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INDEPENDENT STATE AUDITOR'S REPORT ON THE STATUS OF THE MASSACHUSETTS WATER RESOURCES AUTHORITY'S COMBINED SEWER OVERFLOW PROGRAM AS OF DECEMBER 2005

OFFICIAL AUDIT REPORT

SEPTEMBER 14, 2006

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The Massachusetts Water Resources Authority (MWRA) was established by Chapter 372 of the Acts of 1984 to assume the duties and responsibilities of the Metropolitan District Commission's Water and Sewer Division. These responsibilities include providing water and sewer services to 61 communities and approximately 2.5 million people in the Commonwealth. MWRA maintains 400 miles of water pipes, aqueducts, and tunnels, and 240 miles of sewers. MWRA's service area covers approximately 410 square miles and includes approximately 850,000 households and 6,000 businesses, which collectively produce approximately 340 million gallons of sewage each day. MWRA supplies drinking water to approximately 2.2 million people in 47 Massachusetts communities.

On September 5, 1985, the Federal District Court in Massachusetts ruled that wastewater discharged into Boston Harbor was in violation of the 1972 Federal Clean Water Act requirements, and the court ordered MWRA to develop and implement a program to provide treatment of its wastewater discharges as required by that law. In accordance with a court-ordered schedule, MWRA undertook a program of improvements to the wastewater collection and treatment facilities serving the metropolitan Boston area. This program became known as the "Boston Harbor Case." The court order is primarily comprised of three major projects, the Deer Island Primary and Secondary Treatment Facilities, the Fore River Shipyard Pelletizing Plant, and the Combined Sewer Overflow Program (CSO).

The objective of our audit report was to ascertain the status of MWRA's efforts to manage the court- ordered CSO Program in a timely and cost-effective manner.

MWRA currently estimates that the cost to complete the CSO Program will exceed $850 million, or more than double the $395 million reported in its 1994 CSO Conceptual Plan and System Master Plan estimate, and that the project will not be complete until 2015, or seven years later than planned. Water quality has improved in many areas as a result of various MWRA initiatives, including its CSO efforts to date. With attention focused on escalating costs and schedule delays, the total implementation of the CSO program by 2015 should provide the full benefits envisioned under the CSO program, albeit somewhat belatedly. The CSO Program Cost, Schedule, and Performance sections of this report identify areas of concern in the CSO Program.

INTRODUCTION

Background

The Massachusetts Water Resources Authority (MWRA) was established by Chapter 372 of the Acts of 1984 to assume the duties and responsibilities of the Metropolitan District Commission's Water and Sewer Division. These responsibilities include providing water and sewer services to 61 communities and approximately 2.5 million people in the Commonwealth. MWRA maintains 400 miles of water pipes, aqueducts, and tunnels, and 240 miles of sewers. MWRA's service area covers approximately 410 square miles and includes approximately 850,000 households and 6,000 businesses, which collectively produce approximately 340 million gallons of sewage each day. MWRA supplies drinking water to approximately 2.2 million people in 47 Massachusetts communities.

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Modern sewer systems generally handle storm water in separate drainage systems than sanitary sewage from homes and businesses. Some older systems, such as those found in Boston, Cambridge, Chelsea, and Somerville, have "combined" sewers that carry both flows together to the MWRA sewer system. During normal conditions, the combined flows can generally be delivered to the MWRA treatment plant. However, during heavy rains, when flows sometimes double and even triple, these combined systems become overloaded. The CSOs must then act as relief points by letting excess flows leave the system upstream of the sewage treatment plant, into the nearest body of water. This prevents sewage backups into homes and onto area streets, but it does so at considerable cost to local water quality.

The water quality problem related to CSOs has been a concern of MWRA for some time. MWRA developed its CSO Plan in 1994, and the plan has undergone environmental review and received federal and state approvals, allowing the projects to move forward on a design and construction schedule approved by the Federal Court as part of the Boston Harbor Legal Case.

MWRA has completed the construction of the new Deer Island Primary and Secondary Treatment Facilities and the Fore River Shipyard Pelletizing Plant, has increased its sewage transport capacity via the new inter-island tunnel, has upgraded related pumping stations and interceptors, and, as discussed in this report, completed some of the planned CSO projects. The cost, schedule, and performance status of the CSO initiative is the subject matter of this report.

Audit Scope, Objectives, and Methodology

Our audit of the MWRA, which is ongoing, included a review of the planning, performance and costs associated with the federally mandated CSO improvement program. The objectives of our audit were to determine whether these activities complied with applicable laws and regulations, and were contributing to the achievement of the program's goal.

To accomplish our objectives, we reviewed applicable laws, regulations, and procedures that govern the program and interviewed officials of the MWRA, the Massachusetts Department of Environmental Protection (DEP), and the federal Environmental Protection Agency (EPA). In addition, we conducted site visits to various CSO locations and reviewed contracts, change orders, amendments, and agreements with communities in the CSO system; reports to the federal court; and other pertinent documentation to assess the status of the program and the timeliness of MWRA's implementation activities.

Our audit, which covered CSO activities through December 2005, was conducted in accordance with applicable generally accepted government auditing standards and included such audit tests and procedures as we considered necessary under the circumstances.

At the conclusion of our review we provided MWRA with a draft of the report for comment. Pertinent MWRA responses are included on pages 22 through 24 following our recommendations.

AUDIT RESULTS

1. CSO PROJECT COSTS HAVE GROWN SIGNIFICANTLY

The Massachusetts Water Resources Authority's (MWRA) December 1994 CSO Conceptual Plan and System Master Plan estimated the cost of the Combined Sewer Overflow Program (CSO) to be approximately $395 million. The current estimate to complete the project with federal, state, and local approval and support is estimated to be $856.3 million – more than double the December 1994 estimate. The current estimate reflects significant reassessments and revisions made to the project without which the project could not have moved forward. These reassessments and revisions are discussed later in the report.

The federal court schedule required the MWRA to develop a comprehensive facilities plan to address the discharges from the CSOs owned by MWRA, the Boston Water and Sewer Commission (BWSC), and the cities of Cambridge, Chelsea, and Somerville. The schedule required that a final Facilities Plan/Environmental Impact Report (FP/EIR) be completed and submitted to the court by September 30, 1990, and MWRA met this requirement. However, in 1991 MWRA, through negotiations with EPA, DEP, and other concerned court parties, received approval to perform a reassessment of its CSO Facilities Plan. The 1990 Facilities Plan/EIR called for the construction of a 16-mile, 25-foot diameter, deep rock CSO storage tunnel, as well as miles of near-surface consolidation conduits, 13 drop shafts, and two pumping stations. The plan also recommended some sewer separation work. The tunnel storage system was to provide CSO control in the Lower Charles River, Dorchester Bay, and Inner Harbor water basins. The estimated total capital cost of the 1990 Facilities Plan/EIR was $1.2 billion, in 1990 dollars. In March 1992, MWRA engaged a consultant to prepare a revised CSO Plan in the context of a system master plan. MWRA prepared a Revised CSO Conceptual Plan, submitted to EPA in December 1994, as required by the court, which was in keeping with new state and federal CSO policies and took into account other MWRA facility improvements that would reduce CSO volumes and impacts. The plan recognized that sewer system improvements, especially the planned increase in pumping capacity at the Deer Island Plant, had already reduced CSO volumes significantly and provided treatment for a majority of the remaining flows. The Revised Conceptual Plan was estimated to cost $395 million in 1994 dollars.

In August 1997, approximately seven years after its initial FP/EIR Report was submitted, MWRA completed a second FP/EIR Report for controlling CSOs in the Metropolitan Boston area that recommended a very different approach to the 1990 plan. The recommended plan was the product of several years of detailed wastewater management planning, environmental review, and public input. Building on the 1994 Revised CSO Conceptual Plan and System Master Plan, the 1997 plan proposed spending a total of $473 million to eliminate CSO discharges to sensitive areas (e.g., beaches and shellfish beds), minimize or treat (but not eliminate) CSO discharges to less-sensitive receiving waters, and provide a means to control floatable sewage materials at the remaining CSO outfalls.

Since that time, CSO project costs have continued to grow. Beginning in late 1997, after the Environmental Protection Agency (EPA) and the Department of Environmental Protection (DEP) issued water quality standards impacting CSO approvals, MWRA conducted additional investigations as a result of these regulatory standards. MWRA also conducted project reassessments in areas where it faced obstacles to project implementation, or where new information questioned the cost-effectiveness of a project. The most recently approved CSO control plan comprises 25 projects with a total approved budget of $856.3 million, of which approximately $329 million had been spent through calendar 2005 on planning, design, and construction activities. The CSO Program is the largest capital spending commitment in MWRA's capital budget.

The following is a listing of the estimated costs of several of the more significant ongoing projects comprising the $856.3 million CSO fiscal year 2006 budget plan.[1]

Project Description	cost (in millions)
North Dorchester Bay Storage Tunnel & Related Facilities	$262.6
South Dorchester Bay Sewer Separation	117.7
East Boston Branch Sewer Relief	83.1
Reserved Channel Sewer Separation	63.1
Union Park Detention/Treatment Facility	48.6
Stony Brook Sewer Separation	45.2
Cambridge/Alewife Brook Sewer Separation	44.1
Morrissey Boulevard Storm Drain	21.3
Charles River CSO Controls	21.2
Other Ongoing Projects	29.5
Subtotal, Significant Ongoing Projects	$736.4
Completed Projects	61.3
Planning, Land/Easements and Support Costs	58.6
Total Estimated CSO Costs	$856.3

1 According to MWRA, a portion of the increase in project costs can be attributed to the fact that early cost estimates did not include inflation, while the current budgeted costs do take inflation into account.

According to MWRA officials, EPA and DEP are seeking to require MWRA to pursue higher levels of control in some areas, despite MWRA's belief that little, if any, additional water quality improvement would be achieved over the predicted benefits of MWRA's recommended plan. The key outstanding issues relate to the Charles River, Alewife Brook/Upper Mystic River, and East Boston areas. MWRA officials estimate the cost increases to the Charles River and the Alewife Brook/Upper Mystic River projects to be approximately $20 million and $28 million, respectively. The cost impact of MWRA's reassessment of the East Boston Branch Sewer Relief project has not yet been determined pending further discussions with EPA and DEP. Moreover, MWRA's share in a $28 million cost increase associated with a Cambridge Sewer Separation Project Memorandum of Understanding (MOU) has not yet been determined.

In addition, MWRA has conducted project reassessments in other areas where it faces obstacles to project implementation or where new information questioned the cost-effectiveness of the project. MWRA advised us that "without exception, significant project schedule delays [of approximately $32 million] were associated with the need to perform project reassessments, without which the projects could not move forward and related CSO control goals could not be achieved. This was the case in the North Dorchester Bay, Reserved Channel, East Boston, Cambridge/Alewife Brook sewer separation and related Cambridge floatables controls." For some of the areas, MWRA has been able to recommend revised plans (North Dorchester Bay, the Reserved Channel, Alewife Brook, and the Fort Point Channel area), and these plans have now gained state and federal regulatory approval.

Summary

MWRA currently estimates that the cost to complete its CSO Program, including contingency and escalation costs, to be $856.3 million, or more than double the revised December 1994 conceptual plan of $395 million.

The current estimate reflects significant reassessments and revisions made to the project driven mainly by regulatory reviews and approvals, without which the project could not have moved forward. These reassessments and revisions are discussed later in the report.

2. CSO SCHEDULE DELAYS HAVE BEEN EXTENSIVE

Of the 25 projects that comprise MWRA's CSO control plan, 14 have been completed, and nine of the remaining 11 projects have begun construction. The original completion date for the CSO project was November 2008, but a revised completion date of 2015 is now planned -- seven years later than originally scheduled.

Under its court order, MWRA was required to supply the court with a list of all active CSO locations, regardless of ownership, and to furnish the court with a detailed report listing completed actions and planned actions on a quarterly basis until the CSO project is completed. MWRA has met these requirements. MWRA voluntarily accepted responsibility for control of CSO discharges from all outfalls hydraulically connected to MWRA's sewer system, including outfalls owned by the Boston, Cambridge, Somerville, and Chelsea communities.

MWRA is also governed by the federal EPA Clean Water Act, which was originally enacted in 1972. MWRA advised us that they are in conformity with the Act both for wastewater and CSO requirements.

The following is a schedule of the significant ongoing projects and a brief explanation of their schedule status.

Current Status of Major Incomplete CSO Projects

MWRA-Managed	Estimated Completion Date		Number of Months	
Projects	1997 Plan	Current	over Schedule	Explanation
N. Dorchester Bay Storage Tunnel and Related Facilities	Mar. 2003	May 2011	98	Project design was suspended in 2000-2004 for project reassessment and regulatory review that led to a revised recommended plan.
East Boston Branch Sewer Relief	Sep. 2005	Jun. 2010	57	Project design was suspended in 2000-2005 for project reassessment and regulatory review that confirmed project cost-effectiveness. No change to recommended plan.
Union Park Detention/Treatment Facility	Mar. 2005	Sep. 2006	18	Construction schedule was extended due to design complexity. Further extensions during construction by change order.

Community-Managed Projects	Estimated Completion Date 1997 Plan	Current	Number of Months Over Schedule	Explanation
Cambridge/Alewife Brook Sewer Separation	Jan. 2000	Jan. 2013	156	Most of the design and construction was suspended by Cambridge in 1999 due to changed conditions. Project has been reassessed at a higher cost. A more recent one- to two--year delay is due to wetlands permit appeals not yet resolved by DEP.
South Dorchester Bay Sewer Separation	Nov. 2008	Nov. 2008	-	Project proceeding on schedule.
Reserved Channel Sewer Separation	Mar. 2005	Dec. 2015	129	Project design was suspended in 2000-2004 for project reassessment and regulatory review that led to a revised recommended plan. Project changed from consolidation storage conduit to sewer separation.
Morrissey Boulevard Storm Drain	N/A	Jun. 2009	*	This new project was added with the revised recommended plan for North Dorchester Bay.
Fort Point Channel	Mar. 2007	Mar. 2007	-	Project proceeding on schedule.
Stony Brook Sewer Separation	Sep. 2006	Sep. 2006	-	Project proceeding on schedule.
Joint MWRA/ Community-Managed Projects				
Charles River CSO Controls	N/A	Jul. 2013	*	MWRA recommended new system optimization and sewer separation projects to the Charles River CSO plan in August 2005 to gain long-term regulatory approval.
Regionwide Floatables Control	May 2001	Sep. 2012	136	At BWSC outfalls, controls were completed on schedule. At Cambridge outfalls on the Charles River, field conditions discovered by Cambridge led to design changes, with schedule impacts. Revised Alewife Brook CSO plan affected the schedule for controls at Cambridge and Somerville outfalls on Alewife Brook.

*Projects subsequently added to the original schedule.

Status of Major Ongoing Projects in MWRA's CSO Program

a. MWRA-Managed Projects

North Dorchester Bay Storage Tunnel and Related Facilities

The largest remaining MWRA managed CSO project is the design and construction of the North Dorchester Bay Storage Tunnel and Related Facilities, whose total cost MWRA estimates to be approximately $262.6 million.

The revised plan for North Dorchester Bay calls for construction of a 17-foot diameter, 11,000-foot tunnel along Day Boulevard and Marine Park to collect and store all CSO flows and most stormwater flows that discharge to North Dorchester Bay from seven existing outfalls (BOS081-087) in the area of the South Boston Beaches. MWRA plans to construct the tunnel with a tunnel-boring machine ("TBM") from its deepest end at a construction shaft on Massport's Conley Terminal to its highest end at a shaft adjacent to the State Police building. The tunnel will have a storage capacity of 19 million gallons, and was sized, along with related facilities including the Morrissey Boulevard Storm Drain, to prevent storm water discharges to the beaches up to a "five-year storm" (storm duration of 24 hours, storm depth of 4.05 inches). Beyond a five-year storm, storm water will drain to North Dorchester Bay, as it does today, and the tunnel will be dedicated to capturing CSO flow.

MWRA also plans to construct a 15 million gallon per day (MGD) pumping station at Conley Terminal and a 24-inch force main from the pumping station to a local BWSC sewer on N Street. The pumping station and force main will allow MWRA to dewater the tunnel into the sewer system for treatment at Deer Island following each storm.

The North Dorchester Bay storage tunnel and related facilities project involves shallow, large-diameter, soft-ground tunnel construction in an urban environment. MWRA plans to issue a Notice to Proceed to the tunneling contractor in July 2006 with completion of construction of that contract in December 2009. A subsequent contract, which will include the pump station, force main, and odor control facility, will start in April 2009 and be completed in May 2011.

A component of the North Dorchester Bay CSO initiative is the Pleasure Bay storm drain project, which is intended to eliminate storm water discharges to the Pleasure Bay beaches and shellfish beds by replacing storm drains and redirecting the storm water discharges, primarily to the Reserved Channel at the BOS080 outfall. MWRA awarded the Pleasure Bay construction contract on August 18, 2005 and issued the Notice to Proceed on September 8, 2005.

Design of the North Dorchester Bay Storage Tunnel and Related Facilities project was suspended between 2000-2004 for project reassessment and regulatory review that led to a revised plan and completion date of May 2011.

The original plan for the North Dorchester Bay area was to build a CSO pump station and treatment facility in South Boston next to an Massachusetts Bay Transportation Authority (MBTA) electric generating plant site-referred to as "Site J." However, strong opposition from local public officials and residents and litigation filed against the plan forced MWRA to abandon this concept due to the inability to obtain necessary legislation to acquire Site J and examine several alternative options. After several years of additional planning and the additional time needed to obtain the required permits and approvals from the regulatory agencies, legislators, the federal court, and local residents, the current plan to build the storage tunnel and pumping station was adopted. (See Appendix IV for additional discussion of this issue).

The original estimated cost of the North Dorchester Bay Plan, as configured in the 1994 Conceptual Plan that local residents objected to, totaled approximately $87.6 million in 1994 dollars. The estimated cost of the option that met with local approval and is being implemented totals approximately $262.6 million, an increase of $175 million.

The area impacted by the North Dorchester Bay Plan and the adjacent Reserved Channel Sewer Separation Project is illustrated in Appendix II.

East Boston Branch Sewer Relief

This project calls for relief of the MWRA interceptor system serving most of East Boston to minimize CSO discharges to Boston Harbor and Chelsea Creek through BOS003-014 outfalls.

The 1997 Facilities Plan/FEIR calls for replacing, relieving, or rehabilitating a total of 24,750 feet of existing interceptor sewers. MWRA issued a Notice to Proceed for design services in March 2000. Design plans call for three construction contracts to complete the project. MWRA has completed one of the construction contracts, but suspended design work on the other two when it determined that the project would cost twice as much as estimated in the 1997 Facilities Plan/FEIR and would not fully attain the recommended level of CSO control. Design work on these two contacts will begin once MWRA reaches agreement with EPA and DEP on a final plan for CSO control in East Boston.

MWRA substantially completed the reassessment at the end of 2003, and it has been refining the evaluations as new information becomes available and negotiating formal approval with the court parties. One conclusion of the reassessment was that CSO overflows in East Boston are slightly less than originally estimated.

The reevaluation also considered the potential for improving the performance of the facilities and pipelines that carry East Boston flows to the Deer Island Treatment Plant. These facilities include the Caruso Pump Station in East Boston, the Winthrop Terminal facility, and the Chelsea Creek Headworks. However, the reevaluation did not find new opportunities for improving the performance of these facilities. Although planned improvements to the Winthrop Terminal facility will increase transport capacity and allow the Caruso Pump Station to pump at a slightly greater rate, this increase in capacity has little effect on flows and overflows in East Boston, where ability to convey wet weather flows is currently limited not by the pump station, but by the conveyance capacities of the East Boston pipes delivering flow to the station.

In addition, the reassessment compared the cost and benefit of a total of 20 CSO control alternatives involving hydraulic relief, sewer separation, and flow diversion. Other CSO control technologies that were evaluated and rejected in the 1997 plan, such as storage or treatment, were not deemed cost-effective, primarily because the outfalls are dispersed throughout East Boston.

The reevaluation report also shows that the current interceptor relief project, with the addition of sewer separation in the Jeffries Point and Maverick Square areas at a total capital

cost of $83.1 million, is the lowest cost alternative to attain the higher CSO control goals in the 1997 plan. According to MWRA, adding more areas of sewer separation beyond the Jeffries Point and Maverick Square areas would add considerable cost and would not result in significantly higher levels of control. Full sewer separation, in lieu of the interceptor relief project, while yielding the highest level of control (four activations and 1.0 million gallons annual volume), would cost approximately $117 million and would not come close to eliminating CSO discharges. This, according to MWRA, is primarily due to the configuration of the downspouts and drains in much of East Boston, which makes it difficult to separate the storm flows from the sewer system.

Following initial discussions held in late 2003, MWRA met with EPA and DEP in September and December of 2004 on the East Boston plan, as part of broader CSO discussions. MWRA has also tracked plans and progress by BWSC, the MBTA, and land developers that include separation of sewers within the same areas of East Boston-Jeffries Point and Maverick Square. MWRA plans to incorporate this information into a final assessment report.

Based on the results of the reassessment, MWRA believes that the current interceptor relief plan, estimated to cost $83.1 million, is cost-effective and will significantly reduce CSO discharges at all East Boston outfalls by exceeding the compliance standard for water quality in keeping with the intent and benefits of the 1997 plan. Ongoing work by BWSC and others to separate sewers in East Boston will further reduce CSO discharges. Through discussions with EPA and DEP, MWRA expects to be able to reach agreement on a final plan for East Boston. MWRA will then develop a schedule for completing design and construction.

Project design was suspended between 2002-2005 for project reassessment and regulatory review that confirmed project cost-effectiveness. The current recommended plan estimates a June 2010 completion date.

Union Park Detention/Treatment Facility

Completion of this facility will improve water quality in the Fort Point Channel by providing treatment of CSO flows being discharged through BWSC's Union Park Pumping Station.

The $48.6 million Union Park Detention/Treatment Facility project encompasses the construction of the CSO facility, including new screens and screenings removal area, a disinfection system, a dechlorination system, detention tanks, a sizable addition to the pump station building for treatment components, and odor control equipment. In addition, several BWSC pump station improvements were added to this contract. The pump station improvements are intended to increase the station's reliability and the level of flood protection for the South End.

MWRA and BWSC have combined their respective work at the facility into one construction contract. MWRA pays the contractor, and BWSC reimburses MWRA for its share of the project costs, approximately $5.3 million of the total project cost above.

The planned detention tanks at the Union Park treatment facility will have a storage volume of 2.2 million gallons and, by themselves, will reduce overflows to the pump station from 25 times a year to 17 times a year. In addition, the average annual volume of CSO discharge from the Union Park pump station to Fort Point Channel will decrease from 132 million gallons to 71 million gallons per year, with the remaining flows receiving treatment. These are the CSO control goals in the Court Order. However, together with improvements BWSC is making to its South End sewer system to further control flows to the pump station, MWRA predicts that discharges may be reduced to six activations a year and 29 million gallons annual volume. As of November 2005, work on this construction project was approximately 87% complete.

MWRA extended the contract completion date from March 2005 to March 2006, and is currently evaluating the contractor's request for additional time extensions related to design changes associated with pump improvements and delays associated with bringing new electric service to the site. These time extensions could increase costs and extend the current contract completion from March 2006 to December 2006.

b. Community-Managed Projects

Cambridge/Alewife Brook Sewer Separation Project

The Cambridge/Alewife Brook Sewer Separation project is intended to minimize CSO flows to Alewife Brook, primarily by separating combined sewer systems in parts of Cambridge.

The separation work is being done by the City of Cambridge with MWRA funds under a Memorandum of Understanding and Financial Assistance Agreement (MOU/FAA).

Cambridge began construction of the sewer separation work in July 1998, in accordance with the 1997 Facilities Plan/FEIR at an original estimated cost of $12.1 million. In 2000, MWRA and Cambridge suspended further design work and construction contract awards necessary to complete the 1997 plan, based on new information showing that conditions in the Cambridge combined sewer system were markedly different from conditions assumed in the 1997 plan. They determined that considerably more work, as well as changes in the scope of work, would be necessary to meet the 1997 CSO control goals for Alewife Brook. In April 2001, MWRA and Cambridge submitted a Notice of Project Change (NPC) for public review that recommended an expanded sewer separation plan to meet those goals estimated to cost $74 million, of which $40.4 million would be MWRA's responsibility. The Secretary's Certificate on the NPC, issued in June 2001, required MWRA and Cambridge to prepare a document responding to all public comments, including comments related to the feasibility of obtaining necessary federal and state permits and other approvals to build the project. In May 2003, MWRA and the City of Cambridge submitted a response to the Massachusetts Environmental Policy Act (MEPA), addressing all public comments.

Since 2003, Cambridge has been updating its preliminary design plans to reflect the additional plan changes that resulted from MEPA review, public comments, and new field information. Cambridge has also been updating design and construction schedules and cost estimates. While updating the plans, Cambridge has also pursued final design on key portions of the work, namely "Contract 12," which involves construction of a wetland basin and new storm drain outfall in the Alewife Reservation.

On December 17, 2004, MWRA received the Draft Second Supplemental Preliminary Design Report (SSPDR) from Cambridge, which provides an update of the work plans, design and construction contract requirements, schedules, and estimated costs for the Alewife Sewer Separation Project. MWRA has reviewed the document and met with members of the Cambridge Department of Public Works and Cambridge's design consultant to discuss the new information. The SSPDR showed that the total cost for the Alewife sewer separation project and for Cambridge floatables control have increased, though, according to MWRA,

the general scope of work and level of CSO control have not changed. The increases are primarily due to detailed design changes and construction requirements, additional hazardous materials management requirements, Cambridge's selection of floatables control technologies, and inflation. The current estimate of MWRA's share of the cost is $44.1 million. If the total updated cost of the plan is inflated to the currently estimated mid-point of construction, the total cost of the recommended plan is on the order of $102 million. This increase may compel MWRA to reevaluate again the cost-effectiveness of the plan. Unexplainably, the MOU/FAA with Cambridge dated April 2005 reported MWRA's cost share at $21.5 million, despite knowledge that project costs would be much higher. According to the MWRA, the $21.5 million reported in the staff summary was not the total expected award amount or the estimated increase in MWRA cost share due to the updated, higher Cambridge cost estimates, but simply reflected the cost of those components of the program which had been completed, were underway or were then authorized to be funded and move forward. MWRA informed us that the MOU will be revised once agreement is reached with regulatory parties and the court on project scope and negotiations with Cambridge on cost sharing is completed.

MWRA is continuing to meet with the Cambridge Department of Public Works to fully understand the updated information and resolve outstanding issues. From that review, MWRA expects to make a series of recommendations to its Board of Directors regarding the reasonableness of Cambridge's updated plans and cost estimates, the appropriateness of moving forward with the Alewife Brook plan at a higher cost, the amount of the cost that is eligible for MWRA funding, and appropriate amendments to the agreements with Cambridge.

Cambridge has made progress in completing the design work for Contract 12. The new wetland basin and outfall that is planned to be constructed under this contract are necessary to accommodate future sewer separations in the upstream CSO outfall, (CAM004) area and eventually to close the (CAM004) regulator. The Contract 12 schedule has slipped by approximately 12 months; primarily due to issues that Cambridge needed to respond to in order to obtain permission from the Cambridge Conservation Commission to initiate construction in and near wetland areas. Cambridge received an environmental permit, the Wetlands Order of Conditions for Contract 12 from the Cambridge Conservation

Commission in June 2004, which was appealed by a group of citizens seeking a Superseding Order of Conditions from DEP. Cambridge has since provided information to support DEP's review of the appeal. DEP issued a Superseding Order of Conditions (SOC) on March 31, 2005. An appeal of the SOC was filed on April 13, 2005. The appeal had not been decided as of December 2005.

In summary, the project was suspended, due to significantly increasing costs and regulatory uncertainty, between 2000-2004 for project reassessment and regulatory review that led to a revised recommended plan. A more recent one- to two-year delay is due to wetlands permit appeals that have not yet been finalized. The current estimated completion date is January 2013. Cambridge has completed four of its awarded construction contracts, and the completed work has significantly reduced CSO discharges to Alewife Brook. Hydraulic model simulations show that CSO discharges have been reduced from 63 times per year on average with 50 million gallons annual volume to 25 times per year on average with 33 million gallons annual volume. When the project is completed in 2013, these numbers are projected to drop to seven discharges per year and 7.4 million gallons.

Cambridge's inability to gain timely project approvals may continue to result in increased project costs.

Ongoing Boston Water and Sewer Commission (BWSC) Managed Projects

The Memorandum of Understanding/Financial Assistance Agreement (MOU/FAA) with BWSC is estimated to cost MWRA approximately $263.3 million. The agreement is made up of the following major incomplete projects:

Project Description	Cost (in millions)
South Dorchester Bay Sewer Separation	$117.7
Reserved Channel Sewer Separation	63.1
Morrissey Boulevard Storm Drain	21.3
Stony Brook Sewer Separation	45.2
Fort Point Channel Sewer Separation	8.6
Other	7.4
Total	$263.3

South Dorchester Bay Sewer Separation

The South Dorchester Bay Sewer Separation is intended to eliminate CSO flows to the Commercial Point and Fox Point CSO treatment facilities allowing MWRA to decommission these facilities. The separation work primarily involves the construction of new storm drains and appurtenant structures, relocation of storm runoff connections from the existing combined sewer to the new storm drains, and rehabilitation of the existing combined sewers for use as sanitary sewers. The plan calls for approximately 136,000 linear feet of new storm drains. BWSC is implementing the project with MWRA funds.

This project comprises nine major sewer separation construction contracts. BWSC has awarded all of these contracts, and as of September 2005 six contracts have been completed, leaving three ongoing contracts that are at various stages of completion. Overall project work has resulted in the installation of a total of 118,786 linear feet of new storm drain, bringing the project to approximately 87% completion. The $117.7 million project is scheduled for completion in November 2008 in accordance with the 1997 Final CSO Facilities Plan/FEIR and is proceeding on schedule.

Reserved Channel Sewer Separation

The Reserved Channel Sewer Separation revised plan calls for separating the combined sewer systems tributary to the Reserved Channel CSO outfalls (BOS076, 078, 079, and 080). The project is intended to remove storm water from the combined sewer systems to reduce the frequency of CSO events along the Reserved Channel from approximately 37 per year to three per year. The project will reduce annual CSO discharge volumes to the Reserved Channel by 96.4%. Design and construction of the $63.1 million Reserved Channel sewer separation plan will be managed by BWSC and funded by MWRA.

Reserved Channel Sewer Separation involves the separation of combined sewers in a densely populated 355-acre area in South Boston. This old congested utility infrastructure required lengthy pre-design studies that will extend the design and, together with narrow streets and a dense housing stock, extend construction durations. The project was changed from a consolidation storage conduit to a sewer separation initiative in April 2004. At that time the estimated completion date was 2017, but BWSC and MWRA currently estimate the project will be completed by December 2015.

Morrissey Boulevard Storm Drain

The $21.3 million Morrissey Boulevard Storm Drain project involves permitting, design, and construction of a large storm drain along a major roadway in South Boston. The intent is to increase the level of stormwater control along local beaches to a five-year storm by the construction of a 2,900-foot long, 12-foot by 12-foot conduit along Morrissey Boulevard that will divert stormwater away from the North Dorchester Bay storage tunnel in storms greater than a one-year storm. This new project was added with the revised recommended plan for North Dorchester Bay in April 2004. The project is proceeding on schedule for a June 2009 completion.

Fort Point Channel Sewer Separation

The goal of the project is to eliminate CSO discharges that occur during a typical rainfall year from the two outfalls in the channel. The original plans were for MWRA to design and construct either a storage tunnel or above-ground storage tanks at costs of up to $14 million. Notices of Project Change were approved by the court, transferring design and construction responsibilities to BWSC. The current plan calls for a sewer separation/system optimization project that is estimated to cost approximately $8.6 million and be completed by March 2007. The revised plan is less costly and has less construction impacts than above-ground or underground storage facilities.

Stony Brook Sewer Separation

The $45.2 million Stony Brook Sewer Separation Project is intended to minimize CSO discharges to the Stony Brook Conduit and the Back Bay, both of which drain into the Charles River, by separating combined sewers in parts of Roxbury and Jamaica Plain. The separation work involves the installation of approximately 73,300 linear feet of new storm drain. BWSC is implementing the project with MWRA funds.

BWSC commenced construction in July 2000 and has completed construction of the first two separation contracts. The third and fourth contracts are now approximately 75% and 45% complete, respectively. BWSC has installed a total of 56,719 linear feet of new storm drains, and the project is approximately 77% complete. The project is proceeding on schedule for a September 2006 completion.

c. Joint MWRA/Community-Managed Projects

Charles River CSO Controls

The Charles River CSO Controls project is a newly added initiative that was estimated to cost $800,000. Recent changes to the project as a result of negotiations with regulatory agencies to achieve a higher level of CSO control have increased the estimated costs to $21.2 million with a completion date of July 2013. The project consists of the following three major tasks; (1) bringing into operation an abandoned 54-inch Brookline connection that crosses the Charles River from the Cambridge Cottage Farm influent chamber to an improved connection at the South Charles Relief Sewer on the Boston side, which will be managed and owned by MWRA; (2) implementing the Bulfinch Triangle sewer separation initiatives, which will be managed and owned by BWSC; and (3) implementing the Brookline sewer separation construction project, which will be managed and owned by the town of Brookline. MWRA will absorb the entire cost of these projects.

Regionwide Floatables Control

The Regionwide Floatables Control Project is budgeted to cost $3.9 million and scheduled to be completed by September 2012. The impacted areas are the Charles River, Boston Inner Harbor, Fort Point Channel, Alewife Brook, and Tannery Brook in Somerville. The project involves the closing of some inactive outfalls and installation of underflow baffles at CSO outfalls that will remain active. Underflow baffles are intended to capture most of the floatable materials in CSO discharges. BWSC has completed work at the Boston Inner Harbor and Fort Point Channel areas, and MWRA and Cambridge have completed work at some outfalls. However, additional floatables control work will continue until 2012.

Conclusion

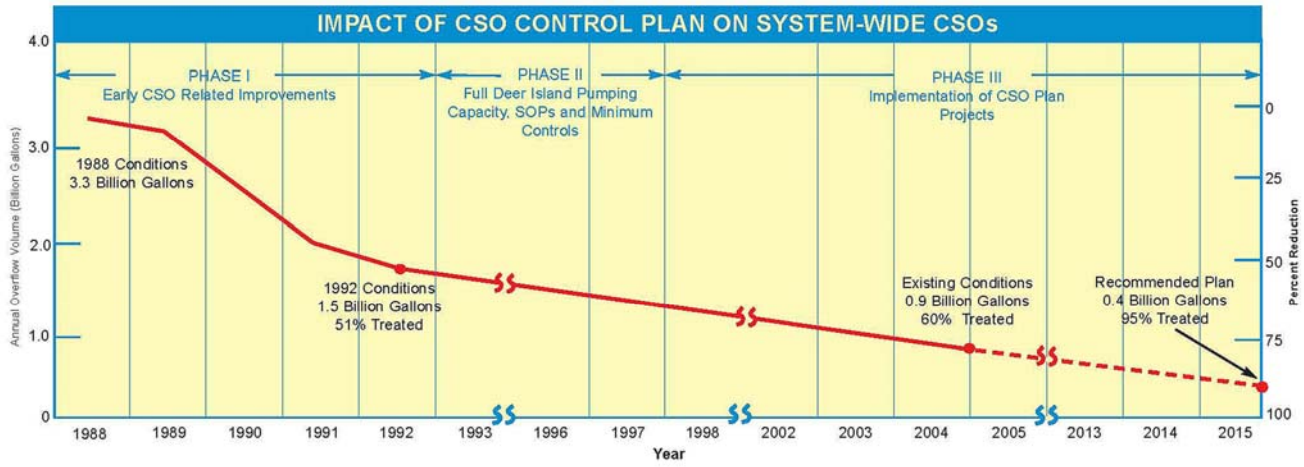
Of the 25 projects that comprise MWRA's CSO control plan, 14 have been completed, and nine of the remaining 11 projects have begun construction. The original completion date for the CSO project was November 2008, but a revised completion date of 2015 is now planned -- seven years later than originally scheduled. MWRA stated that schedule delays were primarily driven by necessary environmental reviews, court renegotiations, and project revisions resulting from the inability to obtain necessary approvals or sites.

3. MAXIMUM PERFORMANCE TEMPORARILY DELAYED

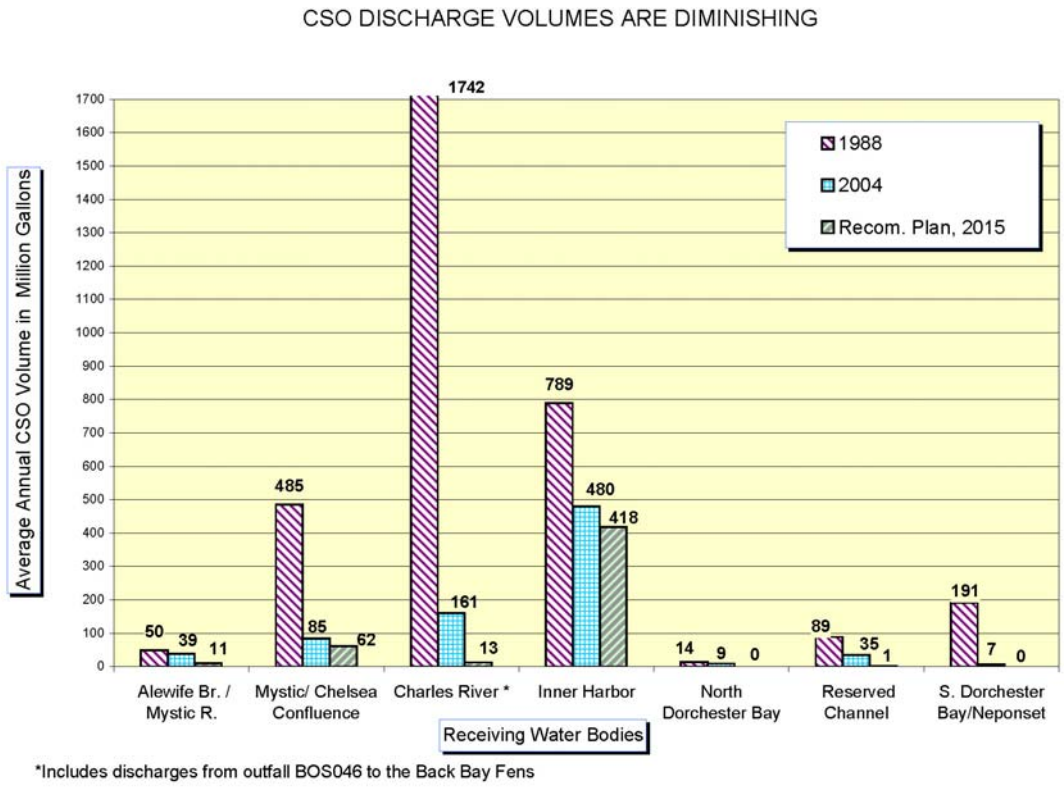
Although the CSO Program and other MWRA initiatives have significantly improved the water quality in many areas, the program will not achieve maximum performance until 2015 as a result of delays and increased costs.

The requirements for the development of a CSO control plan are contained in federal and state regulations and policies. According to MWRA, the approach used to develop its recommended CSO control plan is consistent with EPA's national CSO policy and was focused on making a complete assessment of CSO impacts and evaluating the options and potential for meeting water quality goals through CSO controls. Moreover, MWRA stated that its CSO control plan also conforms with DEP's CSO policy, which requires evaluating the elimination and relocation of CSOs, especially in sensitive areas, and (where elimination is not feasible or would cause substantial widespread economic and social impact) minimizing the impacts of CSO discharges to achieve the highest water quality attainable to protect beneficial uses.

Subsequent to MWRA's assumption of responsibility for developing and implementing a regional CSO control plan in the Boston Harbor Case, improvements to its wastewater transport and treatment systems have produced large reductions in CSO discharges with significant improvement in water quality in many areas. As evidenced by the following graphs, the completed wastewater system improvements, which include the construction of the new Deer Island Primary and Secondary Treatment Facilities, an upgrade of associated pumping stations, and the completion of a number of the planned CSO projects, have significantly reduced average annual volume of CSO discharges (in a typical rainfall year) from 3.3 billion gallons in 1988 to 0.8 billion gallons today (a 76% reduction), with 64% of the remaining 0.9 billion gallons overflow receiving treatment at MWRA facilities. As shown in the following graphs, the water quality in Boston Harbor and its tributaries has improved dramatically.



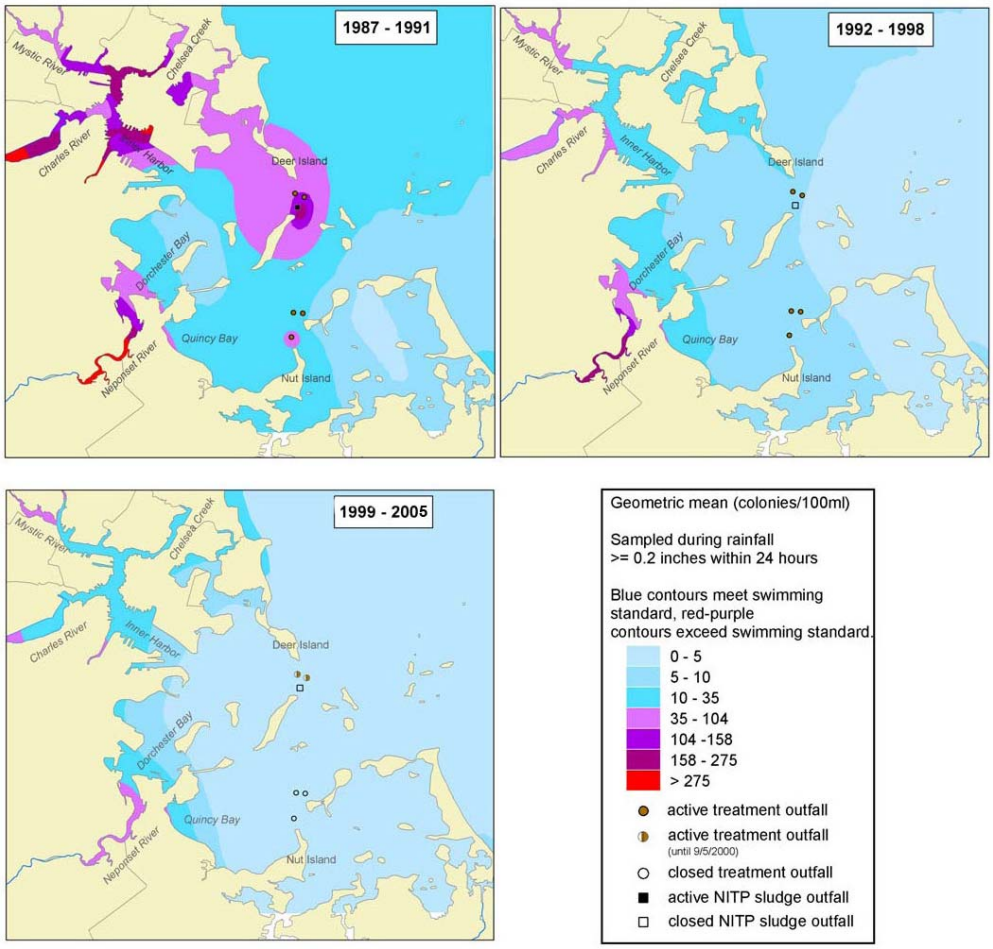
A further analysis of the actual and planned CSO discharges by receiving water body is presented below:



Another indicator of program performance can be gleaned from an analysis of the changes in Boston Harbor wet weather bacteria counts between 1987 and 2003.

Source: MWRA's CSO 2005 Annual Progress Report

CHANGES IN BOSTON HARBOR AVERAGE *ENTEROCOCCUS* COUNTS IN WET WEATHER



Changes in wet weather bacterial water quality in Boston Harbor 1987 to 2003, monitoring data collected by MWRA's Central Lab and Environmental Quality monitoring program in Boston Harbor and tributary rivers, and from Metropolitan District Commission (now Department of Conservation and Recreation) beach monitoring. *Enterococcus* is the sewage indicator bacteria recommended by EPA for monitoring marine waters. Contours show the geometric means of *Enterococcus* data collected when more than 0.2 inches of rain had fallen in the previous 24 hours; blue areas meet the EPA standard and red-purple areas exceeded the standard.

1987-1991 shows data from before the Boston Harbor project and CSO plans began up through the last year that sludge was discharged (1991). In wet weather most of the Inner Harbor, the tributary rivers, and areas affected by discharges of sewage and sludge from the Deer Island Treatment Plan (DITP) and Nut Island Treatment Plant failed the standard, some with extremely high counts.

1992-1998 reflects impacts of CSO upgrades, the end of sludge discharges, full pumping at DITP, improved primary and beginning secondary treatment at DITP. Most of the harbor meets standards, except tributary rivers, Fort Point Channel, and along Wollaston Beach .

1999-2005 shows continued improvement due to closure of 22 CSO outfalls, upgrades of CSO facilities, ending of harbor treatment plant effluent discharges as the new outfall began operating, and local efforts to abate stormwater pollution.

Source: MWRA's CSO 2005 Annual Progress Report

Included as Appendix I is a graphic depiction of MWRA's CSO Control Plan and the Status of Implementation as of March 2005.

Conclusion

Despite significant project cost growth and extensive schedule delays to date, MWRA's CSO Program and other initiatives have made significant improvements to water quality in many areas. With attention focused on escalating costs and schedule delays, the total implementation of the CSO program by 2015 should provide the full benefits envisioned under the CSO program, albeit somewhat belatedly.

Recommendation

1. MWRA should formalize negotiations with DEP, EPA, and the impacted communities in a manner that clearly sets forth the agreed-upon actions needed to timely resolve the remaining outstanding issues and include definite timelines for completion.

2. MWRA should maximize its efforts to reduce project costs and schedule delays with a goal of achieving the full benefits of the CSO program earlier than 2015.

Auditee's Response

MWRA officials provided us with the following comments relative to the above two report recommendations.

1. Since the December 2005 end date of your audit, MWRA has achieved substantial progress in finalizing the scope and schedule for the remaining components of its long-term CSO control plan. On April 27, 2006, Federal District Judge Richard Stern approved a joint motion of the U.S. Department of Justice (DOJ), EPA and MWRA that provides a comprehensive resolution of outstanding issues related to MWRA's CSO program. Under the motion, MWRA will implement its recommended plans for Alewife Brook/Upper Mystic River and East Boston. MWRA will also undertake limited additional work to further reduce CSO discharges to the Charles River from its Cottage Farm CSO Facility, which was the subject of discussions between EPA and MWRA and related investigations by MWRA since MWRA first issued its long-term control plan in 1997. The estimated cost of this additional work is approximately $20 million, and it is expected to reduce CSO discharges from Cottage Farm to 2 activations and 6.3 million gallons in a typical rain year, from the previous goal of 6 activations and 23.6 million gallons. The scope, milestones and performance goals of other CSO projects remain unchanged.

   Schedule Six of the Federal Court order contained three unmet milestones related to completion of the CSO control plans for Alewife Brook/Upper Mystic River, East Boston, and region-wide floatables control and outfall closings. The accepted joint motion replaces these with new milestones and adds milestones for the revised Charles River CSO control plan. The revised milestones extend the completion date for the Alewife Brook/Upper Mystic River CSO control plan from January 2000 to January

2013 and the completion date for the East Boston CSO control plan from September 2005 to June 2010. The recommended CSO control plan for the Charles River would be completed in July 2013.

As noted in your draft audit report, MWRA's long-term control plan consisted of 25 projects after it was issued in 1997. In June 2005, the number increased to 26 with the incorporation of the revised North Dorchester Bay plan. With the recent adoption of the joint motion described above, the MWRA's CSO control plan now consists of 35 projects with distinct milestones in the Federal Court Order.

In exchange for agreeing to implement its revised long-term control plan, MWRA will be issued a series of five (5), three-year water quality variances for the Charles River and Alewife Brook/Upper Mystic River through 2020. As it relates to MWRA, the terms and conditions of all the variances will be limited to the requirements of the Court Order (i.e. that MWRA's responsibility is to implement the long-term control plan contained in the revised Schedule Six). Finally, along with the joint motion, EPA, DOJ and MWRA filed a second stipulation on responsibility and legal liability for combined sewer overflow control. This stipulation replaces the stipulation entered into in 1987, which established MWRA's responsibility to develop and implement a region-wide CSO long-term control plan. The second stipulation states that, once MWRA has implemented the recommended plan and demonstrated that it meets the specified goals for activation frequency and discharge volumes each CSO community will be solely responsible for the CSO outfalls they own and operate. These important conditions provide much greater certainty to the MWRA and its ratepayers relative to the scope and cost of the CSO program through 2020.

2. The CSO project schedules in Schedule Six are aggressive and were developed with project-specific design, permitting and construction requirements. In addition, the program continues to face cost and schedule challenges, including the general uncertainty associated with construction of large tunnels, such as the North Dorchester Bay storage tunnel and the difficulty in obtaining the necessary wetlands permits to construct a stormwater detention basin that is critical to the implementation of the Alewife Brook CSO plan. Notwithstanding these challenges, MWRA, working in cooperation with the Boston Water and Sewer Commission (BWSC), the Town of Brookline and the City of Cambridge, will continue to manage the CSO program with the goal of controlling project costs and improving upon established schedules where possible.

   It should be noted that MWRA has already achieved significant progress in reducing CSO discharges to Boston Harbor and its tributaries. Improvements to MWRA's wastewater system, including the upgraded Deer Island Treatment Plant and associated pump stations, as well as completed CSO projects, have reduced the total annual volume of CSO discharge in a typical rainfall year from 3.3 billion gallons in 1988 to 0.8 billion gallons today, a 76% reduction. In addition, 64% of the remaining overflow receives treatment at MWRA's five CSO treatment facilities. While 2015 is the end date for the final component of MWRA's long-term CSO control plan, the bulk of the remaining work is scheduled to be completed well in advance of that date. For example, the North Dorchester Bay CSO project, which is the largest single component of the MWRA's

CSO program and comprises over half of the remaining budget to be expended is scheduled for completion by May 2011.

Auditor's Reply

The MWRA's current efforts to resolve the remaining outstanding CSO issues, control project costs, and improve upon established schedules are positive actions that we will monitor in future reviews at the MWRA. Other comments made by MWRA officials have been considered in pertinent sections of the report.

APPENDIX I

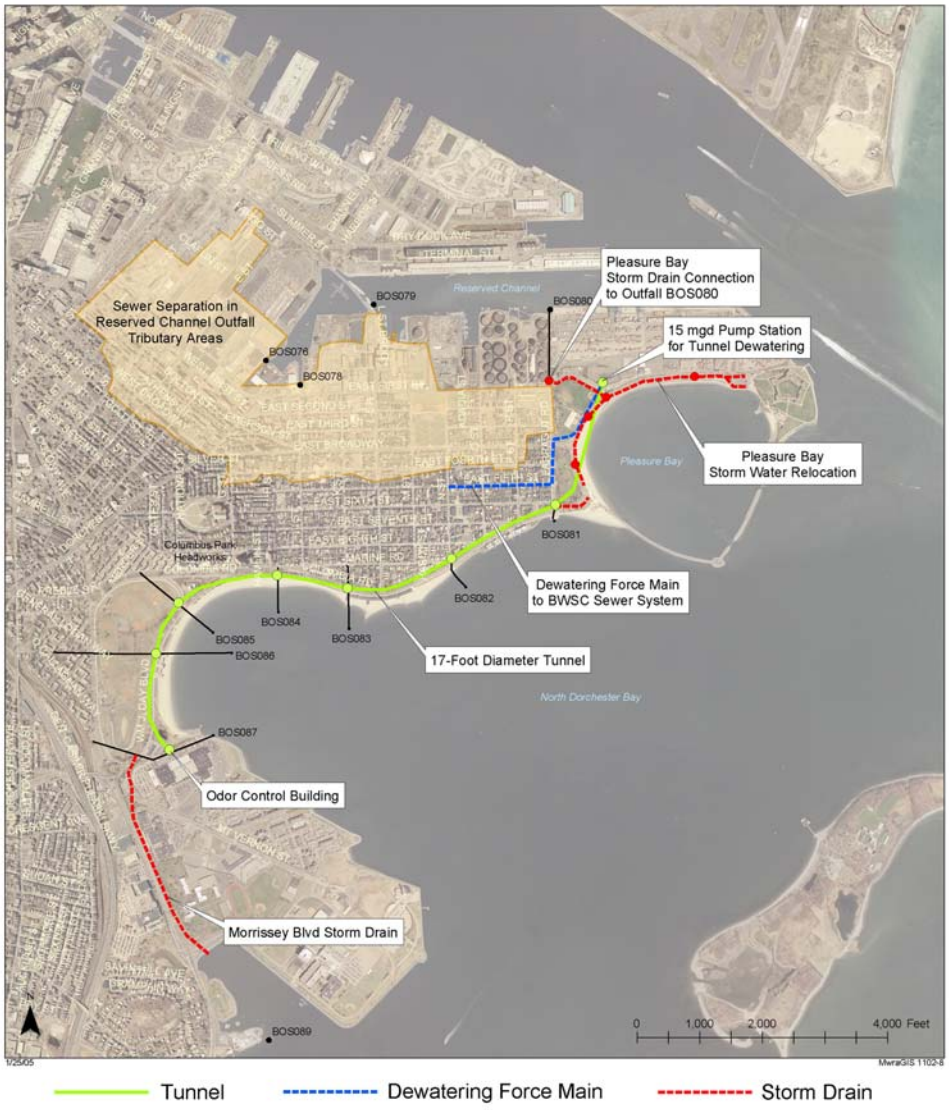
MWRA Recommended CSO Control Plan and Status of Implementation

(1) East Boston Project reassessment completed; final plan pending.

Source:
MWRA CSO Program Annual Report 2004

APPENDIX II

North Dorchester Bay and Reserved Channel
Recommended CSO Control Plans



APPENDIX III

Glossary of Terms

Bacterial standards — Regulatory water quality criteria based on the risk to human health from disease-causing microorganisms, assessed using easy-to-measure sewerage indicator bacteria, usually, fecal coliform. High counts of coliform indicate the likely presence of human or animal waste that could contain human pathogens. Massachusetts has bacteria standards for shellfishing, primary contact recreation, and secondary contact recreation.

Baffles — Vanes, guides, grids, grating or similar devices placed in a pipe or channel to deflect or regulate flow.

Biochemical oxygen demand (BOD) — The amount of oxygen-consuming organic material in wastewater and an operational measure of potential for depletion of dissolved oxygen by the biological and chemical degradation of organic material by bacteria.

Catch basin — A chamber or well, usually at the street curbline, for the admission of surface water to a sewer or subdrain, having its base a sediment sump to retain grit and detritus below the point of overflow; whereas, a stormwater drain inlet does not have a sump and does not trap sediment.

Class B water quality — Waters designated as a habitat for fish, other aquatic life, and wildlife, and for primary and secondary contact recreation. Where designated they shall be suitable as a source of public water supply with appropriate treatment; suitable for irrigation and other agricultural uses; and for compatible industrial cooling and process uses.

Conduit — Any channel intended for the conveyance of water, whether open or closed.

Combined sewer — A sewer intended to transport surface runoff, sanitary sewerage and industrial wastes.

CSO (combined sewer overflow) — Flow from a combined sewer, in excess of the sewer capacity, that is discharged into a receiving water.

CSO frequency — The number of rainfall events during which a CSO outfall or group of CSO outfalls activates within a typical annual period, usually determined from an annual simulation.

CSO volume	The volume discharge through a CSO outfall during a storm event or over a typical year, usually determined through hydraulic modeling.
Deep tunnel storage	Temporarily storing flow in tunnels that are typically 300-400 feet deep and within bedrock.
Disinfection	The killing or inactivation of human disease causing microorganisms or pathogens, most commonly through contact with chlorine.
Dry-weather flow	Usually refers to the flow in a combined sewer system without stormwater. In a separate stormwater system, dry weather flow generally indicates illegal sewer connections and/or infiltration.
Effluent limits	Enforceable standards for wastewater discharges, set by the Massachusetts DEP and/or US EPA. Limits can be water quality based, set so that discharge would not be predicted to cause or worsen violations of water quality standards, or technology based, set on the minimum performance a treatment facility should achieve.
EIR	Environmental Impact Report – state process to review environmental impacts of proposed projects in a public forum.
ENF	Environmental Notification Form – the first step in the EIR process
Floatables	Floating material usually characteristic of sanitary wastewater and storm runoff.
Force Main	A pipe running from a pumping station, under pressure, transmitting flow to the sewer system
Headworks	The first stage of treatment in a Publicly Owned Treatment Works (POTW) process, typically providing screening and grit removal.
Hydraulic modeling	Computer simulation of the flows within and performance of a wastewater collection system, including stormwater, infiltration/inflow (I/I), sanitary flow and combined sewage.
Infiltration	Water that enters a sewer system and service connections underground through such means as, but not limited to, defective pipes, pipe joints, connections, or manhole walls. Infiltration, which is usually related to groundwater conditions, does not include, and is distinguished from, inflow.

Inflow	Water other than sanitary flow that enters a sewer system (including sewer service connections) from sources which include but are not limited to roof leaders, cellar drains, sump pumps, yard drains, area drains, drains from springs and swampy areas, manhole covers, catch basins, cooling towers. Inflow, which is usually storm-related, does not include, and is distinguished from, infiltration.
In-line storage	Storage of flow within the existing sewer system.
Interceptor	A sewer that intercepts and transports flows from tributary collection systems to treatment facilities.
Interceptor relief	Enlarging an existing interceptor or providing a separate relief interceptor to carry more flow to treatment facilities.
MGD	Millions of gallons per day.
Near surface storage	Temporary storing flow in tanks or pipes that are typically less than 100 feet below grade.
One-year storm	Refers to a historical storm of 22-hour duration, peak hourly rainfall of 2.79 inches. The storm was selected from historical storms of approximately 24-hour duration from long-term Logan Airport records as having a recurrence interval of one year. Recurrence interval is defined as the average interval between the occurrence of an event of specified characteristics and an equal or larger event. • **5-year storm**: storm duration of 24 hours, storm depth of 4.05 inches. • **25-year storm**: storm duration of 24 hours, storm depth of 5.40 inches.
Peak shaving	Controlling peak flow rates by providing temporary storage.
Primary treatment	Consists of screening and sedimentation to remove floatable and settleable solids as well as disinfection.
Receiving waters	Surface water bodies into which materials (flow and pollutants) are discharged.
Regulator	A structure that controls the amount of combined sewage entering an interceptor by storing flow in the upstream trunk line or by diverting some portion of the flow to an outfall.

Relief sewer	A sewer built to carry the flows in excess of the capacity of an existing sewer.
Screening	Consists of vertical or inclined bars and/or mesh, generally of uniform size to retain the debris and floatables in the flow.
Sewer separation	Separating storm drainage and sanitary sewerage, usually by constructing new piping systems.
Sewer surcharging	Occurs when the hydraulic grade line exceeds the crown elevation of the sewer, usually caused by flow capacity problems.
Stormwater controls	Controlling stormwater runoff entering a combined sewer system through either elimination, reduction or detention.
Stormwater Management	Techniques to decrease the volume of stormwater entering the combined system, as well as, improving the quality of stormwater discharges to receiving waters.
Water quality standards	A threshold value or concentration for a pollutant effect as chosen by regulatory agencies to distinguish between acceptable and non-acceptable environmental conditions; usually chosen based on laboratory observations of organism response.
Wet-weather flow	Usually refers to the flow in a combined sewer system with stormwater, but may also constitute the flow in a separate storm drainage system or a separate sanitary drainage system with infiltration and inflow.

APPENDIX IV

MWRA's Explanation for Not Utilizing of "Site J" in the North Dorchester Bay Initiative

The original "Site J" plan was withdrawn because of strong opposition to the plan by legislators (both House and Senate) representing the South Boston community. Specifically, these legislators informed MWRA that they would oppose, and thus prevent approval of, the legislation required to obtain the needed easements to construct the proposed improvements within designated parklands (so called Article 97 legislation). As you know, Article 97 legislation requires 2/3 vote of approval of the Massachusetts legislature as well as approval of the Governor. Repeal or legislative override of strong local opposition to proposed Article 97 legislation, which has very broad application across the state for all types of projects, was not considered a viable option, and MWRA is unaware of any recourse available to the Governor to circumvent or override this requirement. Meetings were held at the State House with elected officials, EPA, DEP, Massport and residents in an effort to move forward with the project. It was determined that a complete reevaluation of alternatives was necessary.

At that time, MWRA discussed this issue and MWRA's plan to perform a reassessment with EPA, DEP and the U.S. Justice Department. On April 26, 2000 the United States filed a motion in federal court seeking to compel the MWRA to make a formal request to the Governor of Massachusetts to file in the Legislature a bill for the required Article 97 approval. The motion was opposed by the Commonwealth and MWRA on the basis that the relief requested would be an "unwarranted intrusion upon the constitutional role of the Governor and it would not serve to advance the project."

Judge Mazzone denied the motion because "I agree that the action requested in the motion would be counter-productive and basically unable to achieve the objective sought." Judge Mazzone urged the parties to work together and continue to move forward.

Finally, as a result of the reevaluation of the project, due to the local opposition to the Article 97 legislation, MWRA was able to develop, and more importantly gain broad support, including regulatory and court parties, for an alternative that eliminated the massive 600-MGD pump station. This pump station would have been the second largest wastewater pump station in New

England and would have activated only once every two years (only in large storms not occurring in a typical year). Elimination of this massive pump station not only allowed siting of the much smaller pump station on Conley Terminal, thereby resulting in an implementable project, but also eliminated the cost to operate and maintain such a massive pump station.