



# Massachusetts Water Resources Authority

## Combined Sewer Overflow Control Plan



## Annual Progress Report 2006

March 2007



## Long-Term Plan Approval - April 27, 2006

- Federal/ state approvals of revised long-term CSO control plan
- 35 projects with distinct design and construction milestones in Schedule Seven
- Project implementation schedule to 2015; verification of attaining CSO control goals by 2020



## Long-Term Plan Approval and Second Stipulation

- Regulatory commitment to reissue CSO variances for Charles River & Alewife Brook/Upper Mystic River through 2020
- Variances limited to implementation of long-term CSO control plan
- After achievement of goals, each CSO permittee will be responsible for its respective outfalls



## Judge Stearns on MWRA's Long-Term CSO Control Plan April 27, 2006

*“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



# CSO Projects

35 projects

Range of technologies

Site-specific hydraulic performance

14 receiving water segments

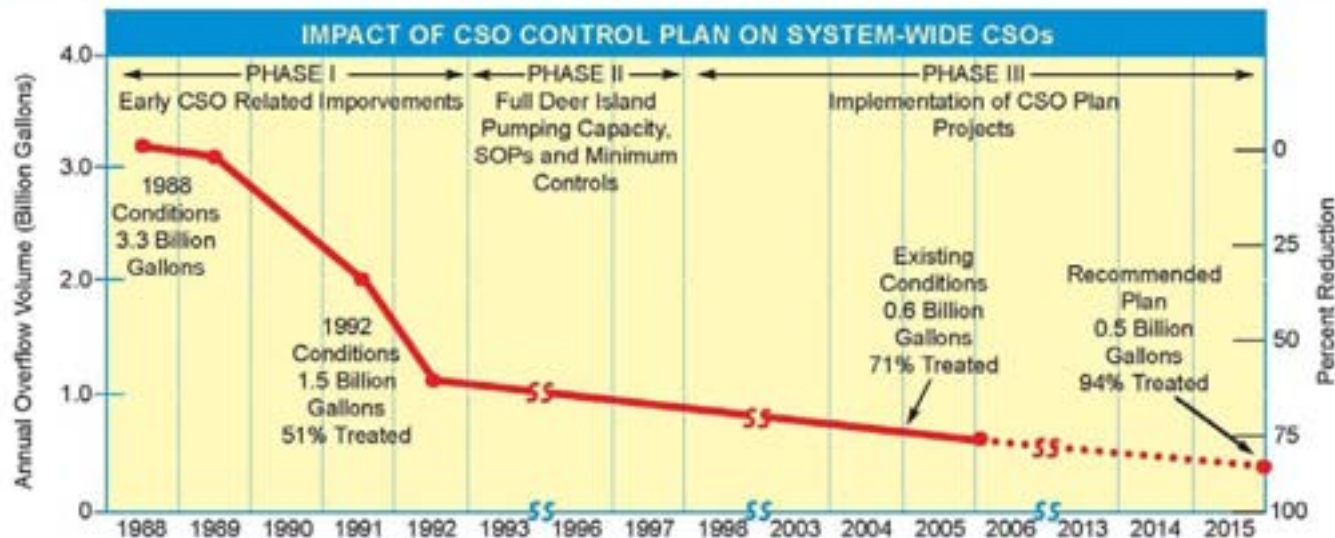
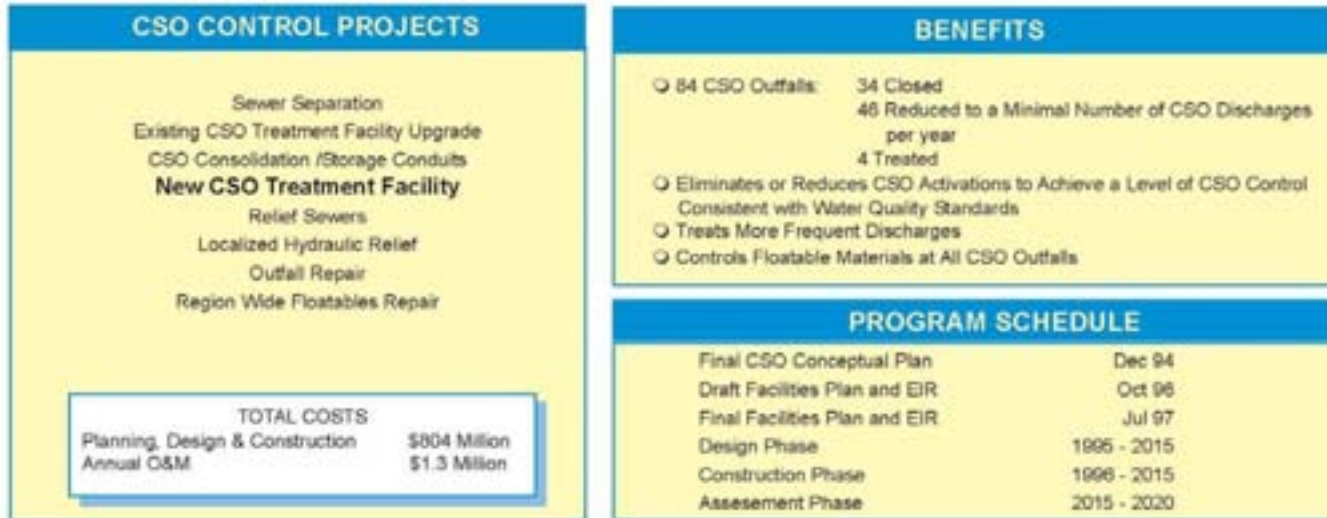
Site-specific uses and water quality goals





# Long-term Plan and CSO Control Goals

FIGURE 2 CSO Control Recommended Plan Benefits





# 16 Of The 35 CSO Projects Are Completed, 9 Are In Construction

Completed Projects		In Design		Not Started	
<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>					
<i>Cottage Farm CSO Facility Upgrade</i>					
<i>Prison Point CSO Facility Upgrade</i>	<b>In Construction</b>	<i>Prison Point Facility Optimization Study</i>			
<i>Somerville Marginal CSO Facility Upgrade</i>	<i>North Dorchester Bay – Tunnel</i>	<i>North Dorchester Bay – Facilities</i>			
<i>Commercial Point CSO Facility Upgrade</i>	<i>East Boston Branch Sewer Relief (Contract 1)</i>	<i>E. Boston Branch Sewer Relief (Contracts 2 and 3)</i>			
<i>Fox Point CSO Facility Upgrade</i>	<i>Union Park Treatment Facility (90% complete)</i>	<i>Brookline Connection and Cottage Farm Inflow Controls</i>			
<i>MWRA Floatables/Outfall Closing Projects</i>	<i>Charlestown BOS019 Storage Conduit (90% complete)</i>	<i>Reserved Channel Sewer Separation</i>			
<i>Neponset River Sewer Separation</i>	<i>South Dorchester Bay Sewer Separation (98% complete)</i>	<i>Bulfinch Triangle Sewer Separation</i>		<b>Not Started</b>	
<i>Constitution Beach Sewer Separation</i>	<i>Fort Point Channel Sewer Separation (95% complete)</i>	<i>Brookline Sewer Separation</i>		<i>Charles R. Interceptor Gate Controls/Add'l. Connections</i>	
<i>Somerville Baffle Manhole Separation</i>	<i>Morrissey Boulevard Storm Drain</i>	<i>CAM004 Outfall and Basin (Cambridge Contract 12)</i>		<i>MWR003 Gate and Rindge Ave. Siphon Relief</i>	
<i>Pleasure Bay Storm Drain Improvements</i>	<i>CAM004 Sewer Separation (25%) (Cambridge Contracts 1 and 2)</i>	<i>CAM004 Sewer Separation (Cambridge Contracts 8 and 9)</i>		<i>CAM400 Manhole Separation</i>	
<i>Stony Brook Sewer Separation</i>	<i>Regionwide Floatables Control (75% complete)</i>	<i>Regionwide Floatables Control (Cambridge Outfalls)</i>		<i>Alewife Interceptor Connection Relief and Floatables Controls</i>	

Total number of discrete projects referenced in Schedule Seven: 35



## CSO Progress in 2006

In 2006, MWRA spent \$45.3 million to continue its high level of CSO design and construction activity to meet Federal Court obligations

Construction related costs totaled \$44.0 million.

Planning and design:	\$1.3 million
Construction contracts:	38.1 million
Construction related services	4.2 million
<u>Land/easement/permits:</u>	<u>1.7 million</u>
Total CSO capital spending in 2006:	\$45.3 million





## South Dorchester Bay Sewer Separation

Total cost \$118.2M

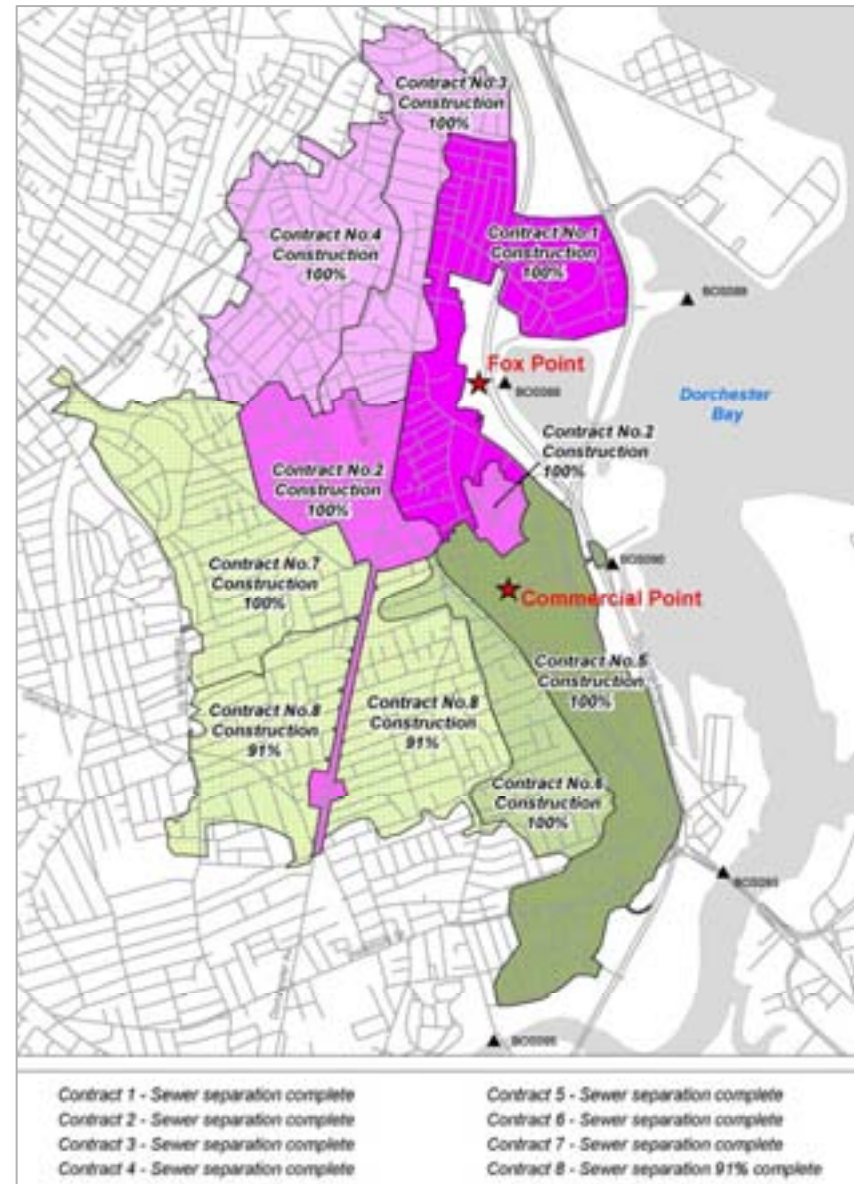
Eliminates 30 million gallons discharged 20 times per year

Construction 99% complete

Completion: June 2007, ahead of schedule

Flow monitoring underway to close CSO regulators

MWRA to decommission Fox Point and Commercial Point facilities





## Stony Brook Sewer Separation - \$45 million

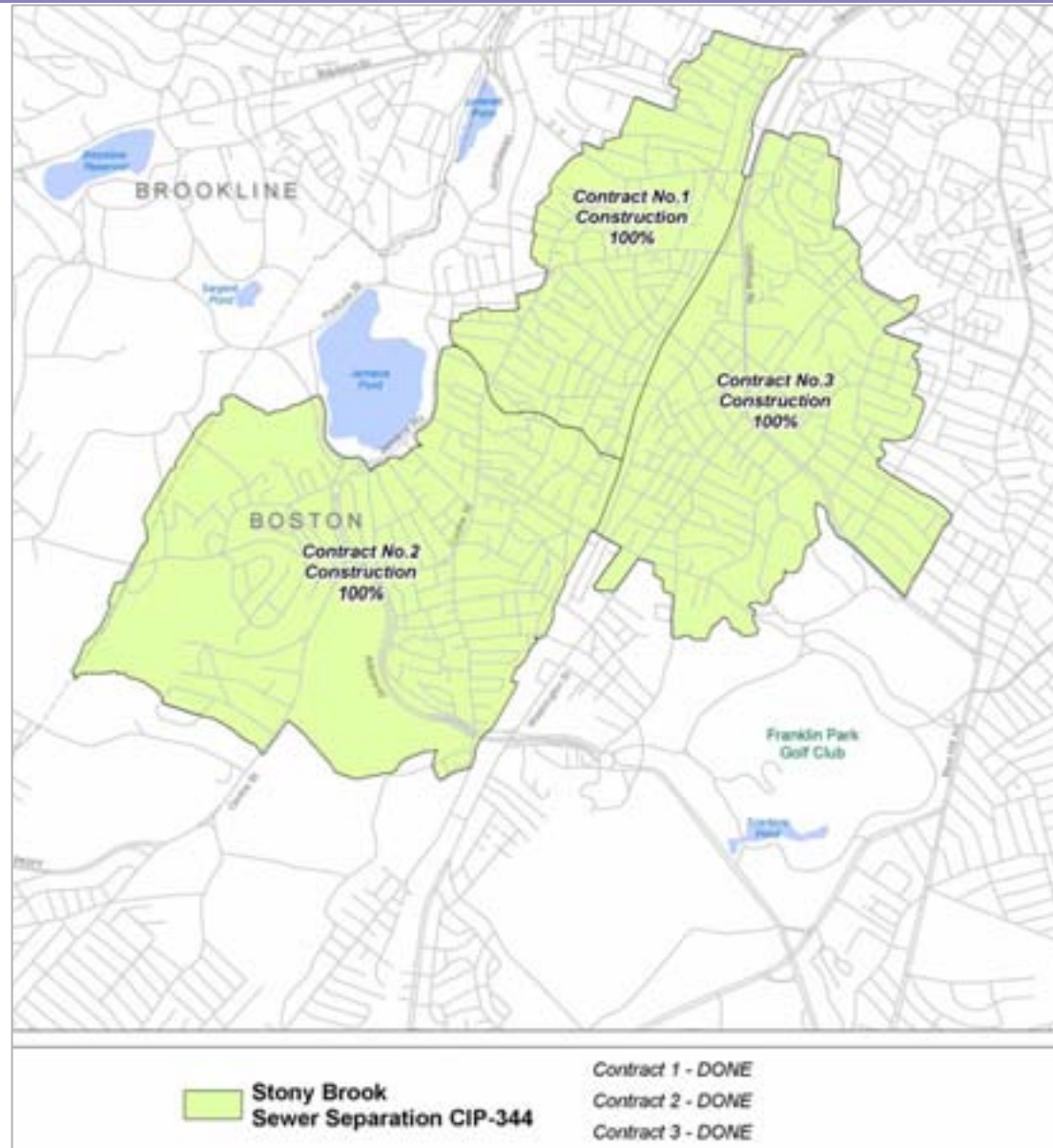
Completed Sept. 2006,  
on schedule.

BWSC now verifying  
attainment of CSO control  
goals.

CSO discharges: from 22  
to 2 per year

Annual CSO volume: from  
44.5 million gallons to 0.13  
million gallons

99.7% reduction in annual  
volume

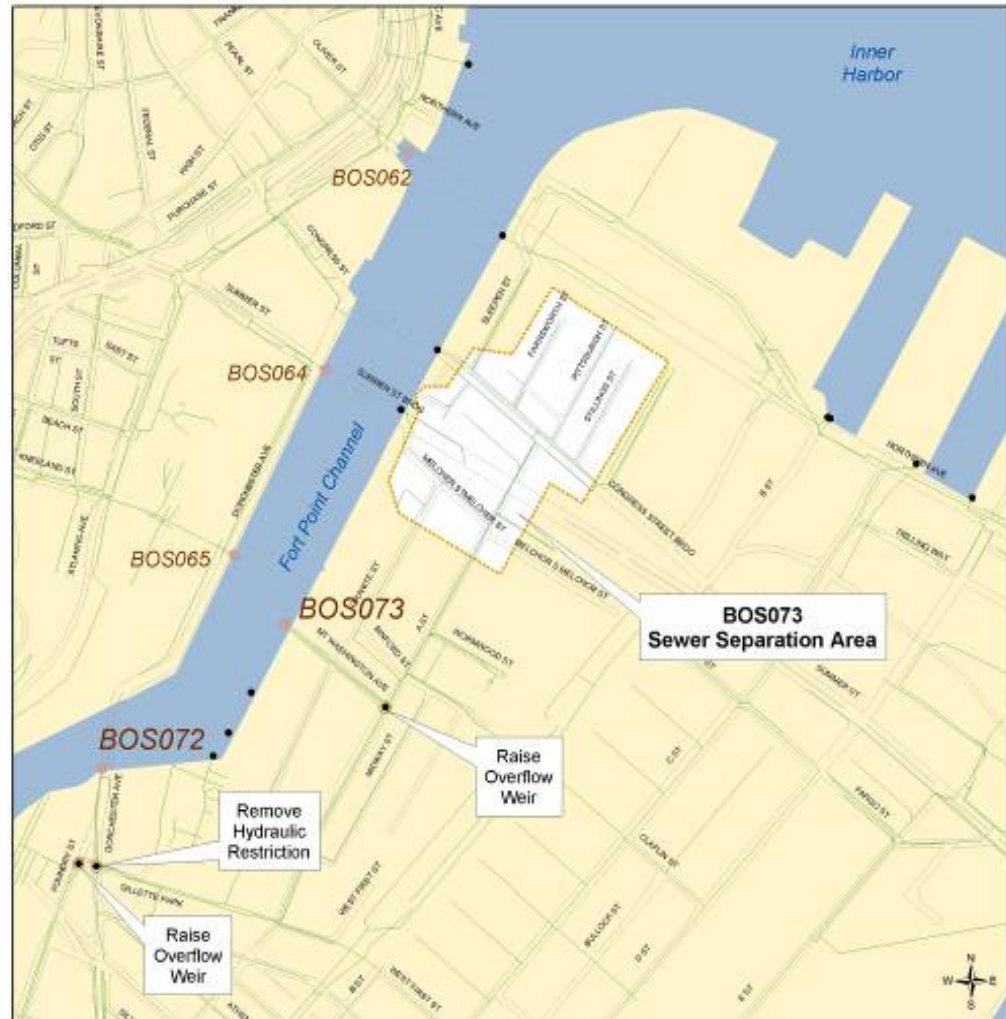




## Fort Point Channel Sewer Separation - \$7.7M

BWSC substantial completion  
March 2007, on schedule

Reduces CSOs at BOS072 and  
BOS073 from 9 activations and  
3.0 million gallons to zero  
discharges in a typical year.



— BWSC Pipes  
● Weir

● CSO Outfalls  
● Storm Drain Outfalls



## Little Mystic Channel CSO Storage Conduit, Charlestown

98% complete, with substantial completion March 2007, on schedule

Construction cost: \$11.0M

Reduces discharges to Little Mystic Channel from 13 activations and 4.4 million gallons per year to 2 activations and 0.6 million gallons, an 86% reduction.

Construction of BOS019 CSO diversion structure in Chelsea Street



New pump station to dewater the BOS019 storage conduit





# Little Mystic Channel CSO Storage Conduit, Charlestown

Construction of the twin storage conduit at BOS019





## Union Park Detention/Treatment Facility



Construction cost \$46.1M

- Partial Acceptance December 31, 2006
- Substantial completion April 2007

Reduces discharges to Fort Point Channel from 25 to 17 times per year and treats remaining flows





## South Boston CSO Control Leaps Forward

Commenced construction of \$145.7 million North Dorchester Bay Storage Tunnel in August 2006

- Mining shaft commences February 2007
- Commenced design of Pump Station, Odor Control, Force main November 2006

Tunnel boring machine to be on-site by October 2007





## Pleasure Bay Storm Drain Improvements

- \$3.2 million project completed March 2006, ahead of schedule
- **Eliminated wet weather discharges to Pleasure Bay Beach**







## Morrissey Boulevard Storm Drain

- **BWSC commenced construction December 2006, on schedule**
- **BWSC cost estimate has doubled, to \$32.7 million**





## Reserved Channel Sewer Separation

- BWSC commenced design in July 2006, on schedule
- Reduces CSO from 37 activations and 41 million gallons to 3 activations and 1.5 million gallons, a 96% reduction

355 acres

Total cost:  
\$59.2M

Completion:  
Dec 2015





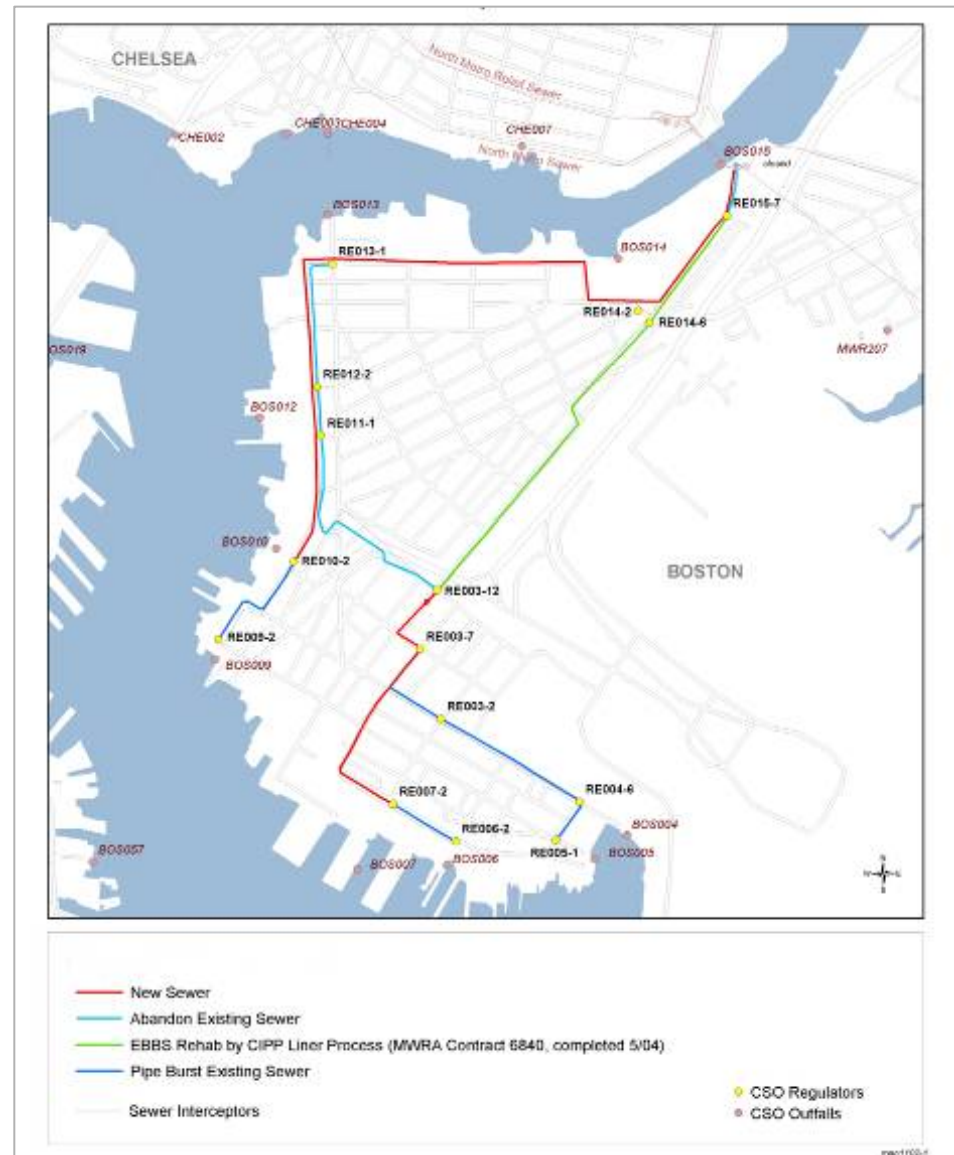
## East Boston Branch Sewer Relief

Construction Contract 1 completed in 2004

MWRA commenced \$3.4 million design contract in June 2006

4.5 miles of new sewers.  
Total project cost \$73.5 million

Reduces CSOs at 10 East Boston outfalls from 31 activations and 41 million gallons to 6 activations and 8.6 million gallons

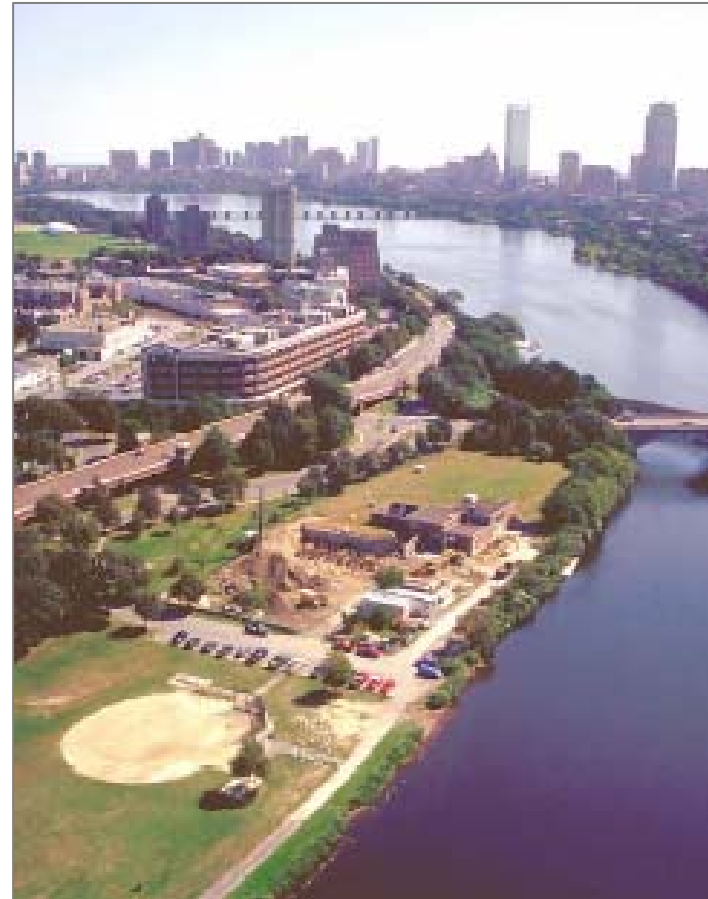




## Charles River: A National Model For CSO Control

The MWRA has already achieved significant reduction of CSO related impacts to the Charles River:

- Much more flow to Deer Island Treatment Plant.
- Sewer separation and hydraulic relief projects completed.
- Upgrade to Cottage Farm facility has improved disinfection
- System optimization and target sewer separation projects added to the plan





## Brookline Connection/Cottage Farm Inflow Improvements

MWRA commenced design  
Sept. 2006, on schedule.

Design contract: \$1.3M

Total cost: \$4.3M

Cottage Farm  
treated discharges:

1997 goal: 7 activations  
and 24 million gallons.

New goal: 2 activations  
and 6.3 million gallons





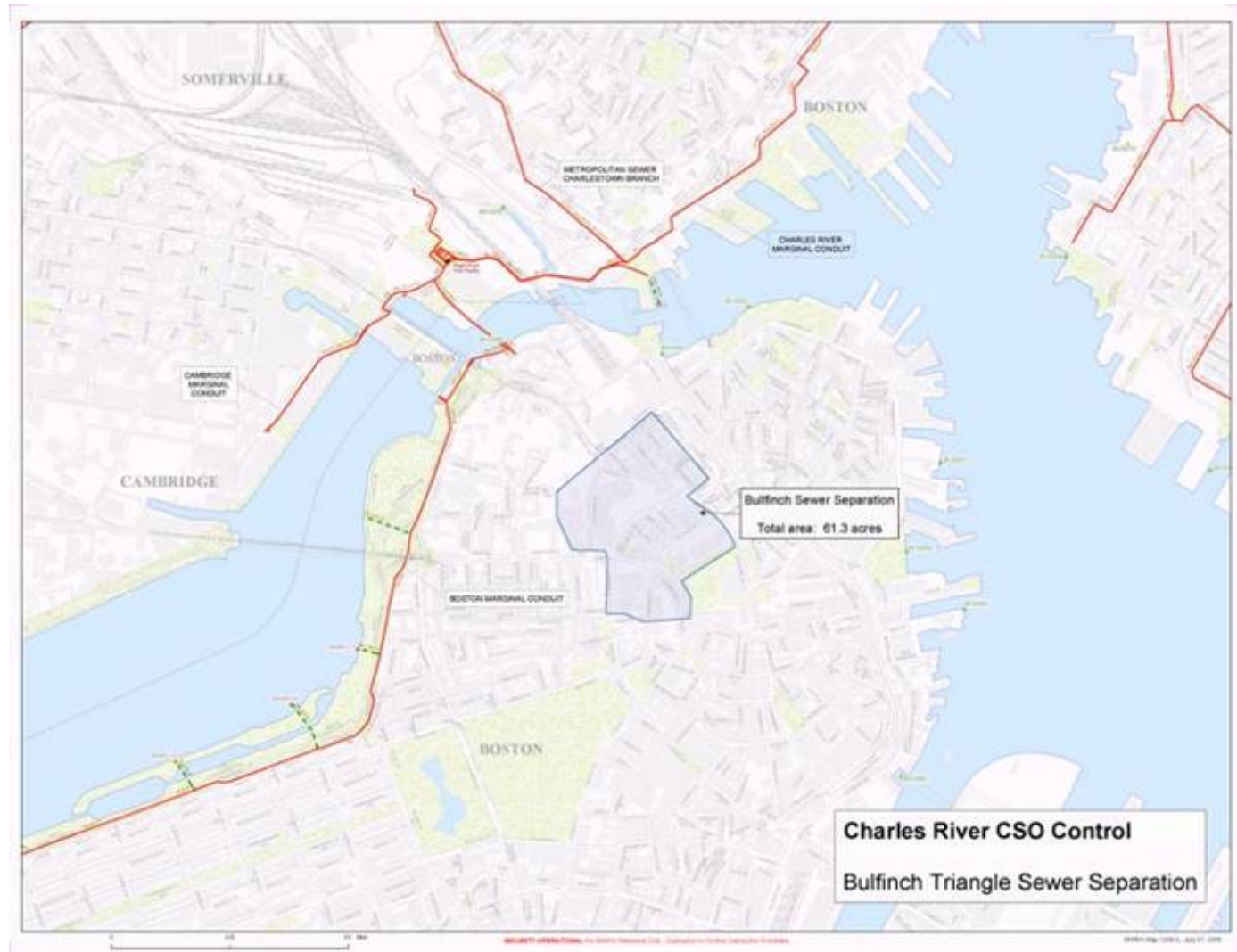
## Charles River: Bullfinch Triangle Sewer Separation

- BWSC commenced design in Aug 2006, on schedule.

**61 acres**

**Total cost:  
\$4.4M**

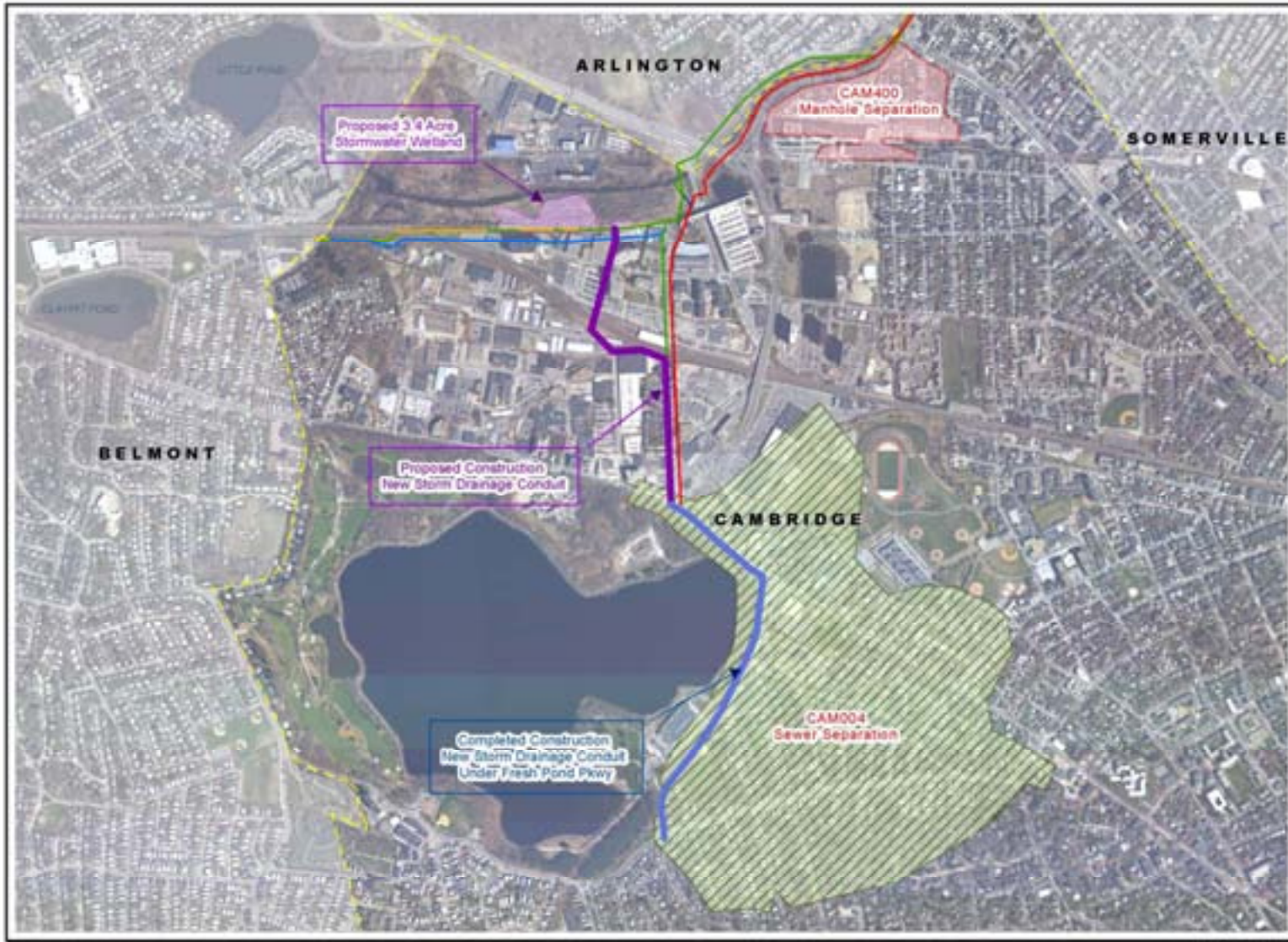
**Complete:  
July 2013**







# Alewife Brook CSO Control Plan



Alewife Brook CSO Control - Revised Plan





## Alewife Brook CSO Control Plan

### Cost increases:

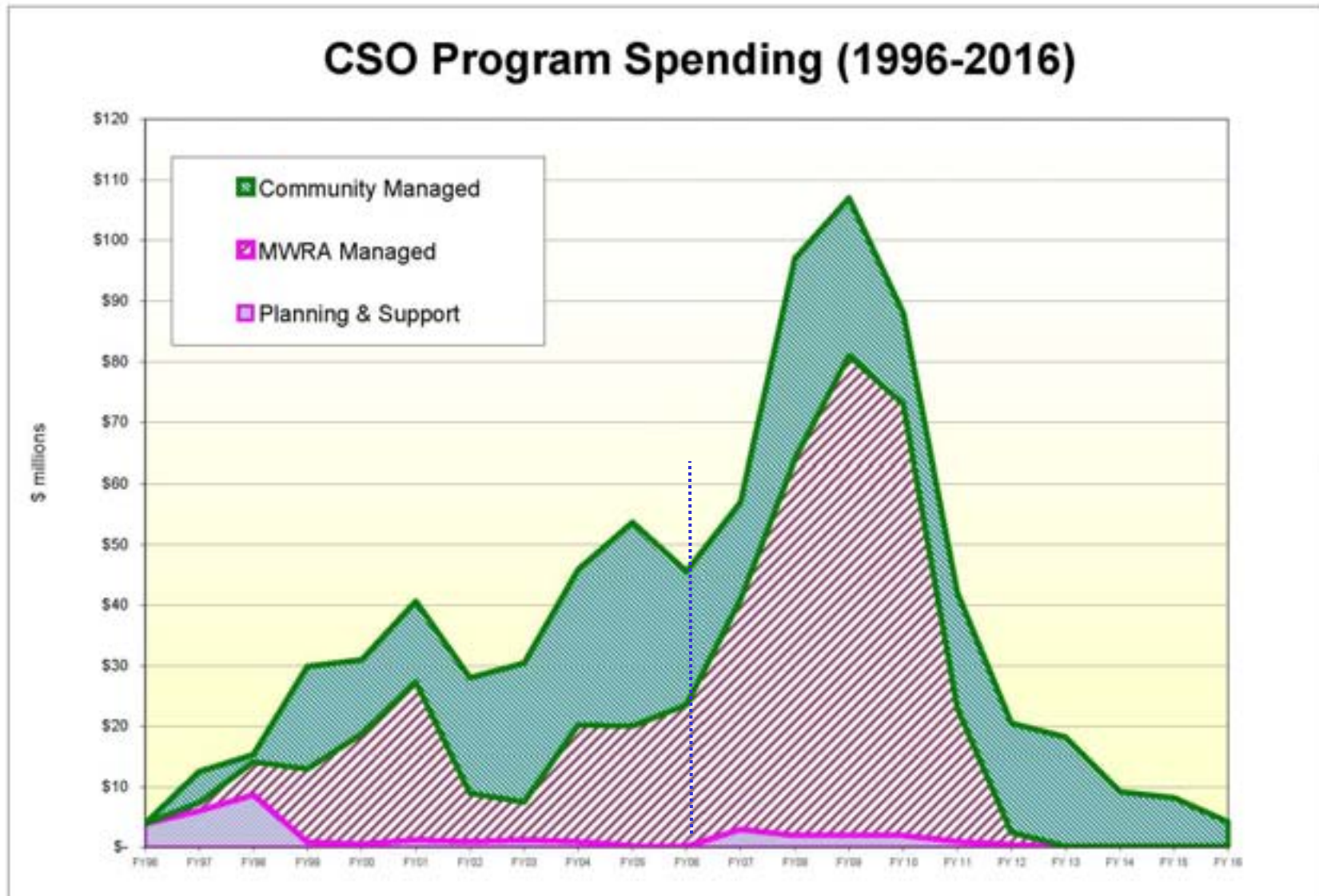
1997 Facilities Plan/EIR:	\$13 million
2001 Notice of Project Change:	\$74 million (\$40 million MWRA)
2004 Cambridge SPDR:	\$94 million
Cost to complete:	\$102 million (\$59 million MWRA)

### Continued schedule delays due to wetlands appeal:

- Total schedule delay of up to 3 years.
- 9-month delay beyond new Court milestones.
- Cambridge and DEP have filed for summary decision.



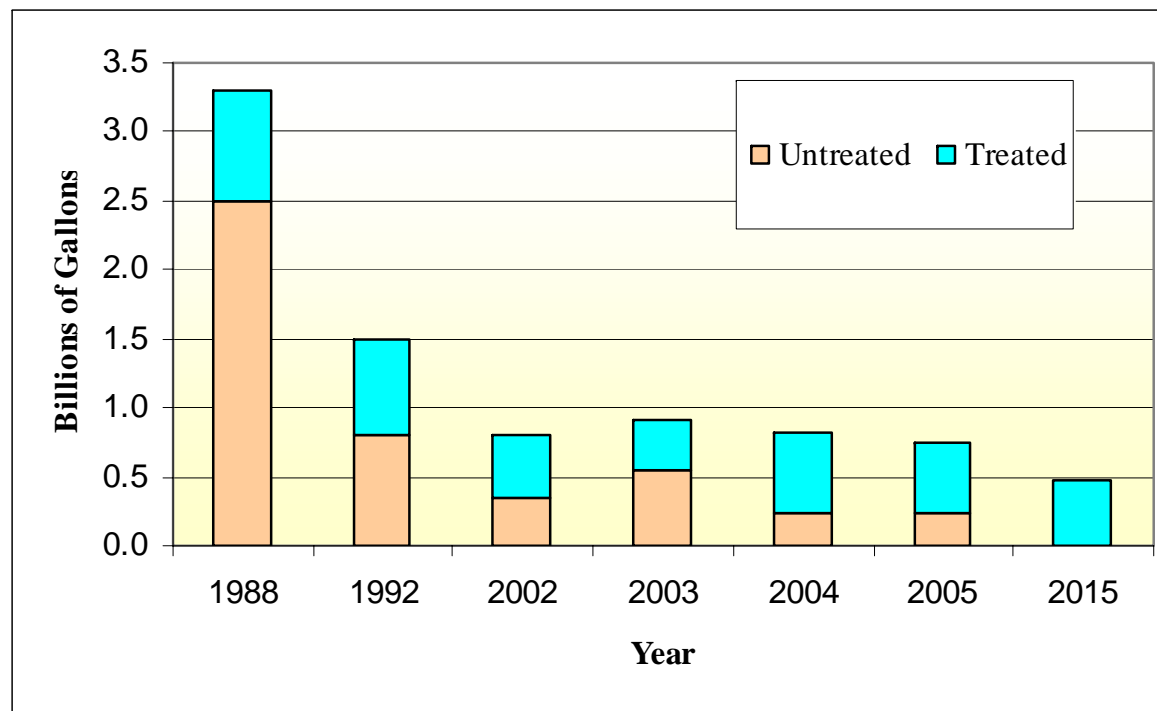
# Historical and Projected Spending Chart FY96 through FY16





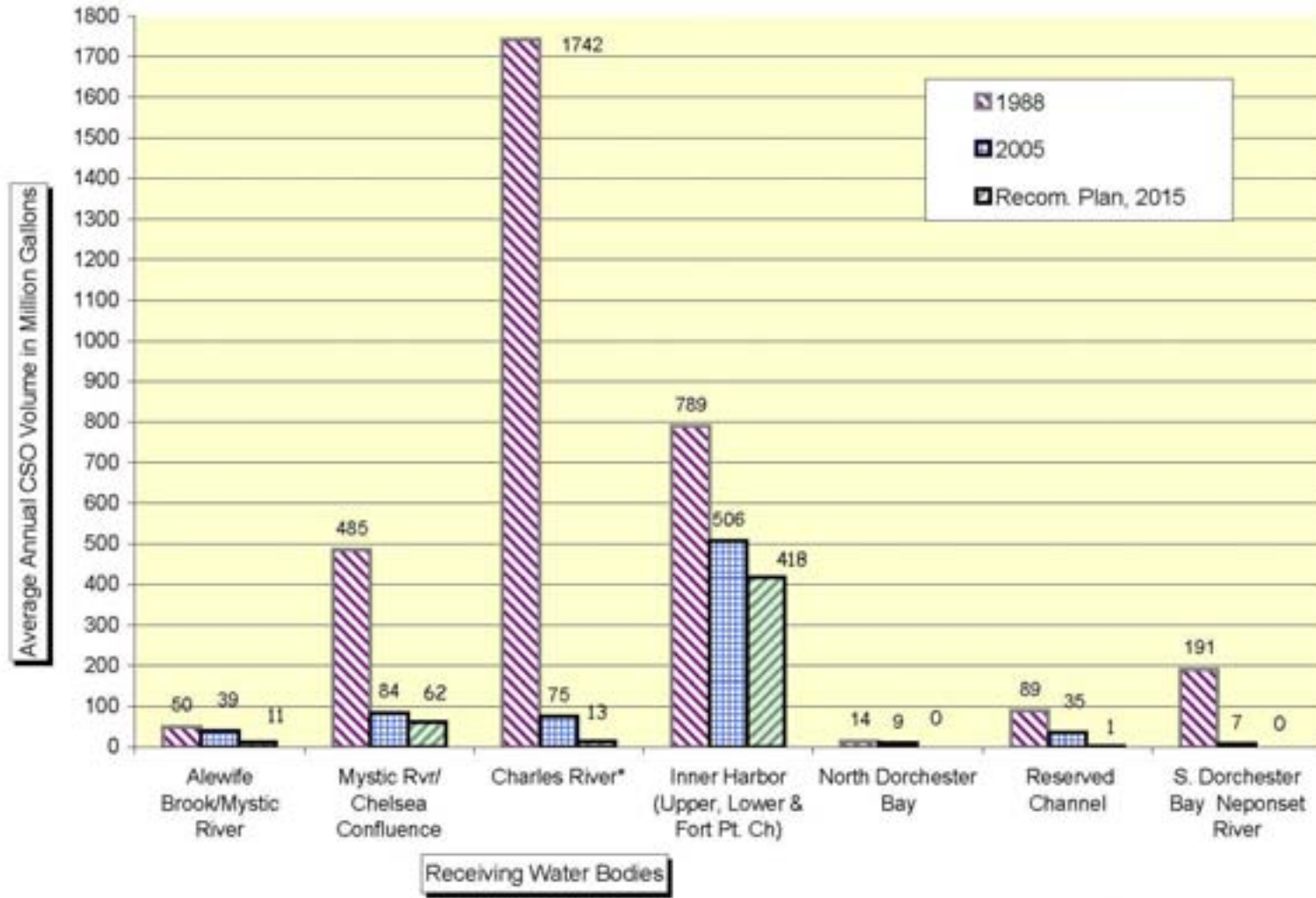
## CSO Volume And Impacts Have Been Reduced Dramatically

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





# CSO Discharges Are Diminishing



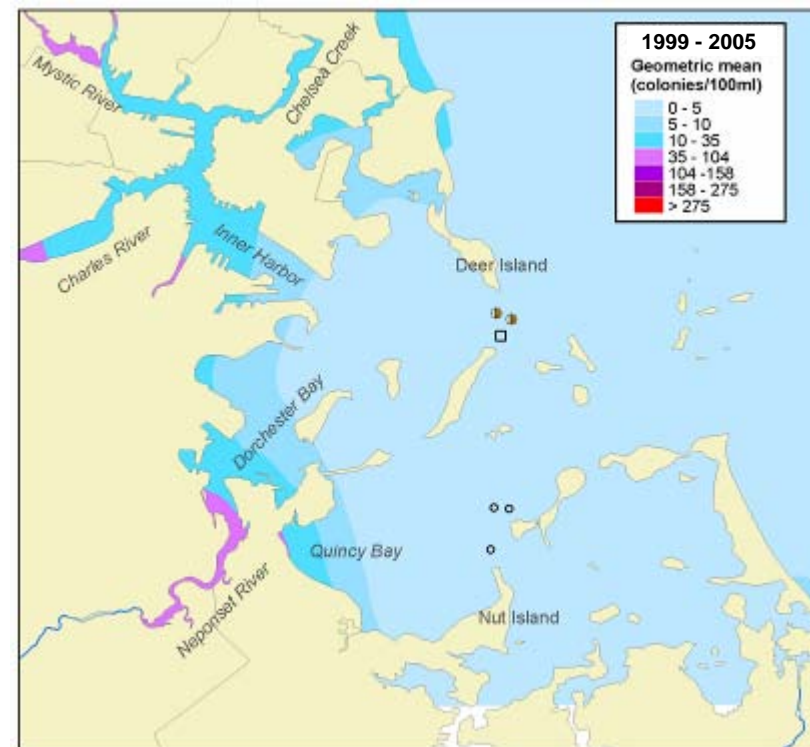
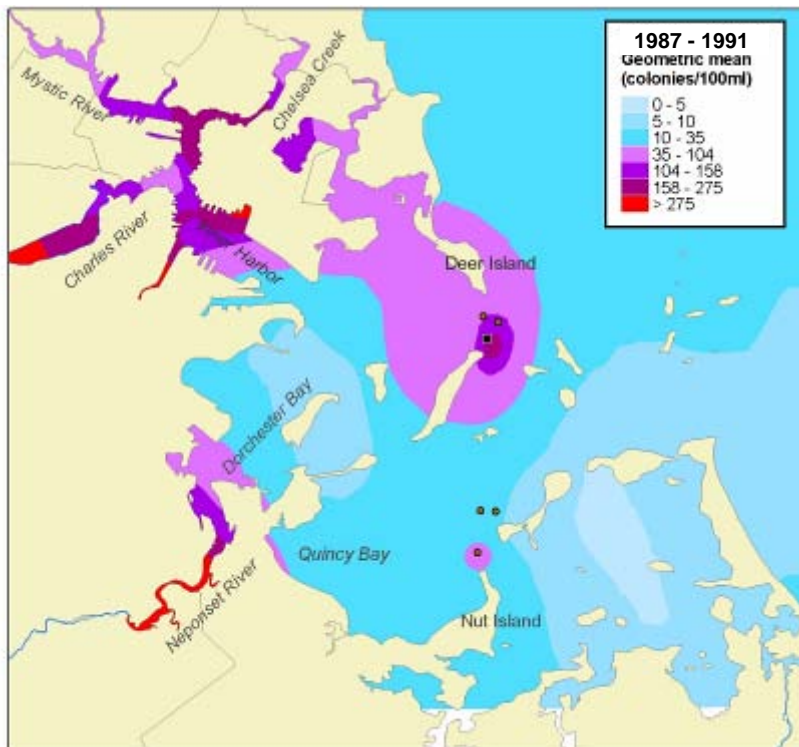
\* Includes discharges from outfall BOS046 to the Back Bay Fens



# 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***



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

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