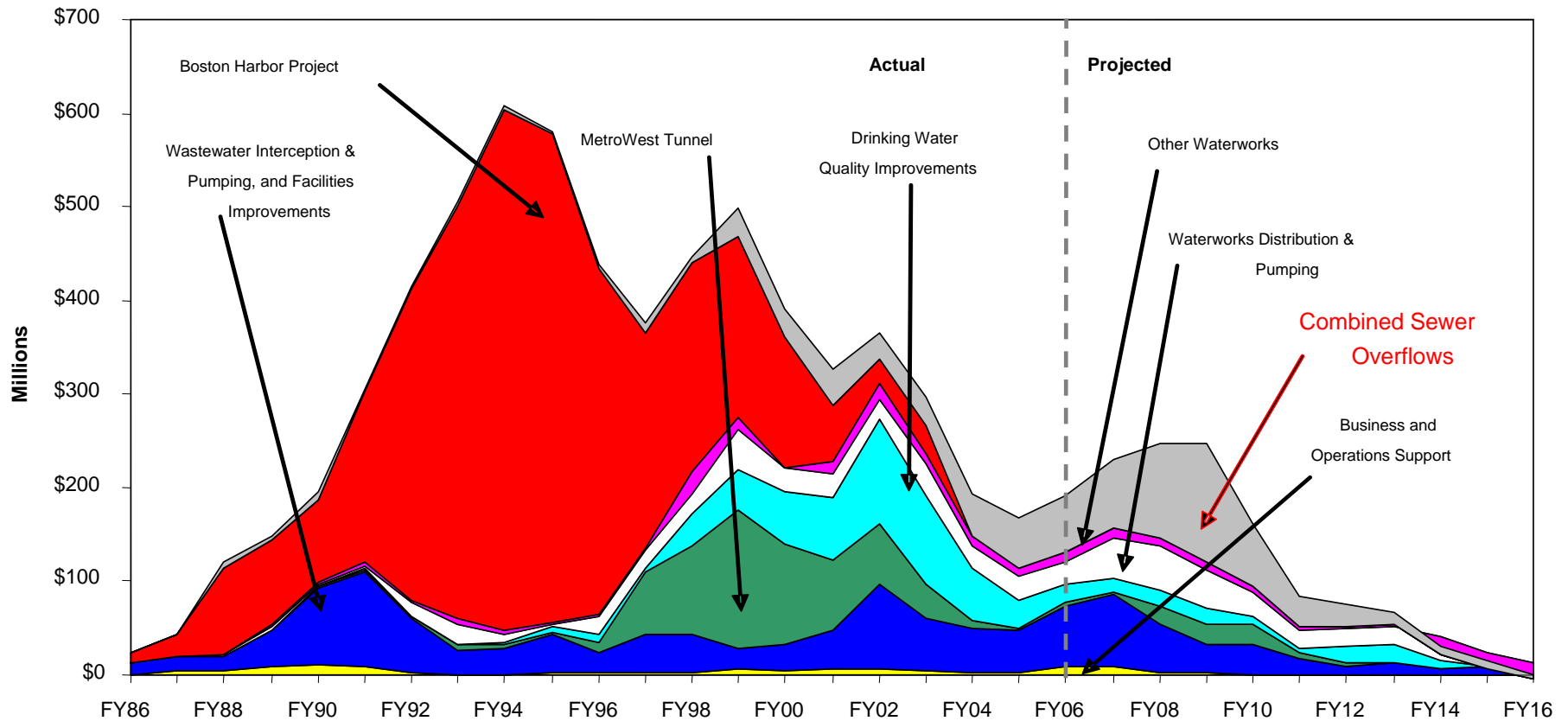


sources: MWRA & EPA New England





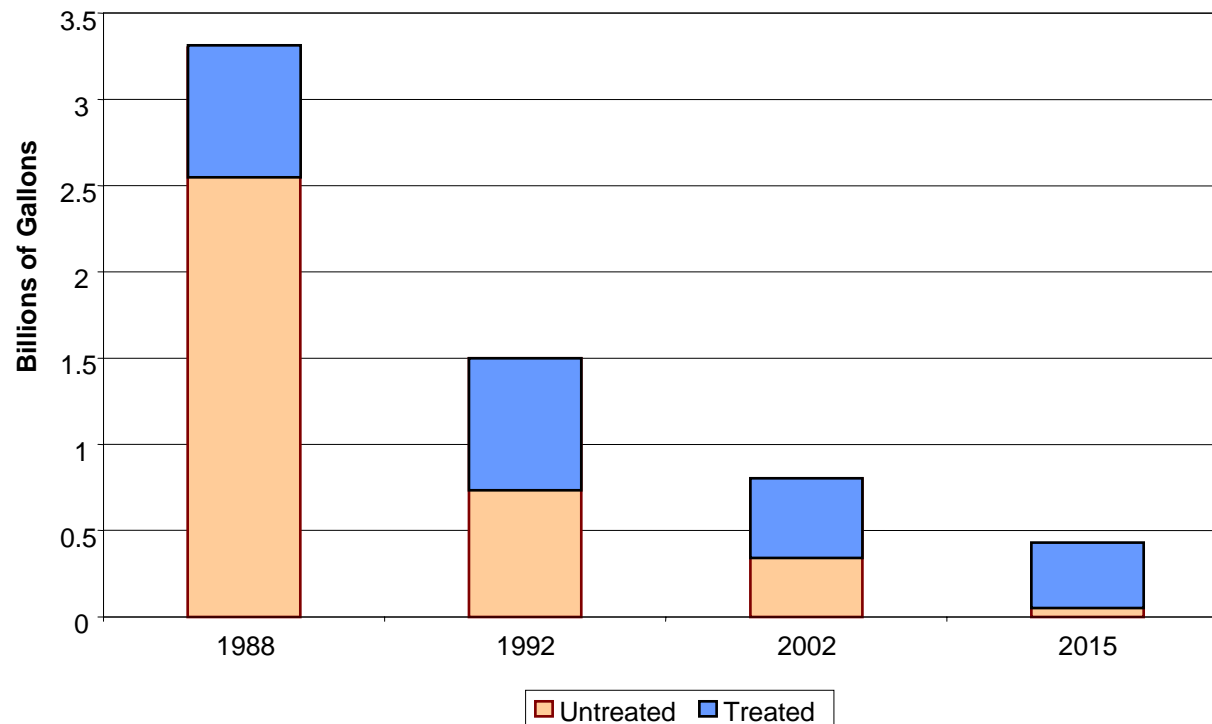
# MWRA's Capital Improvement Program 1986 - 2016





## Annual CSO Volume Has Been Reduced Dramatically

- Annual CSO volumes have already been reduced by 2.5 billion gallons
- By 2015, 95% of the remaining CSO flows will be treated





On April 27, 2006, Judge Stearns Approved the Long-Term CSO Plan

*“I believe that this is one of the most successful modern public works projects ever undertaken.”*

- U.S. District Court Judge Richard G. Stearns