

MWRA COMPLETED CSO PROJECTS

Updated November 2, 2011

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1. SOMERVILLE BAFFLE MANHOLE SEPARATION



Receiving Water:
Alewife Brook, Upper Mystic River

Completed:
1996

Capital Cost:
\$400,000

Description:
Separated common manholes connecting local sewer and storm drain systems. City of Somerville performed design and construction with MWRA financial assistance.

CSO Control

Water Quality Benefit:
Eliminated CSO discharges at three City of Somerville outfalls.

CSO Outfalls:
SOM001, SOM006, SOM007

Frequency of Discharge (typical year):
Before project: 2
With project: Eliminated

Annual Discharge Volume (typical year):
Before project: 0.04 million gallons
With project: Eliminated

CSO Reduction by Volume: 100%

2. CONSTITUTION BEACH SEWER SEPARATION



MWRA decommissioned its Constitution Beach CSO Facility after CSO flows were eliminated by BWSC sewer separation.

Receiving Water:
Boston Harbor/Constitution Beach

Completed:
2000

Capital Cost:
\$3,769,000

Description:
Installed 14,000 linear feet of storm drain to separate the combined sewer system, remove stormwater flows from area sewers, and eliminate CSO discharges to Constitution Beach, allowing MWRA to decommission the Constitution Beach CSO treatment facility.

CSO Control

Water Quality Benefit:
Eliminated CSO discharges to Constitution Beach to comply with Class B water quality standards.

CSO Outfalls:
MWR207(BOS002)

Frequency of Discharge (typical year):
Before project: 16 (treated)
With project: Eliminated

Annual Discharge Volume (typical year):
Before project: 1.35 million gallons
With project: Eliminated

CSO Reduction by Volume: 100%

Completed CSO Projects (continued)

**3. HYDRAULIC RELIEF AT OUTFALL CAM005
4. HYDRAULIC RELIEF AT OUTFALL BOS017**



Receiving Water:
 CAM005: Upper Charles River Basin
 BOS017: Mystic River/Chelsea Creek Confluence

Completed:
 2000

Capital Cost:
 \$2,295,000

Description:
 CAM005: In Cambridge, relieved the 40-foot long, 24-inch diameter dry weather connection between the CAM005 regulator and MWRA’s North Charles Metropolitan Sewer with a 54-inch additional connection.

BOS017: In Charlestown, installed 190 feet of 36-inch diameter pipe in Sullivan Square to divert two local (BWSC) combined sewers to a direct connection with MWRA’s Cambridge Branch Sewer. In addition, eliminated a 10-foot long restriction between the Charlestown and Cambridge Branch Sewers, adjacent to Sullivan Square.

CSO Control

Water Quality Benefit:
 Minimized CSO discharges to meet B(cso) water quality standards (>95% compliance with Class B).

CSO Outfalls:
 CAM005, BOS017

CAM005:
Frequency of Discharge (typical year):
 Before project: 11
 With project: 3

Annual Discharge Volume (typical year):
 Before project: 3.8 million gallons
 With project: 0.84 million gallons

CSO Reduction by Volume: 78%

BOS017:
Frequency of Discharge (typical year):
 Before project: 18
 With project: 1

Annual Discharge Volume (typical year):
 Before project: 2.5 million gallons
 With project: 0.02 million gallons

CSO Reduction by Volume: 99%

Completed CSO Projects (continued)

5. NEPONSET RIVER SEWER SEPARATION



Receiving Water:
Neponset River

Completed:
2000

Capital Cost:
\$2,445,000

Description:
Installed 8,000 linear feet of storm drain to separate the combined sewer system, remove stormwater flows from area sewers, and close CSO regulators, eliminating CSO discharges at the two remaining CSO outfalls to the Neponset River.

CSO Control

Water Quality Benefit:
Eliminated CSO discharges to Neponset River to comply with Class B water quality standards and protect South Dorchester Bay beaches (Tenean Beach).

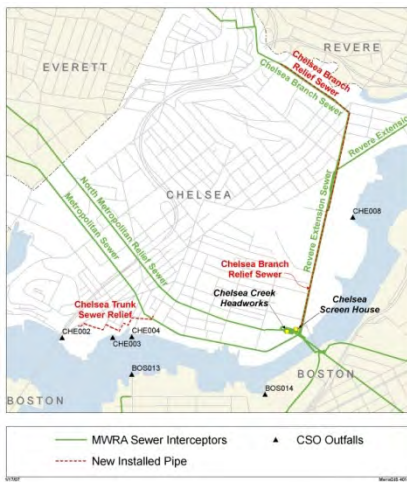
CSO Outfalls:
BOS093, BOS095

Frequency of Discharge (typical year):
Before project: 17
With project: Eliminated

Annual Discharge Volume (typical year):
Before project: 5.8 million gallons
With project: Eliminated

CSO Reduction by Volume: 100%

**6. CHELSEA TRUNK SEWER REPLACEMENT
7. CHELSEA BRANCH SEWER RELIEF
8. CHE008 OUTFALL REPAIRS**



Receiving Water:
Mystic River/Chelsea Creek Confluence
Chelsea Creek

Completed:
2000-2001

Capital Cost:
\$29,778,000

Description:
Replaced 18-inch diameter city-owned trunk sewer with 30-inch pipe, relieved MWRA's Chelsea Branch and Revere Extension Sewers with 48-inch to 66-inch diameter pipe, rehabilitated Outfall CHE008, and installed underflow baffles for floatables control at all outfalls.

CSO Control

Water Quality Benefit:
Minimized CSO discharges to meet B(cso) water quality standards (>95% compliance with Class B).

CSO Outfalls:
CHE002, CHE003, CHE004, CHE008


Frequency of Discharge (typical year):
Before project: 8
With project: 4

Annual Discharge Volume (typical year):
Before project: 9.0 million gallons
With project: 0.6 million gallons


CSO Reduction by Volume: 93%

Completed CSO Projects (continued)

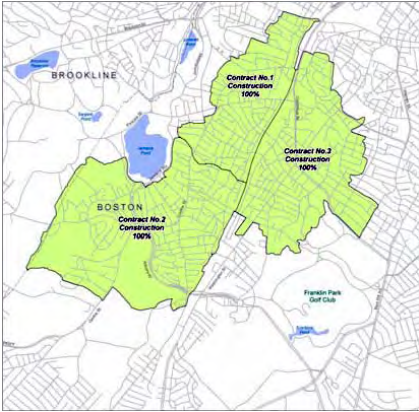
- 9. UPGRADE COTTAGE FARM CSO FACILITY
- 10. UPGRADE PRISON POINT CSO FACILITY
- 11. UPGRADE SOMERVILLE MARGINAL CSO FACILITY
- 12. UPGRADE FOX POINT CSO FACILITY
- 13. UPGRADE COMMERCIAL POINT CSO FACILITY

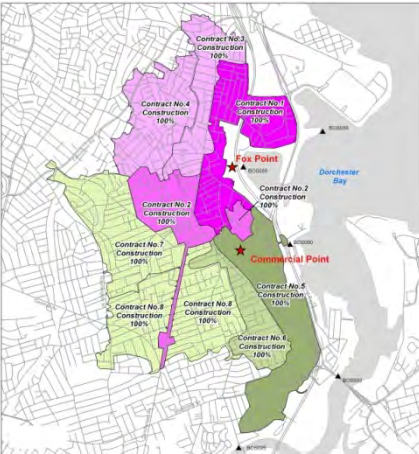
	<p>Receiving Water: Lower Charles River Basin Upper Inner Harbor Upper Mystic River Mystic River/Chelsea Creek Confluence South Dorchester Bay</p> <p>Completed: 2001</p> <p>Capital Cost: \$22,261,000</p> <p>Description: Upgraded chlorine disinfection systems, added dechlorination systems, process control and safety improvements.</p>	<p style="text-align: center;">CSO Control</p> <p>Water Quality Benefit: Upgrade treatment to meet Class B water quality criteria, including residual chlorine limits.</p> <p>CSO Outfalls: MWR201 (Cottage Farm Facility) MWR203 (Prison Point Facility) MWR205, MWR205A(SOM007A) (Somerville Marginal Facility) MWR209(BOS088/BOS089) (Fox Point Facility) MWR211(BOS090) (Commercial Point Facility)</p> <p>These projects improved treatment performance, with no effect on discharge frequency or volume.</p>
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14. PLEASURE BAY STORM DRAIN IMPROVEMENTS


	<p>Receiving Water: North Dorchester Bay</p> <p>Completed: 2006</p> <p>Capital Cost: \$3,200,000</p> <p>Description (cont): Constructed a new storm drain system to relocate stormwater dischargers from Pleasure Bay to Reserved Channel.</p>	<p style="text-align: center;">CSO Control</p> <p>Water Quality Benefit: Eliminated storm water discharges to Pleasure Bay Beach.</p>
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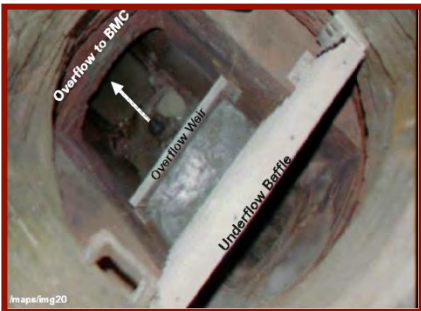
Completed CSO Projects (continued)

15. STONY BROOK SEWER SEPARATION		
	<p>Receiving Water: Lower Charles River Basin</p> <p>Completed: 2006</p> <p>Capital Cost: \$44,332,000</p> <p>Description: Installed a total of 107,175 linear feet of storm drain and sanitary sewer to remove stormwater from local sewers serving a 609-acre area in Jamaica Plain, Mission Hill and Roxbury, and disconnected an already-separated storm drain system serving an adjacent 548-acre area from the sewer system.</p>	<p>CSO Control</p>
	<p>Water Quality Benefit: Minimizes CSO discharges to meet B(cso) water quality standards (>95% compliance with Class B).</p> <p>CSO Outfalls: MWR023 (Stony Brook Conduit)</p> <p>Frequency of Discharge (typical year): Before project: 22 With project: 2</p> <p>Annual Discharge Volume (typical year): Before project: 44.5 million gallons With project: 0.13 million gallons</p> <p>CSO Reduction by Volume: 99.7%</p>	


16. SOUTH DORCHESTER BAY SEWER SEPARATION		
	<p>Receiving Water: South Dorchester Bay</p> <p>Completed: 2007</p> <p>Capital Cost: \$118,723,000</p> <p>Description: Installed a total of 150,000 linear feet of storm drain and sanitary sewer to remove stormwater from local sewers serving a 1,750-acre area in Dorchester. Closed all CSO regulators, allowing MWRA to decommission its Fox Point and Commercial Point CSO facilities.</p>	<p>CSO Control</p>
	<p>Water Quality Benefit: Eliminated CSO discharges to Savin Hill, Malibu and Tenean beaches, in compliance with Class B water quality standards.</p> <p>CSO Outfalls: MWR209 (BOS088/BOS089) MWR211 (BOS090)</p> <p>Frequency of Discharge (typical year): Before project: 20 (treated) With project: Eliminated</p> <p>Annual Discharge Volume (typical year): Before project: 30 million gallons With project: Eliminated</p> <p>CSO Reduction by Volume: 100%</p>	


Completed CSO Projects (continued)

17. FORT POINT CHANNEL SEWER SEPARATION		
	<p>Receiving Water: Fort Point Channel</p> <p>Completed: 2007</p> <p>Capital Cost: \$12,047,000</p> <p>Description: Installed 4,260 feet of storm drain and 4,300 feet of sanitary sewer to remove stormwater from local sewers serving 55 acres in the Fort Point Channel area. Raised overflow weirs at outfalls BOS072 and BOS073. Replaced tide gates and installed underflow baffles for floatables control at both outfalls.</p>	<p style="text-align: center;">CSO Control</p> <p>Water Quality Benefit: Minimizes CSO discharges to meet B(cso) water quality standards (>95% compliance with Class B).</p> <p>CSO Outfalls: BOS072, BOS073</p> <p>Frequency of Discharge (typical year): Before project: 9 With project: 0</p> <p>Annual Discharge Volume (typical year): Before project: 3.0 million gallons With project: 0.0</p> <p>CSO Reduction by Volume: 100%</p>


18. REGIONWIDE FLOATABLES CONTROL 19. MWRA FLOATABLES CONTROL AND OUTFALL CLOSING PROJECTS		
	<p>Receiving Water: Region-wide</p> <p>Completed: 2007</p> <p>Capital Cost: \$1,216,000</p> <p>Description: Installed underflow baffles for floatables controls and closed several regulators and outfalls.</p> <p>In March 2000, MWRA closed Outfalls MWR021 and MWR022 to CSO discharges.</p>	<p style="text-align: center;">CSO Control</p> <p>Water Quality Benefit: Complies with EPA Policy Nine Minimum Controls requirement to control solid and floatable material. Eliminated CSO discharges at certain outfalls.</p> <p>CSO Outfalls: Various outfalls system-wide.</p> <p>CSO Control: The floatables controls do not affect CSO discharge frequency or volume.</p>


Completed CSO Projects (continued)

20. UNION PARK DETENTION/TREATMENT FACILITY		
	<p>Receiving Water: Fort Point Channel</p> <p>Completed: 2007</p> <p>Capital Cost: \$49,584,000</p> <p>Description: Added CSO treatment facility to existing BWSC Union Park Pumping Station with fine screens, chlorine disinfection, dechlorination, and 2 million gallons of detention storage.</p>	<p>CSO Control</p>
	<p>Water Quality Benefit: Provides treatment of Union Park pumping station discharges to Fort Point Channel to meet Class B water quality criteria, including residual chlorine limits, and lowers discharge frequency and volume with on-site detention basins.</p> <p>CSO Outfall: BOS 070</p> <p>Frequency of Discharge (typical year): Before project: 25 (untreated) With project: 17 (treated)</p> <p>Annual Discharge Volume (typical year): Before project: 132.0 million gallons With project: 71.4 million gallons/year</p> <p>CSO Reduction by Volume: 46%</p>	


21. BOS019 CSO STORAGE CONDUIT		
	<p>Receiving Water: Upper Inner Harbor (Little Mystic Channel)</p> <p>Completed: 2007</p> <p>Capital Cost: \$14,288,000</p> <p>Description: Installed twin-barrel 10'x17' box conduit to provide 670,000 gallons of off-line storage, between Chelsea St. and the Mystic Tobin Bridge, Charlestown. Included above-ground dewatering pump station.</p>	<p>CSO Control</p>
	<p>Water Quality Benefit: Minimizes CSO discharges to meet B(cso) water quality standards (>95% compliance with Class B).</p> <p>CSO Outfall: BOS019</p> <p>Frequency of Discharge (typical year): Before project: 13 With project: 2</p> <p>Annual Discharge Volume (typical year): Before project: 4.4 million gallons With project: 0.6 million gallons</p> <p>CSO Reduction by Volume: 86%</p>	


Completed CSO Projects (continued)

22. PRISON POINT CSO FACILITY OPTIMIZATION		
	<p>Receiving Water: Upper Inner Harbor</p> <p>Completed: 2008</p> <p>Capital Cost: \$50,000</p> <p>Description: Minimizes treated CSO discharges to the Inner Harbor by optimizing the operation of existing facility gates and pumps to maximize in-system storage and convey more flow to Deer Island</p>	<p>CSO Control</p>
	<p>Water Quality Benefit: Reduces treated CSO discharges to Upper Inner Harbor.</p> <p>CSO Outfall: MWR203 (Prison Point Facility)</p> <p>Frequency of Discharge (typical year): Before project: 30 (treated) With project: 17 (treated)</p> <p>Annual Discharge Volume (typical year): Before project: 335 million gallons With project: 243 million gallons</p> <p>CSO Reduction by Volume: 27% (with Bulfinch Triangle Sewer Separation)</p>	

23. COTTAGE FARM BROOKLINE CONNECTION AND INFLOW CONTROLS		
	<p>Receiving Water: Lower Charles River Basin</p> <p>Completed: 2009</p> <p>Capital Cost: \$3,186,000</p> <p>Description: Optimizes the combined conveyance capacity of the two MWRA sewers that carry flows across the Charles River by interconnecting overflow chambers outside the Cottage Farm CSO facility; increases this conveyance capacity by bringing into service a parallel, previously unutilized 54-inch diameter sewer (the "Brookline Connection").</p>	<p>CSO Control</p>
	<p>Water Quality Benefit: Minimizes treated CSO discharges from the Cottage Farm CSO Facility to the Lower Charles River Basin.</p> <p>CSO Outfall: MWR201 (Cottage Farm Facility)</p> <p>Frequency of discharges (typical year): Before project: 7 (treated) With project: 7 (treated)</p> <p>Annual Discharge Volume (typical year): Before project: 44.5 million gallons With project: 24.0 million gallons</p> <p>CSO Reduction by Volume: 46%</p>	

Completed CSO Projects (continued)

24. MORRISSEY BOULEVARD STORM DRAIN		
	<p>Receiving Water: North Dorchester Bay</p> <p>Completed: 2009</p> <p>Capital Cost: \$36,173,000</p> <p>Description: Installed 2,800 linear feet of 12-foot by 12-foot and 8-foot by 8-foot box conduit for stormwater conveyance, with gated connection to North Dorchester Bay CSO Storage Tunnel at upstream end, new outfall to Savin Hill Cove, and pollution prevention measures.</p>	<p>CSO Control</p>
		<p>Water Quality Benefit: Maximizes level of stormwater control along the South Boston beaches by redirecting some stormwater to Savin Hill Cove in large storms.</p>

25. EAST BOSTON BRANCH SEWER RELIEF		
	<p>Receiving Water: Boston Harbor and Chelsea Creek</p> <p>Completed: 2010</p> <p>Capital Cost: \$87,124,000</p> <p>Description: Upgraded MWRA's 115-year-old interceptor system serving most of East Boston, using a combination of construction methods: microtunneling, pipe-bursting, open-cut excavation and pipe relining.</p>	<p>CSO Control</p>
		<p>Water Quality Benefit: Minimizes CSO discharges to meet B(cso) water quality standards (>95% compliance with Class B).</p> <p>CSO Outfalls: BOS003, BOS004, BOS005, BOS009, BOS010, BOS012, BOS013, BOS014 (BOS006 and BOS007 closed by BWSC)</p> <p>Frequency of discharges (typical year): Before project: 31 With project: 6</p> <p>Annual Discharge Volume (typical year): Before project: 41.0 million gallons With project: 8.6 million gallons</p> <p>CSO Reduction by Volume: 79%</p>

Completed CSO Projects (continued)

26. BULFINCH TRIANGLE SEWER SEPARATION



Receiving Water:
Boston Inner Harbor and Lower Charles River Basin

Completed:
2010

Capital Cost:
\$9,986,000

Description:
Installed a total of 5,290 feet of storm drain and sanitary sewer to remove stormwater from local sewers in a 14-acre area of Bulfinch Triangle/North Station, allowing already-separated storm drains serving an additional 47-acre area of Government Center to be removed from the sewer system, as well. Closed Outfall BOS049 to CSO discharges.

CSO Control

Water Quality Benefit:
Reduces treated CSO discharges from the Prison Point CSO Facility to Boston Upper Inner Harbor. Eliminated CSO discharges at Outfall BOS049 to Lower Charles River Basin.

CSO Outfalls:
MWR203 (Prison Point Facility) and BOS049

Frequency of discharges (typical year):
Before project: 18 (treated)
With project: 17 (treated)

Annual Discharge Volume (typical year):
Before project: 281.5 million gallons
With project: 243.0 million gallons

CSO Reduction by Volume: 14%

27. INTERCEPTOR CONNECTION RELIEF AND FLOATABLES CONTROL AT CAM002 AND CAM401B AND FLOATABLES CONTROL AT CAM001



CAM 002A & B inlet structure-baffle is visible in front of CAM 002A outlet with a steel plate (temporary condition) bolted on the left hand wall on the CAM 002B outlet.

Receiving Water:
Alewife Brook

Completed:
2010

Capital Cost:
\$1,207,900

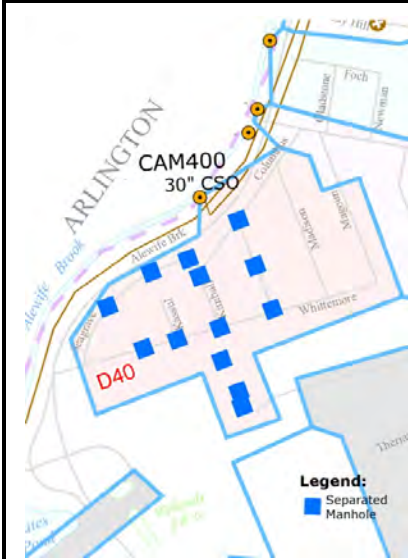
Description:
Upgraded the hydraulic capacities of City of Cambridge connections to MWRA interceptors and installed underflow baffles for floatables control.

CSO Control

Water Quality Benefit:
Together with other Alewife Brook CSO projects (not yet complete), minimizes CSO discharges and their impacts to meet 98% compliance with Class B water quality standards.

CSO Outfalls:
CAM002, CAM401B, CAM001

28. CAM400 COMMON MANHOLE SEPARATION



Receiving Water:
Alewife Brook

Completed:
March 2011

Capital Cost:
\$4.7 mil

Description:
Replaced common storm drain and sewer manholes with separate manholes and associated piping in the local, mostly residential streets bounded by Alewife Brook Parkway, Massachusetts Avenue, Magoun Street and Whittemore Avenue, as well as a portion of the WR Grace property off Whittemore Avenue

CSO Control

Water Quality Benefit:

Eliminated CSO discharges to Alewife Brook at Outfall CAM400.

CSO Outfalls:
CAM400

Frequency of Discharge (typical year)
Before project: 8
After project: 0

Annual Discharge Volume (typical year)
Before project: 0.63 million gallon
After project: 0

CSO Reduction by Volume: 100%

29. North Dorchester Bay Storage Tunnel & Related Facilities



Receiving Water:
North Dorchester Bay

Capital Cost:
\$224.7 mil

Completed: May 2011

Description:
Constructed a 10,832-ft., 17-ft. diameter soft-ground tunnel, drop shafts and CSO and stormwater diversion structures along outfalls BOS081-BOS087; 15-mgd tunnel dewatering pump station at Massport's Conley Terminal; 24-inch force main; and below-ground tunnel ventilation and odor control facility at the upstream end of the tunnel.

CSO Control

Water Quality Benefit:

Eliminated CSO and separate stormwater discharges up to the 25-year storm and 5-year storm, respectively.

CSO Outfalls:

BOS081	BOS085
BOS082	BOS086
BOS083	BOS087
BOS084	

Frequency of Discharge (typical year)
CSO:

Before project: 17
After project: 0

Stormwater:

Before project: 93
After project: 0

Annual Discharge Volume (typical year)
CSO:

Before project: 8.6 million gallons
After project: 0

Stormwater:

Before project: 144 million gallons
After project: 0

CSO Reduction by Volume: 100%
Stormwater Reduction by Volume: 100%