Capital Improvement Program

FISCAL YEAR 2009

MASSACHUSETTS WATER RESOURCES AUTHORITY

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Katherine Haynes Dunphy
MWRA Advisory Board
11 Beacon Street
Boston, MA 02108

August 28, 2008

Dear Chairwoman Dunphy:

This letter transmits to the Advisory Board the MWRA's Capital Improvement Program (CIP) for Fiscal Year 2009 and the five year spending cap for FY09-FY13 as approved by MWRA's Board of Directors on June 25, 2008.

The total FY09 CIP is $4.9 billion, with $230.0 million expected spending in FY09 and $1.081 billion in the FY09-FY13 timeframe.

The FY09-FY13 cap totals $1.144 billion with the following yearly projected amounts:

FY09: $244.4 million
FY10: $264.1 million
FY11: $230.0 million
FY12: $207.0 million
FY13: $198.4 million

Additional funding above the budgeted amounts presented in the Proposed FY09 for the next five year cap period includes cost increases for the Combined Sewer Overflow (CSO) control program and the Deer Island Treatment Plant Asset Protection projects. These cost increases are offset by schedule changes for Waterworks projects such as New Connecting Mains, Northern Intermediate High Redundancy and Storage, Southern Extra High Redundancy and Storage, and lower than expected award for the John J. Carroll Water Treatment Plant.

Detailed project information and a copy of this document are also available on-line at www.mwra.com. Questions or comments should be directed to the MWRA Budget Department at (617) 788-2268.

Thank you for your continued support, comments and recommendations on the capital budget.

Sincerely,

Frederick A. Laskey
Executive Director

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Overview

MWRA was created by the Massachusetts legislature in 1985 and since that time has invested over $6.9 billion to modernize and improve the wastewater and waterworks systems serving its member communities. Of the total expenditures to date, nearly three-fourths have supported improvements to the wastewater treatment, interceptor, pumping, and combined sewer overflow systems. The remaining fourth has supported waterworks treatment, transmission, distribution, and water supply protection improvements. The Final FY09 CIP budget totals $4.9 billion, of which $2.9 billion has been expended, with projected spending of $230.0 million for FY09 and a remaining balance of $2.0 billion.

MWRA's sewage treatment system has undergone a nearly complete transformation under the federally mandated, $3.8 billion Boston Harbor Project. Now complete, the project included: a new Deer Island Treatment Plant with primary and secondary treatment capabilities; a new 5-mile Inter-Island Tunnel that combined two separate sewer systems into one; a sludge-to-fertilizer facility; and a 9.5-mile Effluent Outfall Tunnel to discharge treated wastewater away from shallow Boston Harbor into deeper waters and the stronger currents of Massachusetts Bay.

MWRA's Integrated Water Supply Improvement program is a $1.7 billion series of projects that consists of aggressive watershed protection, modernized water treatment facilities and distribution system improvements including construction of covered storage facilities and pipeline rehabilitation projects. This program is nearly complete and includes the $431.0 million John J. Carroll Water Treatment Plant, a state-of-the-art ozonation facility with capacity to treat 405 mgd of drinking water, which was completed in 2005 pursuant to the Safe Drinking Water Act (SDWA). The plant treats water delivered from the Wachusett Reservoir with ozonation and chloramination. The plan also includes the 17.6-mile MetroWest Supply Tunnel which was placed in service in November 2004. The new tunnel greatly enhances the security, capacity and reliability of MWRA's entire water transmission system. Prior to 2004, the MWRA relied on a single 1940's-era surface aqueduct, the Hultman Aqueduct, to serve all of metropolitan Boston. With its leaks and aging valves, the Hultman has been taken off-line for major repairs. Before the MetroWest Tunnel, failure of the Hultman could have caused nearly complete interruption of Boston's water supply. This would have been a disaster for the region's public health, safety and economy.

In 1987, MWRA entered a stipulation in the Federal District Court Order in the Boston Harbor Case by which it accepted responsibility for developing and implementing a long-term CSO control plan for all combined sewer overflows hydraulically connected to MWRA's system, including the outfalls owned and operated by the communities of Boston, Cambridge, Chelsea, Somerville, and a small section of Brookline. Since then, MWRA has conducted site-specific and watershed-based planning to meet short-term control requirements pursuant to federal regulations and develop a long-term control plan to bring the Boston area CSOs into compliance with the Federal Clean Water Act and State Water Quality Standards.

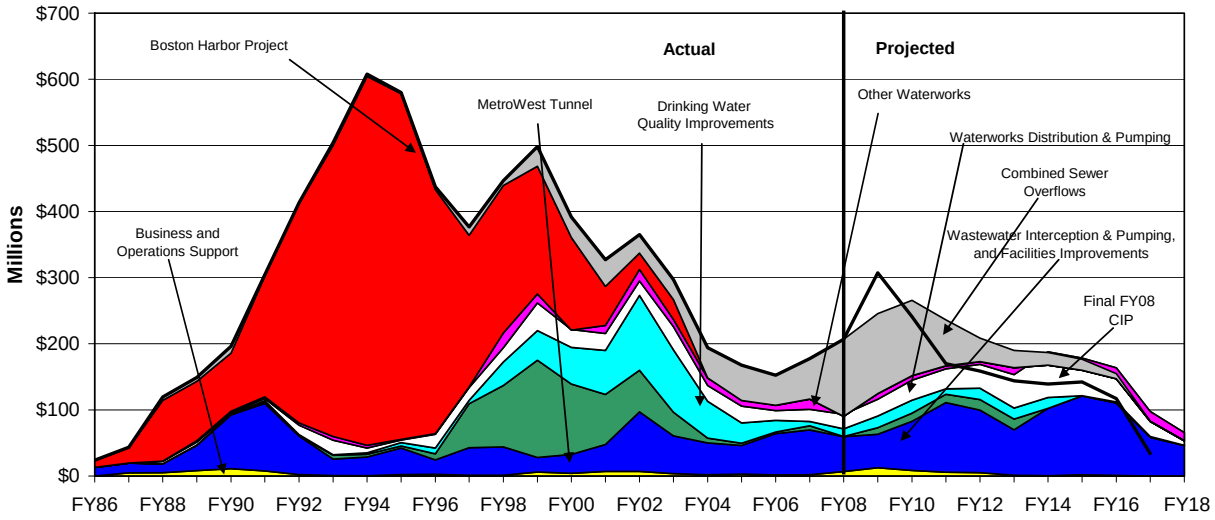
With the completion of the Deer Island facilities and the winding down of the Water Supply Improvement program, the MWRA now spends a proportionately large part of its CIP budget on the Combined Sewer Overflow ("CSO") projects mandated by state and federal agencies. The CSO

program encompasses 35 projects with a total budget of $924.6 million with projected spending of $528.4 million through FY08 and a remaining balance of $396.2 million. Twenty-three (23) of the 35 projects contained in the MWRA's CSO Control Plan are complete, and four additional projects are in construction. In July 2006, the MWRA awarded the first of two construction contracts comprising the North Dorchester Bay CSO Storage Tunnel and Related Facilities. This $148.9 million contract, is the single largest component of the MWRA's CSO Control Plan and involves constructing a 2.1-mile long soft-ground tunnel to capture CSO and stormwater flows which currently discharge along the swimming beaches of South Boston. Of the remaining eight projects, five are currently in design and design of the final three projects are scheduled to commence in 2008.

As the MWRA matures as an agency, a greater proportion of its capital budget will be designated for Asset Protection and Maintenance initiatives, absent new regulatory mandates, to preserve these operating assets. The design of this long-term strategy for capital work is identified in the Authority's Master Plan.

The graph below highlights major capital improvement spending by program categories, both completed (actual) and remaining (projected).

MWRA CAPITAL PROGRAM FY86-18



Final FY09 CAPITAL IMPROVEMENT PROGRAM
Actual and Projected Expenditures

Expended To-Date	Projected Expenditures Beyond FY08
$6.9 billion	$2.0 billion

MWRA's Green Initiatives

Building upon its track record in sustainable resource use – most notably dramatic system-wide reductions in water demand, 100% beneficial reuse of biosolids, self-generation of approximately 25% of Deer's Island power needs, and maximizing revenue through hydropower – MWRA continues to work aggressively to use its resources efficiently, respond appropriately to climate change, and reduce the environmental impacts of its daily operations. The MWRA is on track to meet the Governor's initiative that 30% of power demand be met by green sources. Key initiatives now underway or planned for FY09 include the following:

- A comprehensive "green energy" initiative that is expected to bring solar, wind and hydroelectric power either alone or in combination to a number of MWRA facilities.
- Design build RFP to upgrade Deer Island STG for an additional 5.5 MW of power from digester gas to be released by early 2009**.**
- 100 kw solar panels at Deer Island began generating power in May FY08.
- FAA approval for 2 - 250kw wind turbines at Deer Island with funding budgeted in the FY09 CIP.
- Retrofitting of diesel-powered vehicles and equipment and continued purchase of alternative fuel vehicles.
- Comprehensive energy audits at the John Carroll Water Treatment Plant, the Chelsea Facility, and Deer Island Treatment Plant facilities.
- The MWRA is currently exploring wind energy initiatives at Nut Island, Carroll Water Treatment Plant and the Maintenance Facility in Southboro. Additionally, we are also pursuing new hydropower opportunities at Loring Road Covered Storage Facility and Wachusett Dam.

MWRA will continue to assign high priority in its capital and current expense budgets to projects which demonstrate its commitment to energy efficiency and environmental sustainability and will seek to maximize grant funding to improve the economic efficiency of green energy projects.

FINAL FY09 CIP

As shown in Table 1 below, the MWRA's total capital budget is $4.9 billion with an estimated $2.9 billion spent through FY08 and $2.0 billion remaining to be expended. Wastewater System Improvements represent 59.4% or $1.2 billion of remaining spending. Budgeted spending for FY09 is $230.0 million.

Table 1

($ in millions)	Total Contract Amount	Projected Pmts Thr. FY08	Remaining Balance 6/30/08	FY09	FY10	FY11	FY12	FY13	FY09-13 Expenditures	Expenditures Beyond FY13
Wastewater System Improvements	$2,409.4	$1,225.5	$1,183.9	$150.3	$172.2	$154.6	$109.1	$78.1	$664.4	$519.6
Waterworks System Improvements	2,378.6	1,602.6	776.0	67.9	71.6	64.1	82.8	99.4	385.8	390.3
Business & Operations Support	79.7	45.4	34.2	11.9	7.9	5.5	4.7	1.2	31.3	3.0
Total MWRA w/o Contingency	4,867.7	2,873.5	1,994.2	230.0	251.7	224.3	196.7	178.7	1,081.4	912.8

FY09 Capital Highlights

The Final FY09 CIP is $1,081.4 million for fiscal years 2009-2013, and net projected spending of $912.8 million for fiscal years 2014 and beyond which is primarily driven by spending on new projects from the Master Plan. The FY14-18 spending estimate will grow in future budget cycles as additional Master Plan projects are incorporated. The Final FY09 CIP includes 78 projects/subphases from the Master Plan with the highest priority ratings totaling $986.2 million.

Highlights of Project Changes from the Final FY08 CIP to the Final FY09 CIP

The Final FY09 CIP represents updated spending and schedules for projects contained in the FY08 CIP and new spending on 18 new water and wastewater projects and subphases totaling $36.7 million. These additional projects and subphases represent those capital initiatives outside of the FY08 CIP that staff recommend as most essential to assure reliable service to MWRA's customers.

The Final FY09 CIP approved by the Board of Directors increased $311.4 million above the Final FY08 CIP of which $149.9 million is in the FY09-13 timeframe. The Wastewater System Improvements budget increased $199.8 million with most of the increased expenditures falling in the FY09-13 timeframe. The CSO program continues to drive wastewater spending with an overall budget increase of $113.2 million, of which $73.8 million is in the FY09-13 timeframe. This federally mandated program is to be completed by December 2015 followed by a performance report due December 2020. The Waterworks System Improvements capital budget increased $100.3 million fueled by increased spending in Distribution and Pumping of $87.1 million with most of this spending beyond FY13.

Table 2

MWRA Capital Program *$ in Millions*	Final FY08 CIP	Final FY09 CIP	$ Chge.	% Chge.	FY09-13 $ Chge.	Beyond FY13 $ Chge.
Wastewater System Improvements	$2,209.6	$2,409.4	$199.8	9.0%	$153.6	$17.4
Waterworks System Improvements	2,278.3	2,378.6	100.3	4.4%	(17.5)	146.5
Business & Operations Support	68.4	79.7	11.3	16.5%	13.7	(0.6)
Total MWRA	4,556.3	4,867.7	311.4	6.8%	149.9	163.3

Major Planned Spending for Fiscal Year 2009

Capital spending in FY09 is estimated to be $230.0 million. Spending will be driven by several large projects, including the ten projects listed below, which account for 71.2% of budgeted FY09 spending:

Table 3

Project	FY09 Final	Total Project Cost
North Dorchester Bay CSO Control	$41.3	$234.3
East Boston Branch Sewer Relief	30.8	88.4
DI Treatment Plant Asset Protection	26.3	402.6
Morrissey Boulevard Drain	20.4	36.9
Blue Hills Covered Storage	10.8	40.7
Metrowest Tunnel/Lower Hultman Aqueduct Rehab.	9.0	700.1
Local Water Pipeline lmprovement Loan Program	8.0	0.0
Wastewater Central Monitoring	5.8	21.2
SEH Redundancy & Storage	5.8	78.0
Rehab of Other Pumping Stations	5.7	28.6
Total	**$163.8**	**$1,630.8**
% of FY09 Spending	**71.2%**	

Major Planned Contract Awards for Fiscal Year 2009:

In Fiscal Year 2009, 64 contracts totaling $412 million are expected to be awarded. Staff will be completing designs and progressing to the bid and award stage on several major projects. The largest 10 awards are listed on the following page and account for over 77% of the expected awards:

Project	Subphase	Budget
Reserved Channel Sewer Separation	Construction	$95.0
MetroWest Tunnel	CP6A Lower Hultman Rehab	52.7
DI Treatment Plant Asset Protection	Prim & Sec Clarifier Rehabilitation Constr	42.9
North Dorchester Bay	Dewater/Odor Control Construction	42.0
Brookline Sewer Separation	Construction	20.5
Southern Spine Distribution Mains	Section 107 Ph2 Construction	18.2
West Roxbury Tunnel	Tunnel Design	16.0
DI Treatment Plant Asset Protection	Heat Loop Pipe Replacement- Const 3	10.7
East Boston Branch Sewer Relief	Sections 38 & 207 Replacement	10.1
Bulfinch Triangle Sewer Separation	Construction	9.0
Top Ten Budgeted Awards FY09		**$317.1**

Contingency

Contingency for each fiscal year is incorporated into the Capital Improvement Program to fund the uncertainties inherent in construction programs. MWRA uses a contingency budget to cover these costs in the event they exceed the approved budget. The contingency budget is calculated as a percentage of budgeted expenditures outlays. The total contingency budget for the ten-year CIP (09-18) is $113.3 million with $64.8 million available in the FY09-13 time frame.

	Total Budget	FY09	FY10	FY11	FY12	FY13	FY09-13	Beyond FY13
Contingency Budget	$113.3	$15.6	$13.8	$12.0	$12.1	$11.4	$64.8	$48.5

The Final FY09 contingency budget is $45.7 million or 28.7% under the Final FY08 level reflecting revised contingency assumptions in light of projected spending levels and reduction of contingency on non-tunnel related expenditures from 10% to 7% (contingency factor applied to tunnel expenditures remains unchanged at 15%). Underspending throughout the capital improvement program has resulted in no net usage of contingency funds over the FY04-08 period.

Master Plan and the Final FY09 CIP

In October and November of 2006, staff presented to the Board highlights of the Master Plan and identified over $3.1 billion in system needs over the FY07-48 timeframe. The Wastewater portion of the Master Plan identified needs of $2.0 billion and the Waterworks portion of the Master Plan presentation identified needs of $1.1 billion. The Master Plan accounts for projects incorporated in the FY07 CIP, projects eliminated as line items in earlier CIP cycles, and newly-identified projects. All Master Plan projects were prioritized on a scale from 1 to 5, with 1 being projects considered critical and 5 considered desirable. It is important to note that much of the future spending outlined in the Master Plan is for the repair or replacement of existing infrastructure (water distribution lines, wastewater interceptors, and facility equipment), although water system redundancy is also a major theme. The rating scale and criteria is presented on the following page:

Master Plan Prioritization	Risk Assessment
Priority One: Critical/Emergency Projects	Risk moderate to high/Consequence very high
Priority Two: Essential Projects	Risk variable/Consequence high
Priority Three: Necessary Projects	Risk moderate to high/Consequence moderate to low
Priority Four: Important Projects	Risk moderate/Consequences low
Priority Five: Desirable Projects	Risk/Consequence both low

Staff conducted an evaluation of remaining projects to determine which projects should be proposed for the FY09 CIP and the next five-year cap period. This evaluation process was driven by the prioritization of projects developed during Master Planning, organizational capacity, and financial feasibility. As a result, the projects contained in the Final FY09 CIP and their resulting schedules are designed to reflect these primary considerations. Refer to Appendix 3 for additional detail on projects included in the CIP from the Master Plan.

Projects initially rated 1-Critical/Emergency and 2-Essential Projects from the Master Plan were added to the CIP in the FY08 budget cycle and additional projects rated 3 or lower have been included in the Final FY09 CIP.

Projects included from the Master Plan:

Budget Cycle	**Projects/ Subphases Added**	**$ in Millions**
Final FY08	67	$955.2
Final FY09	11	$31.3
Total from the Master Plan	78	$986.2

In this budget cycle, 11 projects were added from the Master Plan totaling $31.3 million of which $19.5 million is projected to be spent in the FY09-FY13 timeframe. An additional 7 projects not identified in the Master Plan and totaling $5.6 million were added this budget cycle, all planned for the FY09-13 period. Of the $986.2 million added from the Master Plan, $221.5 million or 22.5% is projected to be spent during the FY09-13 period.

It is important to note that much of the future spending outlined in the Master Plan is for the repair or replacement of existing infrastructure (water distribution lines, wastewater interceptors, and facility equipment), although water system redundancy is also a major theme. The MWRA's Master Plan can be found at www.mwra.com.

FY04-FY08 Spending Cap Compliance

In June 2003, the Board of Directors adopted the Final FY04 CIP and established a capital spending cap of $1.1 billion for fiscal years 2004-2008. The MWRA complied with the FY04-08 spending limit as spending is projected to be below the original cap limit. Additionally, all years within the cap period met the 20% change limit. Annual spending is allowed to be up to 20% above the initial budgeted amounts as long as the five-year total is not exceeded.

Actual CIP spending during FY04-07 plus FY08 projected spending results in a cap forecast of $889.6 million which when adjusted for contingency and CVA project spending is $244.9 million, or $21.6%, below the original FY04 cap of $1.1 billion. Lower cap spending is primarily due to slippage in project spending (both planned and unplanned), adjustments to spending forecasts, lower than budgeted awards, project deletions, and not drawing down the $68.8 million in contingency funds during the FY04-07 period.

Spending Cap Analysis
FY04-08
($ in Millions)

FY04 Base-Line Cap	**$250.9**	**$203.5**	**$215.2**	**$250.1**	**$214.8**	**$1,134.5**
	FY04 Actual	FY05 Actual	FY06 Actual	FY07 Actual	FY08 Projection	Total FY04-08
Expenditures	$194.0	$167.7	$152.3	$177.7	$206.6	$898.4
Contingency	0.0	0.0	0.0	0.0	0.0	0.0
Inflation on Unawarded Construction	0.0	0.0	0.0	0.0	0.0	0.0
Less: Chicopee Valley Aqueduct Projects	(0.4)	(0.5)	(2.4)	(3.3)	(2.2)	(8.8)
FY04-08 Cap (Actual/Projection)	**$193.6**	**$167.2**	**$150.0**	**$174.4**	**$204.4**	**$889.6**
Change (FY04 Base-Line to Final FY09)						
FY04-08 CAP ($ Change)	**-$57.4**	**-$36.3**	**-$65.2**	**-$75.7**	**-$10.4**	**-$244.9**
FY04-08 CAP (% Change)	**-22.9%**	**-17.9%**	**-30.3%**	**-30.3%**	**-4.9%**	**-21.6%**

FY09-13 Spending Cap

In June, the Board of Directors approved the Final FY09 CIP and established the FY09-13 Spending Cap. The Final FY09 CIP budget anticipates capital expenditures in the FY09-13 timeframe to total $1.081 billion. Including contingency of $64.8 million, the FY09-13 Cap totals $1.14 billion, which is $9.3 million more than the FY04-08 Baseline Cap established by the Board of Directors in June 2003. Like the FY04-08 Cap, annual spending for each fiscal year in that period may vary within plus or minus 20% from the base year estimate for that year as long as total spending for the five years does not exceed the cap. This cap is only slightly greater than the original FY04-08 five-year cap of $1.134 established in June 2003 and reflects average annual spending of approximately $228.8 million. The FY09-13 spending forecast has increased $149.9 million from the FY08 Final, $49.9 million of which can be attributed to spending on new projects and subphases and the balance reflecting spending increases due to change orders, new estimates and inflation.

Table 5 illustrates the spending forecast for the FY09-13 horizon.

Table 5

Final FY09 CIP FY09-13 Spending Forecast - CAP Estimate ($ in Millions)						
	FY09	FY10	FY11	FY12	FY13	Total FY09-13
Projected Expenditures	$230.0	$251.7	$224.3	$196.7	$178.7	$1,081.4
Contingency	15.6	13.8	12.0	12.1	11.4	64.8
Inflation on Unawarded Construction	0.0	0.5	2.8	7.8	11.3	22.4
Less: Chicopee Valley Aqueduct Projects	(1.2)	(1.9)	(9.1)	(9.5)	(2.9)	(24.8)
Final FY09 CIP FY09-13 Spending	**$244.4**	**$264.1**	**$230.0**	**$207.0**	**$198.4**	**$1,143.8**

The first cap experience revealed challenges facing the MWRA in executing a complex capital improvement program that can be influenced by a variety of factors both inside and outside of the agency's control. The project mix in the CIP can deviate significantly from year to year depending upon the various stages of a project. Issues which are outside the agency's control, such as regulatory requirements, site issues, environmental permitting and the timing of the loan program repayments can greatly influence spending levels. As projects approach the construction phase, the probability of "on time execution" increases and spending levels become more predictable. It is important to note, that many of the FY09-13 projects are in or nearing construction phase so staff are confident that budgeted spending levels can be achieved within the guidelines of the cap.

As the MWRA proposes the FY09-FY13 spending cap, the same challenges that contributed to the execution of the first cap remain. The Authority will strive to balance the complex elements of this program, improve the execution of projects, and stay within the established cap.

FY09-13 Spending

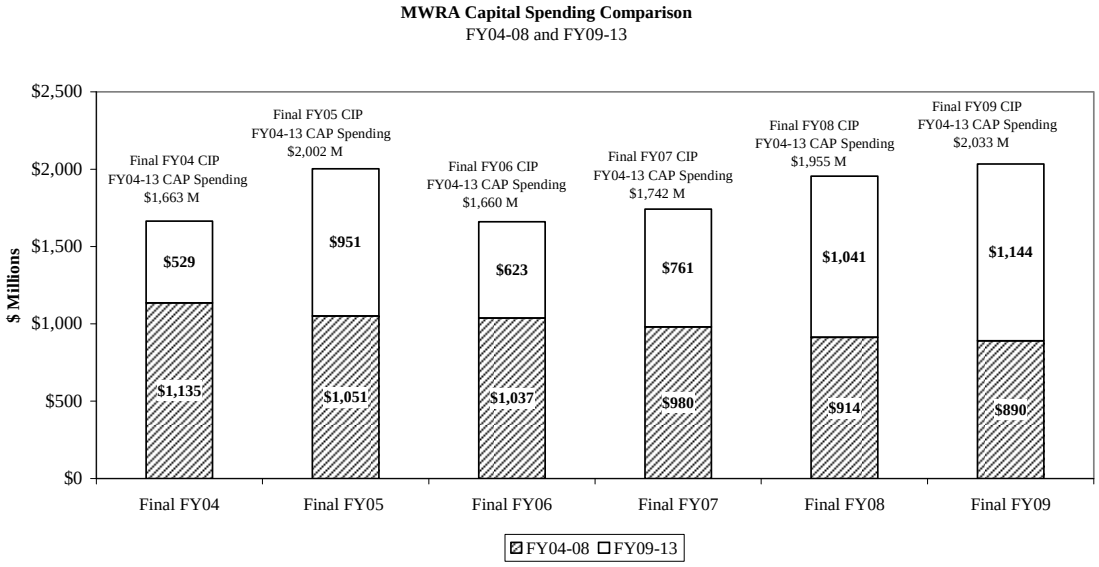
The Final FY09 CIP projects $1.1 billion to be spent over the FY09-13 timeframe. The CSO program represents the largest program initiative in terms of spending, with $351.7 million, or 32.5% of total spending during the FY09-13 period.

($ in millions)	Total Contract Amount	Projected Pmts Thr. FY08	Remaining Balance 6/30/08	FY09	FY10	FY11	FY12	FY13	FY09-13 Expenditures	Expenditures Beyond FY13
Wastewater System Improvements	$2,409.4	$1,225.5	$1,183.9	$150.3	$172.2	$154.6	$109.1	$78.1	$664.4	$519.6
Interception & Pumping	702.6	489.9	212.8	10.8	8.8	20.5	28.8	27.6	96.5	116.3
Treatment	482.9	51.4	431.5	28.0	54.8	66.7	42.4	21.9	213.7	217.8
Residuals	212.4	63.8	148.6	0.9	0.9	1.4	2.1	1.3	6.6	142.0
CSO	924.6	528.4	396.2	113.0	109.3	67.7	35.5	26.2	351.7	44.5
Other Wastewater	86.9	92.0	-5.2	-2.3	-1.6	-1.6	0.3	1.1	-4.1	-1.1
Waterworks System Improvements	2,378.6	1,602.6	776.0	67.9	71.6	64.1	82.8	99.4	385.8	390.3
Drinking Water Quality Improvements	641.1	508.6	132.5	16.5	18.4	7.7	16.0	15.6	74.3	58.2
Transmission	989.6	675.6	313.9	19.1	18.3	23.7	29.1	25.9	116.1	197.8
Distribution & Pumping	717.2	302.7	414.5	23.9	28.1	28.5	33.7	47.4	161.6	252.9
Other Waterworks	30.7	115.6	-84.9	8.3	6.8	4.2	4.0	10.4	33.7	-118.6
Business & Operating Systems	79.7	45.4	34.2	11.9	7.9	5.5	4.7	1.2	31.3	3.0
Total MWRA w/o Contingency	4,867.7	2,873.5	1,994.2	230.0	251.7	224.3	196.7	178.7	1,081.4	912.8

The top 5 wastewater and waterworks projects ranked in terms of FY09-13 spending account for 63.7% of spending in the period and are presented the following table.

Project	FY09-13 Spending	Total Project Cost
DI Treatment Plant Asset Protection	$200.7	$402.6
North Dorchester Bay CSO Control	90.0	234.3
East Boston Branch Sewer Relief	77.8	88.4
Reserved Channel Sewer Separation	71.4	113.8
West Roxbury Tunnel Rehabilitation	36.5	88.9
Wastewater Projects	**$476.4**	**$928.0**
Metro West Tunnel (Lower Hultman)	$62.4	$700.1
NIH Redundancy & Covered Stroage	48.4	84.9
John J. Carroll Water Treatment Plant/UV	43.5	431.1
Local Water Pipeline lmprovement. Loan Program	29.4	0.0
New Connecting Mains - Shaft 7 to WASM 3	28.8	57.0
Waterworks Projects	**$212.5**	**$1,273.1**
Total	**$688.9**	**$2,201.1**

Final FY09 spending for the 10-year period encompassing FY04-13 is $1.98 billion. The table below provides a summary by budget cycle of the planned spending.



Highlights of changes from Final FY08 to Final FY09 for the FY09-13 Period

Total Authority spending over the FY09-13 period increased $149.9 million, primarily due to higher project costs. Projects accounting for the majority of the increase costs are listed below:

Wastewater:

Interception & Pumping:

- Braintree-Weymouth Relief Facilities FY09-13 projected spending increased $10.1 million for Land Acquisition.

- Interception & Pumping Facility Asset Protection spending increased $5.7 million during the FY09-13 timeframe due to additional subphases including Interception Renewal 2 & 7, and Nut Island Mechanical and Electrical Replacements.

- West Roxbury Tunnel FY09-13 spending increased $3.1 million due to revised contract duration for design and construction subphases.

- Corrosion and Odor Control FY09-13 spending increased $3.1 million due to FES/FERS Biofilter design and construction subphases being added.

Treatment:

- Deer Island Treatment Plant Asset Protection projected FY09-13 spending increased by $72.7 million primarily due to revised cost estimates/scope for several projects including Primary and Secondary Clarifier Rehabilitation, DI Switchgear Replacements, NMPS VFD Replacements, Heat Loop Pipe Replacement, Power System Improvements, and Transformer Replacements. Additional expenditures were also added for steam turbine generator modifications.

Combined Sewer Overflow:

- North Dorchester Bay CSO Tunnel FY09-13 spending decreased by $8.1 spending due to accelerated tunnel mining progress in FY08.

- Reserved Sewer Separation FY09-13 spending increased $36.6 million reflecting revised estimate.

- Brookline Sewer Separation FY09-13 spending increased $14.6 million reflecting revised estimate and expanded project scope.

- East Boston Branch Sewer Relief total project spending increased by $13.4 million primarily due to revised cost estimate for micro-tunneling for the East Boston Branch Relief Sewer Construction contract and Sections 38 & 207 Replacement contracts.

- Cambridge CAM002-004 Sewer Separation FY09-13 spending increased by $6.6 million, reflecting revised costs estimates, project delays and some spending shifted from FY08 into the FY09-13 time frame.

- Bulfinch Triangle Sewer Separation FY09-13 spending increased $6.0 million, reflecting revised cost estimates.

Other Wastewater:

- I/I Local Financial Assistance Program FY09-13 projected spending decreased by $21.2 million due to timing of loans, grants, and repayments by participating communities.

Water:

Drinking Water Quality Improvements:

- Low Service Storage Near Spot Pond total project spending decreased by $15.5 million primarily due to a revised schedule for the Design/Build contract.

- John J. Carroll Treatment Plant FY09-13 spending decreased $8.5 million, primarily as a result of the contract award for Ultra Violet design being $5.1 million less than budget.

Transmission:

- Winsor Dam Hydroelectric total project spending increased by $3.9 million primarily due to revised cost estimates for Shaft 12 Quabbin Aqueduct Sluice Gate and Winsor Power Station Pipeline. Additional funds were also added for the Quabbin Release Pipeline subphase.

- Quabbin Transmission System FY09-13 spending $3.1 million reflecting an overall increase in project costs due to additional spending for additional electrical work at Oakdale.

Distribution and Pumping:

- Southern Extra High Redundancy and Storage (SEH) FY09-13 spending decreased by $12.4 million due to project repackaging and scheduling.

- Northern Intermediate High Redundancy & Covered Storage FY09-13 spending increased by $11.7 million primarily due to revised cost estimates for redundancy and storage contracts.

- New Connecting Mains-Shaft 7 to WASM 3 FY09-13 spending decreased by $11.1 million primarily due project being shifted out 3 years due to completion of Metropolitan Redundancy Plan Study.

- Weston Aqueduct Supply Mains FY09-13 spending decreased $10.0 million as project was shifted out 2 years due to recommendations of the Metropolitan Redundancy Plan Study.

Other Waterworks:

- Local Water Pipeline Improvement Program FY09-13 spending increased $12.7 million due to timing of loans and repayments by participating communities.

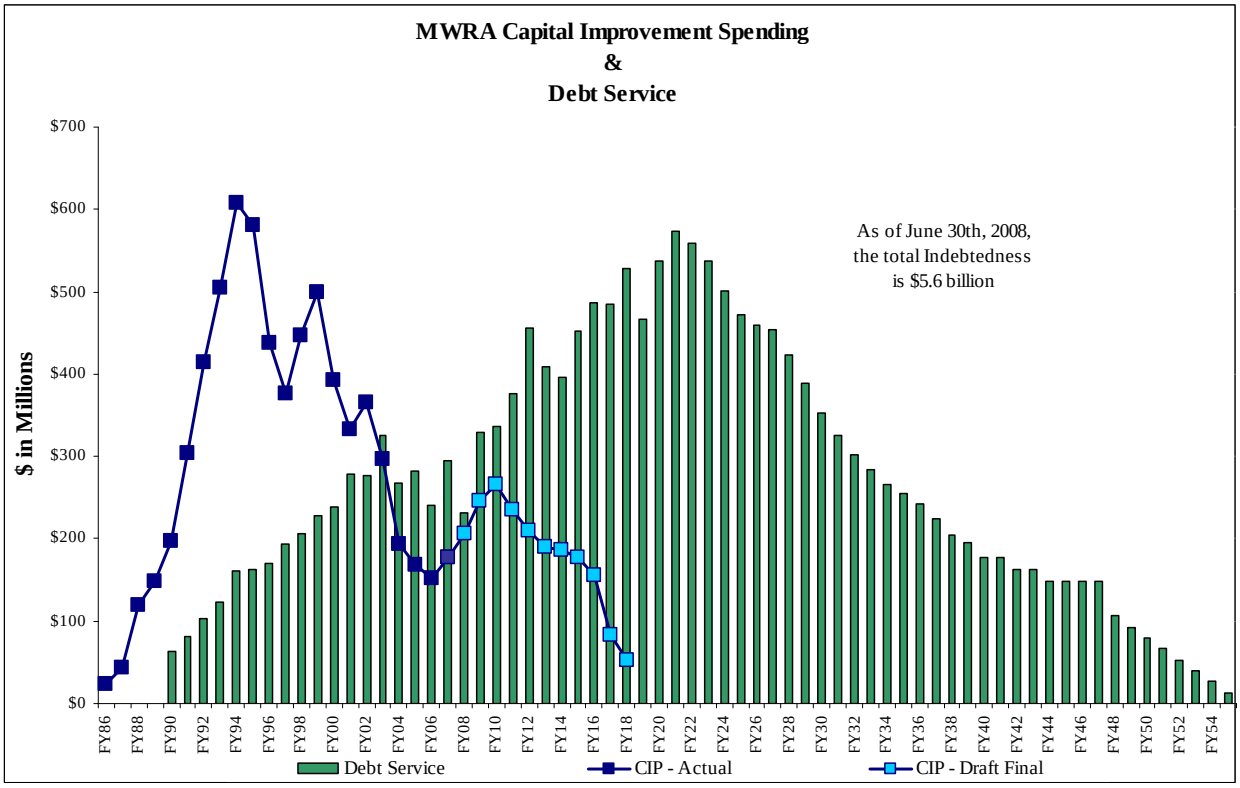
Outstanding Debt and Debt Management

The $6.9 billion spent on MWRA's modernization efforts to date, has relied heavily on debt financing. Total debt as of June 2008 reached $5.7 billion consisting of senior and subordinated debt in addition to tax-exempt commercial paper. The Authority is significantly leveraged with long-term debt representing 70.5% of total assets, but the stability and predictability of operating cashflows can support a leveraged capital structure. The MWRA enjoys strong unenhanced senior debt ratings of Aa2, AA, and AA from Moody's, S&P, and Fitch, respectively.

The Authority's debt service obligation as a percent of total expenses has increased from 36% in 1990 to 56% in the Final FY09 Current Expense Budget. Much of this debt service is for completed projects. MWRA's capital spending, from its inception, has been dominated by court-mandated projects, which in total have accounted for 80% of capital spending to date.

The MWRA expects to finance the capital expenditures identified in the MWRA CIP through the issuance of its revenue bonds as provided in the MWRA Act, and from the proceeds of federal and state grants and operating revenues. As of June 30, 2008, the MWRA's indebtedness included $3.1 billion of senior revenue bonds, approximately $1.4 billion of subordinated revenue bonds, approximately $996 million of loans with the SRF and $191 million of tax-exempt commercial paper notes.

The following graph illustrates the relationship between the MWRA's Capital Improvement Program and outstanding debt as of June 2008.



The Authority has actively managed its debt structure to take advantage of favorable interest rates. Tools used by the MWRA to lower borrowing costs and manage rates include maximizing use of the subsidized State Revolving Fund (SRF) debt, issuance of variable rate debt, current and advanced refunding of outstanding debt, the use of surplus revenues to defease debt, and swap agreements. The MWRA also uses Tax Exempt Commercial Paper to minimize the financing cost of construction in process.

As a result of the disruption in the variable rate bond market caused by the credit downgrades to the bond insurers, the MWRA refunded all of its insured Variable Rate Demand Bonds (VRDB) and Auction Rate Securities (ARS). As part of the $1.2 billion refunding, approximately $34.6 million of subordinated debt service reserves were released to reduce outstanding principal. In addition to the reserve release, approximately $51.7 million in sinking fund installments were re-amortized to provide budget relief between FY09 and FY15 in line with the long-term rates management strategy. This time period coincides with the projected adoption of amendments to Bond Resolution which will decrease reserve fund requirements.

On June 19, 2008, the Authority defeased $17.9 million in bonds. The defeasance of these bonds will decrease the FY09 through FY12 debt service requirements. The savings in FY09 are approximately $5.3 million, $4.8 million in FY10 and FY11, and $4.9 million in FY12. This defeasance was accomplished using debt service funds made available from the FY08 surplus, including the Town of Reading's entrance fee and Bond Redemption funds.

Fiscal Year 2009 capital financing costs total $328.8 million (before offsets), which reflects the May 2008 Refunding. Debt service remains the largest portion of the MWRA's operating expenses, accounting for 55.7% of total expenses before debt service offsets. The debt service offsets include $15 million - MWRA's assumed share of the statewide appropriation for Debt Service Assistance based on a $20 million statewide program.

For FY09, the budget assumes a 4.0% interest rate for variable rate debt compared to 4.7% for FY08. If interest rates increase to levels higher than anticipated, offsetting adjustments will have to be achieved elsewhere in the budget. If interest rates during the year are lower, the savings will be used to reduce the Rate Revenue Requirement in future years.

Future Risk Factors

Due to the very nature of the Capital Improvement Program, there will be changes over time to the projects due to shifts in schedules, redefining of the scope, cost increases, environmental mandates, etc. In every budget cycle, the MWRA re-evaluates capital improvement needs and estimates project costs based on the latest available information. It is important to note that there are several risk factors which could increase spending, including:

- West Roxbury Tunnel Rehabilitation or Replacement up to $60 million in increased spending;
- Cross Harbor Cable relocation up to $20 million in additional spending;
- Final decision on replacement or rehabilitation of the existing Residuals Plant; and
- New mandates always pose potential risk for increased future spending.

Project Budget Summaries and Detail of Changes

Information on individual project budgets and detail of changes is provided in the supplemental appendices, attached to this document.

Capital Improvement Program

FISCAL YEAR 2009

APPENDICES

MASSACHUSETTS WATER RESOURCES AUTHORITY

APPENDIX 1

Project Budget Summaries and Detail of Changes

Wastewater System Improvements

Project Budget Summaries and Detail of Changes
Project Index

S. 104 Braintree-Weymouth Relief Facilities

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Provides environmental benefits*
☑ *Fulfills a regulatory requirement*
☑ *Extends current asset life*
☑ *Improves system operability and reliability*

In accordance with a DEP administrative consent order, construction of relief facilities and the resulting reduction in community infiltration and inflow will provide capacity for peak sewage flow from Braintree, Hingham, Holbrook, Randolph, Weymouth, and sections of Quincy. This project will reduce surcharging in Braintree and Weymouth, and reduce frequent overflows into the Weymouth Fore River during wet weather.

Project History and Background

The Braintree-Weymouth interceptor system and pump station serves Braintree, Hingham, Holbrook, Randolph, Weymouth, and sections of Quincy. Because of population increases, the sewerage system cannot handle the volume of sewage received. Sewage overflows are severe and frequent along the Weymouth Fore River during wet weather.

Interim rehabilitation work was required to ensure continued operation of the existing Braintree-Weymouth Pump Station during the long-term design and construction period. After initially proceeding with a dual track design approach for part of this project, MWRA decided to construct a deep rock tunnel rather than a marine pipeline from the new pump station to the Nut Island shaft of the Inter-Island Tunnel to Deer Island. Construction of the Emergency Mill Cove Siphon was completed in June 1998. Construction of the deep rock tunnel was completed in September 2003, and the North Weymouth Relief Intercept was completed in June 2002. The Intermediate Pump Station and sludge pumping facilities at Deer Island were completed in April 2005. The Fore River Siphons construction contract was completed in May 2005. Construction of the Replacement Pump Station began in January 2005 and was completed in April 2008.

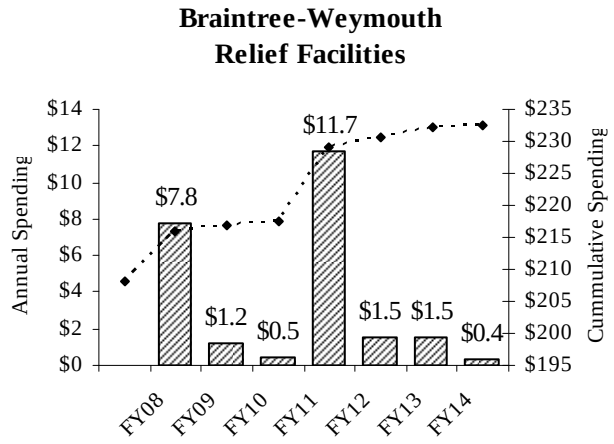
Scope

Sub-phase	Scope
Design 1/CS/RI – Tunnel & IPS	Design of the tunnel and IPS. Includes completion of design modifications for sludge pumping facilities at Deer Island and residuals filtrate facilities at Fore River.
Sediment Tests	Tests required as part of the evaluation of marine pipeline option.
Design 2/CS/RI – Surface	Design of remaining construction including siphons and replacement pump station.
Tunnel Construction & Rescue	Construction of a 2.9-mile, 12-feet diameter tunnel beginning at the Nut Island shaft of the Inter-Island Tunnel and ending at the Fore River Staging Area. Two 14-inch sludge pipelines within the tunnel will convey Deer Island sludge from the Inter-Island Tunnel to the pelletizing plant. 0.4 miles of twin 12-inch pipelines within the tunnel will convey filtrate from the pelletizing plant to the Intermediate Pump Station. 2.5 miles of 42-inch force main will carry flows and filtrate to the Inter-Island Tunnel. Also includes a MOA with Quincy, Braintree, and Weymouth for tunnel rescue and fire support services.
Intermediate Pump Station Construction	Construction of a 45-mgd pump station and headworks in North Weymouth. Also includes modifications to the sludge pumping facilities at Deer Island and the filtrate facilities at Fore River.
No. Weymouth Relief Interceptor Construction	Construction of 2,000 linear feet of 60-inch gravity sewer running from the Intermediate Pump Station and along the Exelon Energy site.

Sub-phase	Scope
Fore River Siphons Construction	Construction of 36-inch, 3,900-feet long twin siphons beneath the Fore River from the Idlewell section of Weymouth to the southeast corner of the Exelon Energy site in North Weymouth. Constructing 1,000 linear feet of 36-inch to 54-inch new sewers in Idlewell.
B-W Replacement Pump Station	Construction of a new 28-mgd Braintree-Weymouth Pump Station which will handle flows from Hingham, Weymouth, and portions of Quincy.
Rehab Section 624	Rehabilitation of 2,000 feet of Section 624 in North Weymouth.
Mill Cove Siphon Construction	Installation of 1,700 linear feet of 42-inch siphon pipe between Newell Playground and Aspinwall Street in North Weymouth to act as second barrel of existing Mill Cove Siphon.
Construction – Rehab	Interim rehabilitation of the existing Braintree-Weymouth Pump Station.
Community Tech Assistance	Technical assistance for the Town of Weymouth for hydraulic modeling of its sewer system, leak detection for the water system, and mitigation.
Geotechnical Consultant	Consulting services related to the tunnel shaft excavation.
Communication System	Radio systems for the intermediate and replacement pump stations.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$232,491	$208,003	$24,488	$7,810	$61,041	$1,152	$16,298	$380



Project Status 5/08	92.5%	Status as % is approximation based on project budget and expenditures. Work that is substantially complete includes the deep rock tunnel, N Weymouth Interceptor, Intermediate Pump Station and the Fore River Siphons contract. Substantial completion on the Replacement Pump Station was reached in April 2008. Design for the Rehabilitation of Sections 624 & 652 is anticipated to commence in FY10.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**
$221,336	$232,491	$11,155	Jun-13	Jun-13	-	$6,233	$16,298	$10,065

Explanation of Changes

- Project cost and spending increase due to court decision on land acquisition.

CEB Impact

- Impacts absorbed within the current year's CEB.

S. 131 Upper Neponset Valley Sewer System

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Provides environmental benefits*
☑ *Improves system operability and reliability*

The Upper Neponset Valley Sewer is hydraulically deficient resulting in frequent community system back-ups and interceptor overflows during wet weather to adjacent residential areas and water bodies in Brookline, Boston, Newton, and Dedham. Construction of a new replacement interceptor will reduce chronic wastewater overflows and surcharging during wet weather and improve service and water quality.

Project History and Background

The Upper Neponset Valley Sewer constructed between 1896 and 1902, extends approximately four miles through West Roxbury and Newton, and receives wastewater from West Roxbury, Brookline, Newton, and a small portion of Dedham. Based on the results of the 1994 Combined Sewer Overflow Master Plan, work on Section 530 in Newton and West Roxbury has been added to this project because the hydraulic improvements are needed in this section.

The 1984 Wellesley Extension Sewer Facilities Plan/Environmental Impact document estimated that the UNVS overflowed an average of six to ten times per year with occurrences lasting as long as ten days. The Facilities Plan/EIR indicated that installation of a new interceptor would be the most cost-effective solution to these problems. With the increased capacity of the new interceptor, chronic wastewater overflows during wet weather will be reduced, improving water quality. The project will increase the hydraulic capacity in the Upper Neponset Valley Sewer by 8 mgd, through the construction of replacement sewers, to the level of service provided to all MWRA sewer member communities. The project will eliminate surcharging and overflows during the one-year, six-hour DEP designated design storm, with no increase in downstream overflows. It will also reduce overflows for 5-year and above storms. The project includes design and construction of sections 685 and 686 replacement sewers for sections 526 to 529. This construction contract was awarded in March 2005 and was completed in April 2008. The project also includes design and construction of Section 687 to replace Section 530 which was awarded in October 2006 and completed in April 2008.

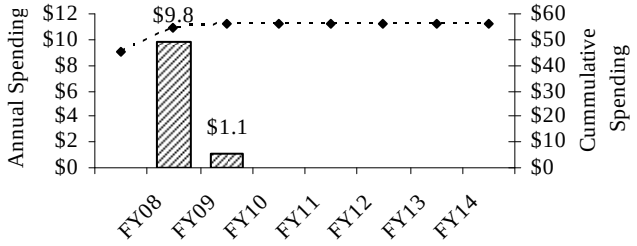
Scope

Sub-phase	Scope
Designs/CS/RI	Completion of design and provision of construction services during the construction phases.
Resident engineering & inspection	Resident engineering and inspection during construction of the two contracts
Boston Paving	Payment to the City of Boston for paving work on city streets.
Replacement Sewer Sections 685-686 construction	Installation of 15,780 feet of new sewers within public roadways to reduce overflows to adjacent residential areas and water bodies in West Roxbury.
Replacement Section 687 construction	Installation of 8,500 feet of new sewers to reduce overflows to adjacent residential areas and water bodies in West Roxbury and Newton

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$55,777	$44,830	$10,947	$9,799	$52,945	$1,139	$1,149	$0

Upper Neponset Valley Relief Sewer



Project Status 5/08	95.2%	Status as % is approximation based on project budget and expenditures. Construction on Sections 685 and 686 began in April 2005. Section 687 was awarded in October 2006. Substantial completion on both contracts was reached in April 2008.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$53,798	$55,777	$1,979	Apr-08	Apr-08	-	$531	$1,149	$618

Explanation of Changes

- Project cost and spending increase due to actual change orders and deletion of expected credit change orders including deletion of jacking as well as Lagrange & Baker St. redesign on Replacement 685-686 contract.

CEB Impact

- No impacts identified at this time.

S. 127 Cummingsville Replacement Sewer

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Provides environmental benefits*
☑ *Extends current asset life*
☑ *Improves system operability and reliability*

Capacity deficiencies in the MWRA system may be associated with overflows of local sewers upstream from the Cummingsville Branch System. Sewer moratoriums are in effect in the upstream communities of Woburn and Burlington. Construction of a replacement sewer and rehabilitation of existing sewers will provide additional capacity to ensure adequate and reliable wastewater service for upstream communities.

Project History and Background

The Cummingsville Branch Sewer System is located in the Town of Winchester and receives wastewater from sections of Winchester and Woburn and all of Burlington. The Cummingsville Branch Sewer System consists of the Cummingsville Branch Sewer, constructed around 1894, and the Cummingsville Branch Relief Sewer, constructed in 1952. The existing system consists of 9,475 linear feet of 15- to 30-inch pipeline and has a capacity of 13 mgd.

In 1995, MWRA published the Cummingsville Branch Sewers Facilities Plan recommending construction of the Cummingsville Branch Replacement Sewer to add a total of 8 mgd of capacity to the system. The facilities plan also recommended the rehabilitation of Section 86 to ensure its continued service.

In June 1999, MWRA filed a Notice of Project Change in accordance with the Massachusetts Environmental Policy Act at the Executive Office of Environmental Affairs, to change the alignment to avoid construction in parkland. The Secretary's Certification of November 1999 found no further Massachusetts Environmental Policy Act review was required. In December 1999, the Town of Winchester filed a lawsuit against MWRA and the Executive Office of Environmental Affairs to require preparation of an Environmental Impact Report and cessation of project advancement pending completion of environmental review. The Town's concerns related to the potential effects of the project on pre-existing surcharge and/or overflow problems in the Town.

On September 18, 2002, the Board of Directors approved a Settlement Agreement between the Town of Winchester, MWRA and the Secretary of the Office of Environmental Affairs, which provided closure to the litigation matter. In consideration of the mutual promises contained in the Agreement, MWRA agreed to design and construct a modification of the Section 113 downstream siphon chamber to provide 30-foot wide (above elevation 115) river access across the Aberjona River to alleviate the historical constriction that the Town asserts results in chronic flooding. The construction contract for the Cummingsville Branch Replacement Sewer was awarded in March 2005 and was substantially complete in May 2006. The construction contract for the modification of Section 113 siphon chamber was awarded in January 2007 and was substantially complete in August 2007.

Scope

Sub-phase	Scope
Facility Plan/EIR	Evaluation of potential adverse impacts associated with additional flows downstream and recommendations for improvements to the system.
Design/CS/RI	Design and construction services during the construction phase.
Construction (new sewer) and Rehab (existing sewers)	Replacement of the Section 47 sewer with a new 4,850 linear feet, 36-inch gravity line and cleaning and repair of the existing 5,000 linear feet Section 86 sewer.
Siphon Modifications	Construction of new downstream chamber for section 113 siphon in Winchester, and new permanent access roads to the upstream and downstream chambers.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$9,189	$8,120	$1,069	$911	$7,759	$158	$158	$0

Project Status 5/08	97.5%	Status as % is approximation based on project budget and expenditures. Construction of the Cummingsville Branch Replacement Sewer reached substantial completion in May 2006. Construction of siphon modifications began in February 2007 and reached substantial completion in August 2007.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$9,289	$9,189	($100)	Jul-08	Jul-08	-	$225	$158	($67)

Explanation of Changes

- Project cost and spending decrease primarily due to completion of Design and limited use of Resident Inspection Services.

CEB Impact

- No impacts identified at this time.

S. 130 Siphon Structure Rehabilitation

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Provides environmental benefits*
☑ *Extends current asset life*
☑ *Improves system operability and reliability*

Master Plan Project ☑ 2009 Priority Rating 2 (see Appendix 3)

Design and construction of improvements to headhouses and structures.

Project History and Background

Siphon chambers are located at the upstream and downstream ends of depressed sewers. Depressed sewers are constructed to avoid obstructions in sewer alignments such as rivers and subsurface utilities. Upstream siphon chambers allow attainment of proper water elevation so that the depressed sewer flows under pressure. Downstream chambers provide transitions between depressed sewers and downstream gravity sewers.

Connecting structures are facilities at which flows from sewers are redirected to converge with or receive flows from other sewers.

There are 92 siphon chambers and 111 connecting structures in the MWRA wastewater system. Hydraulic flows through many of these siphon chambers and connecting structures are below design capacities. The poor flow conditions, caused by irregular maintenance due to the inaccessibility of many structures, contribute to significant surcharges and overflows. Wastewater detention time at many structures also contributes to serious odor problems.

MWRA completed a study in 1998 to evaluate rehabilitation of these structures to permit greater accessibility to provide regular maintenance in order to alleviate the above problems. 83 siphon chambers and 63 connecting structures were included in the study which recommended rehabilitation and improvements to 127 of these structures. MWRA has prioritized the design and construction of improvements to these structures. Phase 1 will rehabilitate the most deteriorated structures.

Scope

Sub-phase	Scope
Planning	Identification of methods to improve accessibility and structures. Inspection of the siphon chambers and diversion structures along with recommendations for rehabilitation.
Design/CS/RI	Design, Construction Services and Resident Inspection for up to 16 sites.
Construction	Construction for up to 16 sites.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$2,605	$940	$1,665	$0	$0	$0	$114	$1,551

Project Status 5/08	36.1%	Status as % is approximation based on project budget and expenditures. Initial Planning subphase was completed in 1998 and accounts for the payments through FY07. Design and Construction phases added as new Master Plan project phases during the Proposed FY09 CIP process.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**
$940	$2,605	$1,665	n/a	Sep-15	n/a	$0	$114	$114

Explanation of Changes

- Design/CS/RI and Construction phases added during FY09 CIP process.

CEB Impact

- No impacts identified at this time.

S. 132 Corrosion and Odor Control

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Provides environmental benefits*
☑ *Extends current asset life*
☑ *Improves system operability and reliability*

High sulfide levels in the Framingham Extension System cause corrosion and odors in that system and downstream in the Wellesley Extension Sewer System and West Roxbury Tunnel. A study has identified the causes of corrosion and odors and recommended corrective measures. Completion of corrosion control measures will extend the useful life of these assets and minimize the impact on the existing wastewater conveyance infrastructure. Improved odor control will mitigate the impact on surrounding areas.

Project History and Background

Hydrogen sulfide produces sewer odors and is highly corrosive of pipes and pump stations. Collapses in the Framingham Extension Sewer (FES) have alerted MWRA to problems in that area. Odor complaints have been received from residents abutting both the FES and the Wellesley Extension Sewer (WES) systems resulting in legal claims totaling several hundred thousand dollars. Severe corrosion has occurred in the West Roxbury Tunnel. This situation has prompted MWRA to add odor control chemicals at various points in the local systems and FES to try to reduce the hydrogen sulfide levels. The results have been mixed; not all of the chemicals were effective even over the short term, and none completely eliminated hydrogen sulfide.

While MWRA attempts to minimize odor and corrosion impacts through chemical intervention and sealing locations where odors escape, a more permanent solution is being sought. MWRA awarded a Planning/Study contract in January 1997. The consultant completed inspections in Ashland, Framingham, and Natick and drafted a report identifying, locating, and categorizing the sources and the extent of odor and corrosion problems. The Odor and Corrosion report indicated that significant levels of sulfides are discharged into the FES from Ashland and Framingham. These sulfide levels increase as the wastewater flows through the FES/FERS system. The report recommends a combination of MWRA and community actions, such as modifications to industrial discharge limits and municipal permits, chemical addition at community pump stations and the FES, and air treatment. The final planning/inspection report was completed in December 1998.

Interim Corrosion Control commenced in July 2000. The design for the modifications to the FERS pump station, FES Tunnel, and air treatment systems started in August 2002 and continued until June 2005.

Scope

Sub-phase	Scope
Planning	Identification of causes and sources of odors; collection of local sewer system information in Ashland, Natick, and Framingham; recommendations for long-term corrective measures.
Design/CS/RI	Design, construction services, and resident inspection for FERS Pump Station, FES tunnel, and air treatment systems. By June 2005, the FERS Pump Station achieved 50% Design status, the FES tunnel achieved 30% Design status and the air treatment systems achieved 100% Design status.
FES Tunnel Rehab Design and Construction	Rehabilitation of the FES Tunnel.

Interim Corrosion Control	Implementation of chemical addition program at the FERS Pump Station. The program includes the addition of potassium permanganate, and monitoring of the wastewater flows and hydrogen sulfide levels downstream.
FES/FERS Biofilters Design & Construction	FES/FERS Corrosion Control (Biofilters) is a design and construction project to make improvements at the MWRA Framingham Pump Station and related sewers. Three air treatment systems (biolfilters) are recommended to remove and treat hydrogen sulfide in the FES, FERS, WESR and WERs sewer systems. Rehabilitation of hydrogen sulfide meters will be included.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$14,637	$3,003	$11,634	$0	$1,314	$0	$3,134	$8,500

Project Status 5/08	20.5%	Status as % is approximation based on project budget and expenditures.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$11,503	$14,637	$3,134	Jun-17	Jun-17	-	$0	$3,134	$3,134

Explanation of Changes

- Budget and spending increased as a result of new FES/FERS Biofilters Design and Construction subphases being added.

CEB Impact

- CEB impact from the FERS Biofilters Project that was placed in the CIP. The cost of FERS chemicals (Nitrazyme and VX456) would be approximately reduced in half. The FY09 budget for these chemicals is $263,000, so the impact of the new project would be approximately ($130,000) in FY14.

S. 136 West Roxbury Tunnel

Project Purpose and Benefits

☑ *Contributes to improved public health* ☑ *Provides environmental benefit* ☑ *Extends current asset life*
☑ *Improves system operability and reliability*

Master Plan Project ☑ Priority Rating 1 (See Appendix 3)

Investigation and rehabilitation of the West Roxbury Tunnel sewer. This sewer, built in 1964, transports flows from the Wellesley Extension Relief Sewer System through the West Roxbury portion of Boston to the High Level Sewer. A structural failure could result in surcharging and overflows.

Project History and Background

During construction of the Wellesley Extension Replacement Sewer and inspection of the tunnel in 1999, visual observations indicated that severe corrosion due to hydrogen sulfide had occurred in a portion of the sewer directly upstream of the West Roxbury Tunnel (WRT), and the tunnel entrance structure had lost cement lining, exposing the reinforcing steel. Manholes and other structures had been affected more severely.

A structural failure of the WRT would affect the tributary communities of Ashland, Brookline, Dedham, Framingham, Natick, Needham, Newton, Wellesley, and the Hyde Park and West Roxbury portions of Boston. Local failure of the tunnel could result in the discharge of 53 to 128 mgd of raw sewage into the Charles River until emergency repairs could be made, back-up of sewage into local residences and businesses, and the interruption of service to as many as 125,000 people. Section 138, immediately upstream of the tunnel, crosses beneath the VFW Parkway. Structural failure beneath this major transportation corridor would result in a severe public safety hazard.

Design for structural repairs to Section 138 and the West Portal of the tunnel was completed in June 2001. Construction of these repairs, Contract 6569, repairs to Sections 137 & 138, including the slipline of Section 138, were completed in June 2002.

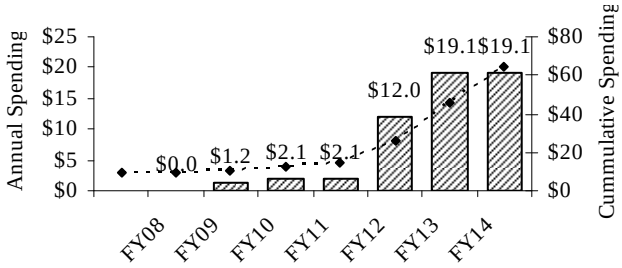
Scope

Sub-phase	Scope
Inspection	Inspection of Section 137 of the West Roxbury Tunnel, which includes 12,500 linear feet of 84-inch reinforced and unreinforced concrete tunnel.
Design/CS/RI	Design, construction services, resident inspection for corrective actions to repair/rehabilitate 1,000 feet of Section 138 and the West Portal, and a conceptual design report for the rehabilitation of the tunnel.
Construction	Rehabilitation of 1,000 feet of Section 138 and the West Portal.
Tunnel Design & Construction	Design and construction to rehab 12,500 feet of deteriorated tunnel caused by high levels of hydrogen sulfide and sewer turbulence.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$88,880	$8,880	$80,000	$0	($17)	$1,204	$36,478	$43,522

West Roxbury Tunnel



Project Status 5/08	10%	Status as % is approximation based on project budget and expenditures.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**
$88,881	$88,880	($1)	Mar-17	May-15	(22) mos.	$33,400	$36,478	$3,078

Explanation of Changes

- Schedule and spending shifted as a result of shortening the timeframe from nine years to six for the Tunnel Design and Construction subphases.

CEB Impacts

- No impacts identified at this time.

S. 137 Wastewater Central Monitoring

Project Purpose and Benefits

☑ *Extends current asset life.*
☑ *Results in a net reduction in operating costs*
☑ *Improves system operability and reliability*

To study, define, design, and implement a centralized monitoring and control system most appropriate for MWRA's wastewater transport system. Through facility automation and remote monitoring and control, SCADA implementation will result in cost savings and improve wastewater system operation and maintenance.

Project History and Background

MWRA has already made substantial progress towards increased automation and central monitoring and control of its water and wastewater systems and facilities. Substantial investments have been made in implementing such systems for the Deer Island Treatment Plant and Nut Island Headworks, and SCADA implementation is ongoing within the water conveyance system. The recommended wastewater SCADA system and associated business practices will support a single philosophy for central monitoring and control of all MWRA facilities and systems.

The SCADA Master Plan, which was completed in July 1999, recommended expansion of the automated control concepts developed for water system operation and identified long-term savings related to staffing reductions and optimization of operations and maintenance. Following the master planning recommendations, a detailed scope of services was prepared to procure professional services contract to provide design, integration, training, construction administration and resident inspection services for various SCADA improvements. Camp Dresser & McKee, Inc. (CDM) was awarded this contract in June 2002. CDM has since been working to design and procure three construction packages for SCADA implementation. The construction effort on the first and most complex of three construction packages began in March 2006. This construction addresses SCADA needs at most pumping and CSO facilities, as well as establishing overall data communications improvements. The second construction package will provide for SCADA needs at the remote headworks facilities, taking into consideration future CIP improvements at the older headworks facilities. The primary goal of the third construction package will be to improve MWRA's ability to continuously monitor wastewater flows and levels throughout the collection system that are impacted by facility operations or are prone to flooding. The third package will also provide improvements to newer facilities, ensuring consistent data collection from all wastewater facilities.

Scope

Sub-phase	Scope
Planning	Development of a plan for a monitoring and control system for the MWRA wastewater transport system.
Design and Integration Services	Includes design, integration (PLC programming, operator graphics development, MIS/CMMS data transfer), and development and implementation of training. Also covers preparation of documentation and manuals for automating equipment and systems and for remote monitoring and control of the wastewater transport systems and facilities. Includes construction administration, engineering services during and after construction, and resident inspection.
Construction 1 (CP1)	Construction and installation of SCADA equipment and systems at seven pumping facilities, three CSOs and one screen house. Also covers Operation Control Center improvements. Facilities include Alewife, Caruso, Hingham, New Neponset, Hayes, Delauri, Houghs Neck, Chelsea Screen House, Cottage Farm, Prison Point, and Somerville Marginal. This construction package will also include the major components of the SCADA communications infrastructure (microwave radios, routers, etc.).
Construction 2 (CP2)	Construction and installation of SCADA instrumentation and control equipment at the three older headworks facilities and Nut Island Headworks. OCC improvements will also be made to support these additional facilities.

Construction 3 (CP3)	Construction of permanent power at up to 35 interceptor monitoring locations and minor instrumentation and control improvements at newly commissioned pumping facilities (IPS, Quincy, and Squantum). Also includes, construction and installation of SCADA equipment and systems at the Arthur Street Pump Station.
Equipment Prepurchase	Purchase SCADA system components including computer hardware to ensure consistency with MWRA MIS infrastructure through existing Commonwealth of MA blanket contracts and low cost small quantity system components (ex. fuel tank monitoring units and interfaces, Prison Point Flow meter, CSU/DSUs) to ensure consistency and/or compatibility with installed systems.
Technical Assistance	Technical assistance work to support all subphases.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$21,165	$10,105	$11,060	$3,778	$12,971	$5,818	$7,282	$0

Project Status 5/08	64.1%	Status as % is approximation based on project budget and expenditures. Construction 1 contract was substantially vomplete in December 2007. Construction 2 contract began in February 2008.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$21,139	$21,165	$26	Aug-09	Aug-09	-	$5,543	$7,282	$1,739

Explanation of Changes

- Spending shift due to CP-2 award delayed caused by changes to original contract scope.

CEB Impact

- The FY08 CEB already reflects staffing reductions in preparation for implementation of remote monitoring. Future operating budgets will reflect any further optimization of chemicals and utility usage as a result of SCADA implementation.

S. 139 South System Relief

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Provides environmental benefits*
☑ *Extends current asset life*
☑ *Improves system operability and reliability*

To protect public health and property from sanitary system overflows and back-ups into homes and businesses during extreme wet weather events. Completion of the project will also extend the useful life of system assets and potentially avoid extraordinary costs resulting from system failures.

Project History and Background

Archdale Road Diversion Structure

On October 20, 1996 a 100-year rainstorm caused the MWRA High Level Sewer (HLS) (Section 70) to overflow in the area of Archdale Road in Boston. Following this overflow event, MWRA established a task force to recommend action to mitigate and/or prevent future overflows. The task force developed an emergency response plan and examined several relief alternatives. The first component of the recommended relief plan consisted of construction of a diversion structure that includes two 30-inch by 60-inch sluice gates connecting the HLS to BWSC's Stony Brook drainage conduit. The diversion structure is located at the end of Bradeen Street in Roslindale. If, based on monitoring results, it appears that the High Level Sewer is about to overflow in the Archdale Road area due to an extraordinary storm event, the overflow volume is diverted to the Stony Brook Conduit through the sluice gates. This eliminates the need to deploy large emergency response crews to build temporary sandbag dikes. Construction of the diversion structure was completed in August 1999.

High Level Sewer Repair

Subsequent to the October 1996 storm, MWRA initiated some short-term modifications to the sewer system to reduce overflows. However, during a June 1998 storm, these modifications actually pressurized the HLS. As a result, MWRA began an emergency evaluation of the HLS in June 1998 to analyze its hydraulic capacity and structural integrity. The evaluation, which was completed in January 1999, discovered cracking at a 77-degree bend in the sewer in the Archdale Road area that required immediate attention. Inspection also indicated that approximately 40 feet of the HLS, located in the Arnold Arboretum, needed repair. A construction contract notice to proceed was issued in June 1999 and construction was completed in October 1999.

Outfall 023 Cleaning and Structural Improvements

Following the October 1996 storm, the City of Boston engaged a consultant to review the events and recommend remedial actions to prevent future flooding under similar conditions. One recommendation was to clean sediment and debris from the Stony Brook Conduit. BWSC has cleaned the upstream portion of the conduit and MWRA has cleaned the outfall from the MDC gatehouse at Charlesgate to the Charles River. This part of the project also covers structural repairs to Outfall 023 with work scheduled to commence in fiscal year 2010**.**

Milton Financial Assistance

Two residential areas in the Town of Milton have experienced sewage backups into homes during wet weather events and periods of prolonged wet weather. One area affected is a direct tributary of MWRA's High Level Sewer and the other is a tributary to MWRA's New Neponset Valley Sewer. In September 1999, MWRA and Milton entered into a financial assistance agreement to fund design and construction of new sewers, rehabilitation of an existing pump station, and construction of a new pump station to mitigate downstream impacts from high flow conditions in the improved High Level Sewer.

Pump Station Feasibility

MWRA considered investigating the feasibility of constructing a small pump station to convey wastewater from a small area of Quincy away from the Braintree Howard Street Pump Station. The flow would be rerouted back to the Quincy collection system. The City of Quincy would own and operate the pump station. Upon further evaluation, MWRA has decided to delete this project and instead, will continue an MOU with Braintree to pay the town annually for use of 25 percent capacity of Braintree's Howard Street Pump Station.

Scope

Sub-phase	Scope
Archdale Des/CS/RI and Construction	Design, construction services, and resident inspection for the Archdale Road Diversion Structure. Construction of an underground diversion structure that houses two 30-inch by 60-inch horizontal sluice gates on the sidewall of the HLS. This structure controls flow into BWSC's Stony Brook Conduit.
Sections 70 and 71 HLS Evaluation/ Construction	Initial evaluation and construction of recommended improvements.
Construction and Improvements for Outfall 023	Removal and disposal of sediment and debris from Outfall 023 as well as continuation of structural improvements.
Milton Financial Assistance	Payment to the Town of Milton for local projects to mitigate downstream impacts from high flow conditions.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$4,945	$3,440	$1,505	$5	$5	$0	$1,500	$0

Project Status 5/08	69.6%	Status as % is approximation based on project budget and expenditures. All sub-phases are complete except for Outfall 023 Structural Improvements which is scheduled to commence in FY10.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$4,945	$4,945	$0	Dec-11	Dec-11	-	$1,313	$1,500	$187

Explanation of Changes

- Spending shift due to project priorities and staffing.

CEB Impact

- No impacts identified at this time.

S. 141 Wastewater Process Optimization

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Provides environmental benefits*
☑ *Extends current asset life*
☑ *Improves system operability and reliability*

To optimize wastewater system operating procedures and make system improvements and modifications to ensure maximum wastewater treatment, minimum operating and maintenance costs, and extension of the useful life of system assets.

Project History and Background

This project was established to support MWRA Business Plan strategies, which recommend the development of a wastewater process optimization plan, central monitoring facilities for the sewerage system, rehabilitation of wastewater interceptors, and the utilization of automation and new technology to increase efficiency.

The completed planning phase included the development of an updated hydrologic and hydraulic model (InfoWorks CS) and the evaluation of optimization alternatives under typical and extreme storm events. MWRA has evaluated several of the alternatives and is using hydraulic information gained during this phase to develop facility control logic under the Wastewater Transport SCADA Implementation Project. Two alternatives, which include pipeline modifications, will be taken further as defined below. The model developed under this project continues to be used by MWRA staff for in-house system evaluation and NPDES reporting requirements and by outside consultants to support CSO-related projects.

Scope

Sub-phase	Scope
Planning	Evaluate collection system and facility modification alternatives to maximize wastewater treatment and minimize operating and maintenance costs.
Somerville Sewer	Design and construct a connection between the upstream end of the Somerville Medford Branch Sewer and the North Metropolitan Relief Sewer to reduce surcharge and divert flow away from the Cambridge Branch Sewer and Delauri Pump Station.
Siphon Planning	Further evaluate the benefits of constructing a redundant siphon crossing the Mystic River from the Cambridge Branch Sewer to the Delauri Pump Station.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$2,319	$930	$1,389	$0	$206	$34	$1,389	$0

Project Status 5/08	40.1%	Status as % is approximation based on project budget and expenditures. The Notice-to-Proceed for the Somerville Sewer Design is scheduled for October 2008.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**
$2,272	$2,319	$47	Aug-11	Aug-11	None	$1,318	$1,389	$71

Explanation of Changes

- Project cost increase due to Inflation adjustment on Somerville Sewer contract based on new ENR index, offset by decrease on Planning contract based on actuals since contract is complete.
- Spending increase due to inflation increase noted above.

CEB Impact

- No impacts identified at this time.

S. 142 Wastewater Metering System Equipment Replacement

Project Purpose and Benefits

☑ *Extends current asset life*
☑ *Improves system operability and reliability.*

To improve the accuracy of meter data used to determine wholesale wastewater charges. This will be accomplished by replacing the existing wastewater metering system, including hardware and software utilizing the latest available technology. This technology will reduce confined space entries, making the metering system safer and less costly to maintain. This project will be coordinated with and support SCADA implementation for the wastewater system. Meter replacement was completed in FY06.

Project History and Background

Installation of MWRA's wastewater metering system began in 1989 and was completed in 1994. Individual meters in 43 customer communities receive routine maintenance on a continuous basis. This initial system is now more than ten years old and has become difficult to maintain due to limited availability of replacement parts. The original meters now require significant rehabilitation and many have been rebuilt from replacement parts. Also, meter technology has continued to advance so the current system is obsolete.

Scope

Sub-phase	Scope
Planning	Development of a long-term plan to upgrade or replace the existing wastewater metering system (hardware, software, telemetry) is complete.
Equipment Purchase/Installation	Purchase and installation of equipment is complete.
Permanent Site Improvements Design and Constr	Supply of power and enhanced wireless communications to approximately half of the 218 permanent wastewater metering sites. The data from these key sites will be used to optimize MWRA operation and maintenance activities during normal and wet weather conditions.
Wastewater Metering Asset Protection	Rehabilitation, replacement and upgrades (planning, design and construction) for the Wastewater Metering System to be required every 10 years over the 40 year planning period.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$26,578	$5,025	$21,553	$151	$5,176	$102	$202	$21,200

Project Status 5/08	19.1%	Status as % is approximation on project budget and expenditures. The purchase and installation of new meters is complete.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**
$26,578	$26,578	$0	Jan-48	Jan-48	-	$145	$202	$57

Explanation of Changes

- Spending shift due to warranty coverage.

CEB Impact

- Potential cost savings associated with this project have not yet been quantified.

S. 145 Interception and Pumping Facility Asset Protection

Project Purpose and Benefits

☑ *Extends current asset life*
☑ *Improves system operability and reliability*

To protect the investment of MWRA ratepayers by ensuring timely replacement of equipment and systems.

Project History and Background

This project was developed to ensure that MWRA maintains ongoing service while optimizing operations in its wastewater facilities. This project, in its current form, addresses immediate critical facility and equipment issues. This project will eventually include five areas:

1. Equipment replacement (pumps, HVAC equipment, blowers, etc.).
2. Architectural projects (concrete corrosion, etc.).
3. Utilities projects (water, sewer, drainage, electrical wiring, heating system, etc.).
4. Support Projects (process control system upgrades, etc.).
5. Specialty Projects (instrumentation upgrades, fuel storage tanks, etc.).

While the current schedule indicates a completion date of 2011 for rehabilitation of interceptors, the Interception and Pumping Asset Protection project will be ongoing throughout the useful life of the facilities.

Scope

Sub-phase	Scope
Rehab of Section 93A Lexington	Rehabilitation of 4,000 linear feet of pipeline in Lexington (Section 93A). Completed in April 2004.
Sections 80 and 83	Evaluation of the condition of Sections 80 and 83 and design and construct repairs to damaged portions. TV inspection revealed numerous cracks and holes, which impair the structural integrity of the pipe. Contract awarded in December 2006.
Section 160	Rehabilitation of 11,000 linear feet of Section 160 of the Mystic Valley Sewer in Winchester due to extensive deterioration of the brick and concrete sewer. Contract awarded in April 2007. Rehabilitation of sewer completed.
93A Force Main Replacement	Replacement of 1,100 feet of 24-inch ductile iron force main due to extensive corrosion from hydrogen sulfide. Contract was substantially complete in January 2007.
Mill Brook Valley Sewer Sec 79 & 92	Rehabilitation of a portion of Section 79 pipeline in Arlington. Under MOU trust agreement, MWRA to absorb 50% of total cost of rehabilitation.
Interceptor Renewal #1 Design & Construction	#1 – Rehabilitation of Charlestown/Dorchester Sections 31, 32 and Sections 240, 242. New project added.
Interceptor Renewal #2 Design & Construction	#2 – Rehabilitation of portions of Sections 163 and 164 in Brighton.
Interceptor Renewal #7 Study, Design & Construction	#7 – Rehabilitation of Melrose, Malden Sections 41,42,49,54 and 65.
Melrose Sewer and Repayment	Design and construct an 18-inch diameter sewer extension of an existing MWRA sewer on Melrose St. to reduce MWRA sewer overflows at the Roosevelt School.

Sub-phase	Scope
Prison Point HVAC Upgrades, Design & Construction	The HVAC system improvements include the replacement of components for the HVAC system. The ductwork, air handling equipment, dampers, louvers, and odor control are in need of upgrade. An assessment was performed to develop the scope of the project and more accurately estimate the cost of construction. The conversion of the control system for the HVAC to electronic digital control was completed in FY05/FY06 under the CEB. The diesel engine fuel system modifications at this facility were completed under the SCADA contract and included the fuel oil delivery feed to the system boiler. The contract for Design services for the HVAC system was awarded in December 2007.
Remote Headworks Heating System Upgrades	Existing boilers at each of the remote headworks require significant maintenance and consume substantial fuel. A preliminary design report was completed and alternative energy-saving systems are recommended to replace the existing heating systems. The contract to replace the existing heating system at the Chelsea Creek Headworks was awarded in April 2005 and completed in May 2006. The remaining systems at Ward Street and Columbus Park will be reviewed under the Remote Headworks Concept Design for recommended replacement.
Remote Headworks Screen Replacement	The three Headworks, Chelsea Creek, Ward Street, and Columbus Park have screens that are experiencing a high rate of operational and maintenance failures. There are 12 climber-type screens installed in 1985 that are at the end of their useful lives. This project will include design and installation of a new state-of-the-art screening system. An in-depth mechanical assessment was completed to address immediate operations and maintenance needs until the screens are replaced under this CIP. The screens will be further evaluated for replacement alternatives under the Remote Headworks Concept Design.
Remote Headworks Concept Design	A Concept Design will be performed to identify the needs of the three remote headworks facilities to recommend equipment replacement and upgrades for further design and construction. The Concept Design will include a Condition Assessment of all equipment and non-equipment assets to establish a basis for improvements or upgrades to meet business goals and objectives. The contract was awarded in April 2008.
Hingham Pump Station Isolation Gate Construction	The Hingham Pump Station was built without an influent gate. The station services the Town of Hingham and presently has no direct means to isolate the flow to this station. Presently, labor intensive and inefficient means using stop logs, sand bags, sewer plugs and pumps are required to isolate and divert flow. An isolation gate will allow work in the wetwell and on grinders and other related station equipment. This project will include the design and installation of a mechanical means, such as sluice gates in a diversion chamber, to isolate the station and bypass flow if required. This will allow maintenance to take place in the station without interruption of service.
Alewife Brook Pump and Screen Replacement Design and Construction	The Alewife Brook Pump Station was built in 1951 and the pumps are original equipment. They are discharging with less efficiency and the check valves are leaking. Staff has replaced rotating parts on the pumps over the past several years and it is difficult to maintain proper tolerances for internal pump components due to the age and wear of the pumps. The replacement is intended to increase pump reliability and efficiency at this facility and will include replacing the larger pumps, motors, and piping. The fourth station pump, the smallest one, was replaced under the SCADA contract along with three new Variable Frequency Drives for the three large pumps at this facility. Alewife Brook Pump Station has two climber screens currently in need of replacement. Past maintenance and operational issues have led to evaluating the use of grinders in lieu of conventional screens in the replacement of equipment at this facility.

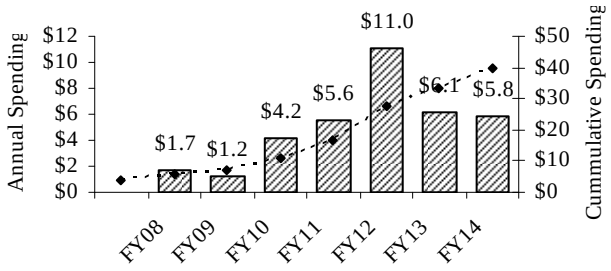
Sub-phase	Scope
Caruso Pump Station Generator Replacement	The Caruso Pump Station generator, which is currently 13 years old, is one of a few existing generators of this type made by Wakesha. The manufacturer is no longer making spare parts and there is only a limited quantity of available spare parts at this time, which may not be readily available in the future. This project is to replace the generator, due to obsolescence, with a newer model with readily available parts to ensure reliable back-up power at this facility.
Chelsea Screenhouse Sluice Gate Engineering Study	The Chelsea Screenhouse has seven hydraulic gates used to control flow within the facility, and direct flow to either the Caruso Pump Station or the Chelsea Headworks. These gates are critical to the operation of the facility. A preliminary evaluation was conducted using the As-Needed Design Services contract. The Task Order scope of services combined both the Chelsea Screenhouse and Framingham Pump Station. A report was issued that identified some maintenance and operational issues. Corrective actions can be performed under the CEB. Additional engineering review or study may be necessary if any operational problems occur once recommendations are implemented. Sufficient funds remain available to provide more services.
Prison Point & Cottage Farm Washdown System Piping Design and Construction	At both the Prison Point and Cottage Farm CSO Facilities the piping system that provides water for washing down the detention tanks, wet wells and screen room areas after storm activations is made of PVC and cast iron. The glued joints in the plastic pipe are problematic. The pipe and associated hangers and hardware are twenty years old in some instances. The replacement of these systems will include upgrading existing materials, connections, and installing necessary pressure controls.
Framingham Pump Station Sluice Gates Condition Assessment	There are three 48-inch sluice gates at the Framingham Pump Station that control flow into the station and the Framingham Extension Sewer. The sluice gates have been in operation 5-6 years. A preliminary evaluation was conducted using the As-Needed Design Services contract after severe deterioration of the number 3 gravity sewer line gate and structure was discovered. The Task Order scope of services combined both the Framingham Pump Station and Chelsea Screenhouse. A report was issued to identify any maintenance and operational issues for all other gates. The report provided sufficient information about their condition, and there is no need for additional engineering studies. Corrective actions can be taken under the CEB.
Caruso Pump Station Shaft Replacement Construction	Caruso Pump Station has seven pumps that are fourteen years old, four 21 MGD pumps and three 50 MGD pumps. The vertical shafts of the four 21 MGD rated pumps are worn from use and corrosion. Of these four pumps, one was outfitted with a mechanical seal. The four (21 MGD) pumps are used 24 hours/day, 7 days/week and it is recommended that they have mechanical seals installed to replace the conventional pump packing. This project is to replace all worn, corroded shafts and sleeves and install mechanical seals to reduce operational & maintenance costs. Included in the scope will be a task to assess the pumps and rotating assemblies for potential maintenance issues.
Nut Island Headworks Fire Alarm/Wire Conduit	This project will replace the existing obsolete and problematic fire alarm system and faulty wiring at Nut Island Headworks. There have been significant repair costs over the past several years to keep the system functional and to correct deteriorated connections and ground faults. An engineering task order is under development to provide design services and to assess any equipment or components installed to-date. The consultant will recommend upgrades or replacement.
Nut Island Fire Pump Building Study	Study to identify cause and offer remedy to the settlement of the Fire Pump Building at the Nut Island Headworks. Damage has occurred to the building structure and underground interconnecting utilities. This project is to fully investigate the problem and offer steps to stabilize the structure and protect utilities from future damage.

Sub-phase	Scope
Nut Island Mechanical & Electrical Replacements	Project to identify the portions of the mechanical and electrical systems that are failing or reached the end of their useful life. Electrical systems will be evaluated through service contract maintenance, which often reveal obsolescence and/or potential for future failure. Mechanical systems have exhibited operational and maintenance difficulties that require close review for design improvement and replacement. Planning, design, and construction is recommended for the FY09-13 timeframe.
Headworks Effluent Shaft Study	At each of the three remote Headworks, Chelsea Creek, Ward Street and Columbus Park, the wastewater is discharged into a vertical shaft connected to a tunnel that conveys the sewage to the Deer Island Treatment Plant. A past inspection of the shaft at Chelsea Creek indicated that the walls of the shaft are severely deteriorated. Failure of a shaft could incapacitate the Headworks facility. Concrete spawling from the interior of the shaft falls down into the tunnel. There is concern this may cause additional problems at Deer Island. To-date, there has been no reported issues but it is suggested that this material could be detrimental to pumps or other wastewater equipment at Deer Island. This study should also include requirements related to plant and shaft ventilation.
Remote Headworks Upgrades Design & Construction	Future rehabilitation, replacement and upgrades (design and construction) of projects recommended in the Remote Headworks Concept Design. These recommendations will be for upgrades to the Chelsea Creek, Columbus Park and Ward Street Headworks and are expected to be prioritized and spread over the 20-year planning period from FY09 through FY28. The recommendations from the Remote Headworks Concept Design are expected to incorporate previous CIP project recommendations for headworks improvements (including odor control system replacement, grit collection system replacement, grit and screenings ejection system replacement and Columbus Park Headworks heating system).
Pump Station/CSO Condition Assessment	This project would provide professional engineering services (via an RFQ/P process) including planning, design review, inventory, evaluation, identification and prioritization of rehabilitation/replacement projects and operational processes for ten older pump stations and CSO facilities. The ten older pump station and CSO facilities to be included in the condition assessment/facilities plan are: Alewife Brook, Caruso, Chelsea Screen House, DeLauri, Hayes, Hingham, Prison Point, Wiggins - Castle Island Terminal, Cottage Farm, and Somerville Marginal.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$69,715	$3,836	$65,879	$1,701	$5,536	$1,209	$28,115	$36,063

I&P Asset Protection



Project Status 5/08	8.4%	Status as % is approximation based on project budget and expenditures. The Remote Headworks Concept Design was awarded in April 2008. This phase will result in prioritized recommendations for upgrade and replacement projects for all headworks facilities. The Remote Headworks Heating System Upgrade work at the Chelsea Creek Headworks was completed in May 2006. Section 93A Force Main Replacement was completed in January 2007. Work on sections 80 & 83 was completed in September 2007. Work on Section 160 began in June 2007.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**
$59,603	$69,715	$10,112	Dec-28	Dec-28	-	$22,418	$28,115	$5,697

Explanation of Changes

- Budget and spending increase primarily due to new subphases added including Interceptor Renewal #2 and #7, Nut Island Fire Pump Building Study, Nut Island Mechanical and Electrical Replacements and Headworks Effluent Shaft Study. Also, inflation adjustment on Alewife Brook Pump Station Pump & Screen Replacement based on new ENR index.

CEB Impact

- CEB impacts for this project have not yet been identified.

S. 146 Inspection of Deer Island Cross Harbor Tunnels

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Provides environmental benefits*
☑ *Extends current asset life*
☑ *Results in a net reduction in operating costs*
☑ *Improves system operability and reliability*

Master Plan Project ☑ 2008 Priority Rating 2 (see Appendix 3)

To inspect, design, and repair MWRA deep rock tunnels to ensure proper wastewater system operation.

Project History and Background

The MWRA sewer system includes three deep rock tunnels that carry wastewater from the headworks to the DITP. The MWRA currently does not have the technology and capability of inspecting deep rock tunnels.

Scope

Sub-phase	Scope
Tunnel Shaft Repairs Design & Construction	The MWRA sewer system includes three deep rock tunnels that carry wastewater from the headworks to the DITP. The MWRA currently does not have the technology and capability of inspecting deep rock tunnels. This subphase includes inspection, design, and construction of repairs.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$5,000	$0	$5,000	$0	$0	$0	$0	$5,000

Project Status 5/08	0.0%	Status as % is approximation based on project budget and expenditures.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$5,000	$5,000	$0	Jun-17	Jun-17	-	$0	$0	$0

Explanation of Changes

- n/a

CEB Impact

- No additional impacts expected at this time.

S. 147 Randolph Trunk Sewer Relief

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Provides environmental benefits*
☑ *Extends current asset life*
☑ *Results in a net reduction in operating costs*
☑ *Improves system operability and reliability*

Master Plan Project ☑ 2009 Priority Rating 3 (see Appendix 3)

To identify system improvements to reduce sanitary sewer overflows that occur at MWRA's Sewer section 628 and Pearl Street siphon.

Project History and Background

The Randolph Trunk Sewer was constructed in 1958 and consists of three sections: 627, 628 and 628A. Section 628 is a 42-inch diameter reinforced concrete sewer located in Braintree. During extreme wet weather events, Section 628 experiences overflows, particularly at a 50-foot long double-barrel siphon located at Pearl Street next to residential property. A study will be performed to determine the best method of reducing excessive wet weather flows or to provide hydraulic relief to this section of the Randolph Trunk Sewer.

Scope

Sub-phase	Scope
Study	Study to identify system improvements at Sewer Section 628 and Pearl Street Siphon.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$750	$0	$750	$0	$0	$0	$656	$94

Project Status 5/08	0.0%	Status as % is approximation based on project budget and expenditures.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$0	$750	$750	n/a	Jun-13	n/a	$0	$656	$656

Explanation of Changes

- New project added during FY09 CIP process.

CEB Impact

- No additional impacts expected at this time.

S. 200 Deer Island Plant Optimization

Project Purpose and Benefits

☑ *Extends current asset life*
☑ *Results in a net reduction in operating costs*
☑ *Improves system operability and reliability*

This series of projects addresses the need for capital investment to optimize plant operations after initial start-up. The projects provide for design, construction, support, and services during construction, for work at the Deer Island Treatment Plant (DITP) necessary for safe, efficient start-up and/or to optimize the operational functionality in various areas of the facility.

Project History and Background

The Deer Island Treatment Plant consists of an extensive infrastructure of facilities and utility services. Due to the size, scope, and complexity of the Deer Island facility, it was inevitable that unanticipated repairs and/or modifications to various structures and utilities would be necessary following substantial completion of the plant. Contracts under this program are to support these modifications. The projects required to address routine plant operations and maintenance needs are under the S.206-*Deer Island Treatment Plant Asset Protection* project series. Once Ancillary Modifications 4 is completed under this program, the As-Needed Technical Design phases may potentially be moved into the DITP Asset Protection Program, allowing this project series to be closed out.

Scope

Sub-phase	Scope
Supplementary Modification Package	Installation of safety railings, primary access hatches, scum screen bypass, and access platforms at the Deer Island grit facility. Project completed in March 2000.
As-Needed Design Phases 1 through 6,	On-going technical design services and/or construction support to supplement existing engineering resources for specialized or complex engineering issues. Typically, two contracts are issued in tandem and run for two years each. Starting with Phase 6, added in FY09, the contract length is extended to three years each. These design phases are currently scheduled to end in 2012, replaced by the project listed below.
Deer Island As-Needed Technical Design	Added in FY08 as part of the Master Plan effort, this subphase will be used to continue the technical design services and/or construction support in the same fashion as the contracts listed above. From FY12 through FY15 expect to have two contracts at $750,000 per year each, and then increase to $1M each for FY16 through FY25. The total estimated project cost is $26.45 million.
BHP Site Completion	Final landscaping and installation of public safety, education, and orientation signage. Completed in December 2004.
Ancillary Modifications:	
Design and Construction 1	Replaced catenary screens and extended the garage to enclose the grit hoppers at the Winthrop Terminal Facility; replaced primary scum screens in Residuals, valves and gas meters at digester modules; corrosion repair; replaced sumps at North Main Pump; and telescoping valve work in digester module 3. Substantially complete March 2006.
Design and Construction 2-2	Installation of Variable Frequency Drives (VFDs) and DC chokes at the South System Pump Station. Substantially complete by October 2007.
Design and Construction 3-1	Improved the secondary clarifier scum removal; installed clarifier access manholes; corrected sludge manifold vibrations; replaced clarifier intermediate hatches; and other secondary clarifier improvements. Completed construction in November 2004.
Preliminary Design, Final Design, and Construction 4	Added the Preliminary Design phase in FY07. The project involves modifications to the cryogenics facility and plant-wide odor control systems, including the digester gas systems and wet scrubber improvements.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$71,454	$32,186	$39,268	$2,205	$26,108	$1,214	$8,798	$28,265

Project Status 5/08	48.1%	Status as % is an approximation based on project budget and expenditures. Several previously completed phases for this project are included in the Completed Project list. Contracts in process include As-Needed Design Phases 4-2, 5-1 and 5-2. Ancillary Modifications Construction 2-2 was completed in October 2007, but the design phase continues until December 2008 to cover the warranty period. Expect to award Ancillary Modifications Preliminary Design 4 by July 2009. As-Needed Design 6-1 and 6-2 expected to begin in January 2009.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Change	FY08	FY09	Change	FY08	FY09	Change
$70,944	$71,454	$510	Jun-27	Dec-25	(18 mos.)	$10,109	$8,798	($1,311)

Explanation of Changes

- The major reason for the schedule shift is due to the anticipated increases in As-Needed Design contracts, resulting in depletion of the funds sooner than previously planned. In addition, there are changes in the schedule Ancillary Modifications Construction 4 and reductions in the budgets As-Needed Design contracts phases 5-1 and 5-2 for anticipated work that will be funded in the CEB.
- The budget increase is primarily due to revised cost estimates for As-Needed Design 6-1 and 6-2. Other increases due to expected change order for As-Needed Design 4-2 and an inflation adjustment for Ancillary Modifications Construction 4 were offset in Ancillary Modifications 2-2.

CEB Impact

- The As-Needed Design and Ancillary Modifications phases are intended to improve the operational functionality of various areas of the plant, potentially reducing maintenance costs and utility expenses. The actual cost benefits have not been quantified. Any budgetary impacts will be absorbed within the existing budget projections.

S. 206 Deer Island Treatment Plant Asset Protection

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Fulfills a regulatory requirement*
☑ *Extends current asset life*
☑ *Improves system operability and reliability*

To protect the investment of MWRA ratepayers in the Deer Island treatment facility by ensuring timely replacement of DI's systems, which contain more than 60,000 pieces of equipment with an approximate value of $1 billion. Based on the Master Plan developed in 2006 (and subsequent updates), MWRA expects to sequentially replace equipment and structures in the facility as they reach the end of their useful life.

Construction of the Deer Island Treatment Plant (DITP) was one of the largest wastewater projects ever undertaken in the United States. DITP construction was a 12-year, $3.5 billion effort (not including the cost of off-island residuals facilities) started in 1988. MWRA commenced primary disinfection at the new plant in 1995 and secondary disinfection in July 1997. With the completion of the Effluent Outfall Tunnel in September 2000 the plant now discharges treated effluent 9.5 miles offshore in Massachusetts Bay through a series of 55 diffusers spaced along the last 1.5 miles of the tunnel.

Project History and Background

The Deer Island Treatment Plant Asset Protection program was formerly titled "Facilities Asset Management Program" (FAMP). Since the Facilities Asset Management Program was expanded to include other Operations units throughout MWRA, this Deer Island project was renamed. An initial component of the program, Inventory and Evaluation phases 1 and 2 (previously a part of this project), were placed under the Capital Maintenance Planning and Development project in the *Business Operations and Support* capital budget in a prior budget cycle.

At an expansive and complex facility like the Deer Island Treatment Plant, unanticipated equipment and system failures have the potential to cause operational and maintenance crises. It is prudent industry practice to take a proactive approach by establishing programs to anticipate when equipment and systems are near the end of their reliable service lives, and then overhaul, upgrade, or replace the equipment, systems, and structures as needed. This project has been further defined to encompass five major functional categories:

1. Equipment Replacement (chains, pumps, motors, control systems, discrete process equipment, etc.).
2. Architectural projects (expansion joint replacements, concrete corrosion, etc.).
3. Utilities projects (water, sewer, drainage, piping, electrical wiring, heating systems, etc.).
4. Support projects (Technical Information Center projects, security projects, etc.).
5. Specialty projects (chemical pipelines and storage tanks, fuels storage tanks, etc.).

Scope

Sub-phase *Equipment Replacement:*	**Scope**
Equipment Replacement Projection (ERP) and Deer Island Equipment Replacement Projection (DIERP)	Two long-term projected cost placeholders for funding new projects and/or cost increases to existing projects. Funds needed for new projects identified during each CIP development phase are deducted from these placeholders and then shown under new subphases. The DIERP phase was added per the Master Plan in FY08, at $2M/year for FY09 through FY44. In the Proposed FY09 cycle the funds were depleted due to cost increases in electrical projects and the primary/ secondary clarifier rehab project. Therefore, $25M was added for FY09 – FY13 to fund other projects added during the next cap period.
Equipment Condition Monitoring	Installation of temperature & vibration-monitoring equipment in NMPS and WTF. Completed in January 2005.

Sub-phase *Equipment Replacement:*	**Scope**
CEMS Equipment Replacement	Replaced the data collection computers, upgraded the software, and added PLCs to the Continuous Emissions Monitoring Systems on the two high-pressure Zurn boilers. Substantially completed by March 2006.
Pump Packing Replacement	Replace pump packing seals with mechanical seals in the North Main, South System, and Winthrop Terminal pump stations. Complete by the end of FY08.
LOCAT Scrubber Replacement Construction	Replace the Thermal Plant's high-maintenance digester gas wet scrubber system with a dry scrubber system.
Digester Chiller Replacement	Replaced the refrigeration-based digester gas chiller with a chilled water system that performs better at low operational loads. Completed in May 2006.
Dystor Tank Membrane Replacement	Emergency replacement of a torn gas membrane on one digester storage tank, and preventive replacement on the second. Completed both by October 2005.
Dystor Membrane Replacements	Periodic future replacement of the two gas & sludge storage tank membranes, added in FY08 as part of the Master Plan. Last completed in October 2005 and anticipated to be required every ten years (2015, 2025, 2035, etc.).
Grit Blower Replacement Construction	Replace a high-maintenance grit blower with a dedicated air-handling/ compressor system for improved grit handling.
Thickened Primary Sludge Pump Replacement	Design and construction to replace the thickened primary sludge pumps in order to reduce water use and maintenance costs.
Digested Sludge Pump Replacement Design & Construction	The existing Abel pumps have operating problems, need frequent maintenance. Added per the Master Plan, the schedule is advanced to add pumps with higher flow rates, reducing potential grit settlement in the pipes. Designed under As-Needed Design task order, with construction to commence in mid-FY09.
Centrifuge Back-drive Replacements	Replace the centrifuge back-drives, which have become obsolete. Scheduled to commence in FY10, and take 2 years to complete.
Grit & East/West Odor Ctrl Air Handler Replacements	Replace the air handlers due to deterioration. Added per the Master Plan, with $3.8M in FY09-10, then every 15 years. Grit AHU replacement project began July 2008, E/W Odor Replacements scheduled to follow in FY10.
Fire Alarm System Replacement – Design & Construction	Newly identified in FY08, added to the Master Plan prior to publication. To replace obsolete fire alarm monitoring & control systems. Design in FY10, replace in FY12/13 and every 15 - 20 years. Estimated cost is $4M per cycle.
HVAC Equipment Replacement – Design/ESDC & Construction	Newly identified in FY08, added to the Master Plan prior to publication. To replace two obsolete HVAC control systems with one manufacturer's system, reducing replacement parts and improving automation. Design in FY09, replace in FY10/12 and then every 15 years. Additional scope items increased the cost for FY09 to $6.7M for the first cycle. Funding for future replacements will therefore need to be added in subsequent CIP cycles.
Centrifuge Replacements – Design & Construction	Replace the sludge centrifuges when the scrolls/bowls are too worn to repair, or after catastrophic failure. Units have a 20-30 year life but were exposed to a lot of grit. Units started up in 1996. Included in the Master Plan; replace four centrifuges every ten years beginning in FY15, at $1.3M per centrifuge.
Cryogenics Plant Equipment Replacement – Design & Construction	Design and construction to replace pumps, valves, motors, sensors, switches, programmable controllers, and other obsolete equipment as needed. Added in FY08 per the Master Plan. Scheduled for $2M in FY14-17, with additional rehab and upgrade work occurring every 10 years.
South System Pump Station Pump Lube System Replacement	Change the pump lubrication system from using grease to one using oil. (Only requires routine maintenance after installation, not replacement). Included in the Master Plan. Cost estimate is $2.1 million, scheduled for FY09-11.

Sub-phase *Equipment Replacement:*	**Scope**
Digester Modules 1 & 2 Pipe Replacement	During digester pipe cleaning undertaken in May/June 2007, deterioration of the glass lining in these pipes was noted. As a result, this subphase was added as an emergency project (and therefore was not in the Master Plan). The $8M funding estimate was taken from the Equipment Replacement Projection subphase, so no net CIP increase for DITP occurred.

Sub-phase *Architectural:*	**Scope**
Study/Concept Design-Concrete Repairs	Study, to be followed by conceptual design (if needed) for installation of a protective coating on concrete below the water line in the secondary clarifiers and disinfection basins. Study scheduled for FY10 at $300k.
Expansion Joint Repairs	The program to periodically replace failed expansion joints in the concrete clarifier decks and/or various retaining walls. The first phase was completed in November 2003; the second phase is scheduled to begin in late FY09.
Eastern Seawall Design & Construction	Design and construction of repairs to the base of the eastern seawall due to tidal damage, exposing rebar. Removed in FY06, added back in FY09 at $2.4M.
Barge Berth and Facility Replacement	Major rehabs of the barge berth & pier facilities due to damage and/or normal wear. Added per the Master Plan. Estimated at $1.3 million for FY11, on a 20-year repeat cycle.

Sub-phase *Utilities:*	**Scope**
Outfall Modifications	Inspection of the old outfall tunnels (decommissioned after startup of the new outfall tunnel). Inspection completed in July 2002.
Electrical Equipment Upgrades (EEU) including future cycles from the Master Plan	The program to replace substation components and bus ducts at the end of their useful lives. Busduct 2&22 replacement was completed in October 2001, and EEU - 2 was completed by March 2007. EEU–3 began in FY08, EEU-4 iis scheduled for FY11. Under the Master Plan, Phase 5 was added at $20.6M and scheduled to start in FY12; scope includes $500k/year for FY14 - FY48.
VFD Replacements, including future cycles from the Master Plan	The program to replace obsolete variable frequency drives (VFDs) in the North Main Pump Station (in FY10), South System Pump Station (done in FY07-08), Winthrop Terminal Facility (FY12), and miscellaneous smaller VFDs throughout the plant (on-going). Future replacements every 10-12 years.
Power System Improvement Design & Constr. (Contracts 7061, 7061A, 7061B)	For design and construction of modifications to DITP's electrical system as recommended in the consultant report after an FY04 power outage. Expect to complete the construction in a series of three projects, beginning in FY09.
DI Electrical Modifications (renamed to "Thermal Power Plant Modifications – REI for 7061B" in the Proposed FY09 CIP).	Initially for electrical modifications recommended after the October 2005 power outage. Scope and funding of $2.6M added to the Power System Improvements Construction project in Proposed FY09 cycle. Subphase now covers REI work for one of the 3 projects mentioned above, modifications in the Thermal Power Plant, estimated at $345k. Scheduled to begin in FY09.
Switchgear REI for 7061 & 7061A	Project subphase added in the Prop FY09 CIP, to provide REI services on two of the Power System Improvement projects involving switchgear work as mentioned above, estimated at $990k. Scheduled to begin in FY09.
Switchgear Replacements including future cycles added per the Master Plan	On-going program to sequentially replace obsolete electrical switchgear. Several buildings scheduled at $4M in FY11/12, others at $20M in FY17-20. Future cycles beyond that period are not currently funded due to cost increases.

Sub-phase *Utilities:*	**Scope**
Transformer Replacements	Subphase removed in FY05, added back in FY09 due to need. Approximately 42 electrical substations and 87 transformers have been in service an average of 12 years. Transformers are replaced when the routine electrical maintenance program identifies them as being near the failure point. Avg. cost $500k/year.
PICS Replacement including future cycles from the Master Plan	Replacement or upgrade of components of the Process Information Control System (PICS) including keypads, consoles, and software due to obsolescence. Scheduled for FY14-15 at $1.8M, repeated every 10-12 years.
PICS Distributed Processing Units (DPU) Replacement	Replace the system "backbone", the 26 DPU cabinets or internal components. Added per the Master Plan at $4M for FY17-19; repeat cycles every 20^{+} years.
Sodium Hypochlorite Pipe Replacement	Replacement of ½ mile of PVC piping that transports sodium hypochlorite from the barge to the storage tanks with a better-suited pipe. This project will address issues with leaks, corrosion, and health and safety hazards.
Chemical Pipe Replacement Design and Construction	Planned periodic replacement of the various chemical pipelines in the odor control and disinfection facilities due to deterioration from corrosion.
Heat Loop Pipe Replacement Construction	Rerouting heat loop piping into galleries to reduce underground corrosion and improve accessibility. Phase 1 completed in Dec. 2005, Phase 2 substantially complete by February 2008. Phase 3 added per the Master Plan; increased from $6.5M to $10M and scheduled to commence in early FY09. Includes periodic valve replacements. No other replacement or repeat cycles are currently planned.
Fuel Transfer Pipe Replacement	Replace the diesel fuel pipeline from the barge area to the storage tanks at the Thermal Power Plant. Schedule accelerated due to the failure of the leak detection system; design to begin in FY09, construction scheduled for mid-FY10.
North Main Pump Station Motor Control Center Design and Construction	Sequential replacement of the motor control center equipment in the Pump Station since the components are becoming obsolete and unreliable. Includes replacing NMPS motors, due to cracked end rings in the existing motors.
CTG Rebuilds	Rebuilds of the combustion turbines in the Thermal Power Plant. Included in the Master Plan at $2M for 2015, with repeat cycles every 15 years.
Leak Protection System Upgrade	Removed in the Proposed FY09 cycle, since the fuel line replacement project has been accelerated and will involve installing a new leak detection system.
DI Wind Power Construction	This subphase was renamed "Alternative Energy Initiatives" in the Proposed FY09 cycle, and $7M in funds moved to Business & Operations Support. Includes solar panel installation at DITP and wind power feasibility study.
STG System Modifications Design & Construction	Involves adding equipment to the steam turbine generator that will produce additional electricity utilizing the current steam production more efficiently. To help the MWRA meet the energy goals set out by executive order, the project is scheduled to begin in FY09; includes the services of an Owners Rep.
Low Voltage Lighting Replacement	Replace the obsolete DOS-based lighting control system with a newer program. Lights will be automatically turned off during off hours, saving electricity.
DI Digester Flare #4 Design and Construction	Install a fourth gas flare to reduce the potential for air permit violations when an existing flare is out of service and the boilers have to be taken off-line.

Sub-phase *Support:*	**Scope**
DISC Application	Hardware, software, and contract services to implement a Deer Island plant-wide computerized database of all plant systems (electrical, gas, water, etc).

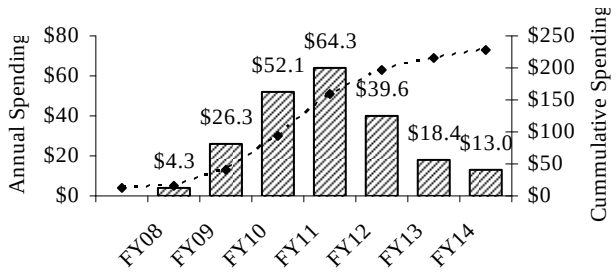
Sub-phase *Support:*	**Scope**
Document Format Conversion	Conversion of Deer Island construction documents into electronic format and completion of document-reference database. This work is in process.

Sub-phase *Specialties:*	**Scope**
Sodium Hypochlorite Tank Liner Removal	Removed the failed lining in tank #1 of the four sodium hypochlorite storage tanks. Completed in September 2006.
Hypochlorite Tanks 1&3 Reline	Renamed the "Sodium Hypo Tank Repair 1" subphase during the Proposed FY08 CIP cycle, to include the stripping, repair and relining of tank 3. Completed in November 2007.
Hypochlorite Tanks 2&4 Reline	Added in FY08 per the Master Plan. Strip & reline the two remaining sodium hypochlorite storage tanks. Contract awarded in April 2008 at $2.2M. Scope includes removing ladders and replacing safety railings on the tanks.
Future Sodium Hypo Tank Rehabilitation	Periodic stripping and relining of the four sodium hypochlorite tanks, based on historical experience to date. Included in the Master Plan at $2.5M for 2018, with repeat cycles every 10 years.
Primary & Secondary Clarifier Rehab – Design (ESDC/REI)	Consultant to provide ESDC/REI services during the Primary & Secondary Clarifier rehab work described below (design done by As-Needed Design consultant). Gravity Thickener Rehab scope removed in FY09; project scope expanded to include secondary clarifiers due to deterioration in the longitudinal chains and scum collection systems. Scheduled to begin in mid-FY09
Primary & Secondary Clarifier Rehab Construction	Replace longitudinal and cross collector chains and sprockets, chain drives, wear shoes; modify tip tubes, replace hose bibs; repair wall expansion joints, add more drop boxes, etc. Added the secondary clarifiers to the scope for FY09 and specified a higher-grade stainless steel, which substantially increased the project cost by $30M. Separated out the gravity thickener scope due to the need for separate, distinct schedules. Work scheduled to commence in mid-FY09 and take three years to complete.
Gravity Thickener Rehab - Design	New subphase for designing gravity thickener improvements, as discussed further below. In the Proposed FY09 cycle, the primary & secondary clarifier project priority resulted in the need to separate the projects again due to scheduling issues, and a separate design phase is needed.
Gravity Thickener Improvements - Construction	This subphase was eliminated in the Proposed FY08 CIP, and the scope was included with the Primary Clarifier Rehab work above. Separated back out as a stand-alone project for FY09. The first phase involves replacing the covers in FY09/10 for $1M. The remainder of the project involves installing catwalks around the perimeter of several tanks, removing concrete blocks in the effluent channels, and modifying the sludge thickener roofing to improve staff access and the operating efficiency of the thickeners.
All central Laboratory projects (Metals Lab Fume Hood Replacement, Metals Lab Modifications, Lab Sample Area Modifications, etc.)	All laboratory projects were removed from the DITP asset protection program and put into a separate, discrete project area. See the **S.211, Laboratory Services** section below.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$402,571	$11,421	$391,150	$4,294	$13,872	$26,306	$200,717	$186,140

DI Asset Protection



Project Status 5/08	3.8%	Status as % is approximation based on project budget and expenditures. Several previously completed phases for this project are included in the Completed Project list. Contracts in process include Miscellaneous VFD Replacements, Electrical Equipment Upgrade Construction 3, Hypochlorite Tanks 2 & 4 Relining, and Power System Improvement Design. Contract awards anticipated in FY09 include Grit Air Handler Unit Replacement, Heat Loop Pipe Replacement Construction 3, Digester Sludge Pump Replacement Construction, Digester Modules 1 & 2 Pipe Replacement, HVAC Equipment Replacement Design, Fuel Transfer Pipe Replacement Design, STG System Modifications Design, Primary & Secondary Clarifier Rehab work, and several Power System Improvements – Construction contracts.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Change	FY08	FY09	Change	FY08	FY09	Change
$353,470	$402,571	$49,101	Jun-48	Jun-48	None	$128,053	$200,717	$72,664

Explanation of Changes

- The majority of the $49M increase is due to the addition of the secondary clarifiers into the scope for Primary Clarifier Rehab work, which increased the project cost by $32.4M. The NMPS VFD Replacement increased $12.9M, and DI Switchgear Replacements increased $4.3M-both due to worldwide cost increases for steel and electrical components; also added $2.5M in new funding for Transformer Replacements. New or re-funded projects, such as Gravity Thickener Rehab, added $4.9M; Eastern Seawall Rehab, $2.4M, and the STG System Modifications project added $3.3M.
- Laboratory projects ($7.3M) moved to a separate project phase, S211. Alternative Energy Initiatives ($7M) moved to Business & Operations Support as a separate project.
- Other increases include revised cost estimates for Heat Loop Pipe Replacement Construction 3, also due to steel costs.

CEB Impact

- The majority of the projects are required to replace obsolete equipment and systems. Some of the projects are expected to result in decreased maintenance and/or operating costs (such as the SSPS lube system replacement and the HVAC control system replacement), however the potential benefits are not quantified at this time.

S. 210 Clinton Wastewater Treatment Plant

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Provides environmental benefits*
☑ *Extends current asset life*
☑ *Improves system operability and reliability*

Project History and Background

The Clinton Wastewater Treatment Plant is less than 15 years old and is generally in good condition. Some minor equipment rehabilitation and replacement projects are recommended, however, significant reinvestment is not required in the short-term. Operability of mechanical equipment and maintenance of electric/standby power systems are key elements to minimizing the risk of component failure. Any malfunction of mechanical equipment may impact wastewater treatment, particularly during large storm events that stress the hydraulic capacity of the facility. Key decision making to minimize risks includes the cost/benefit of when to replace aging equipment and which/how many spare parts to pre-purchase. Other CLTP uncertainties include technology upgrades to meet future regulatory requirements. Clinton WWTP was previously included in DITP's "Asset Protection – Specialties" program category, but was given its own discrete CIP program in the FY08 budget cycle.

Scope: No new projects were added for the Clinton facility in the FY08 or FY09 cycle, since only projects with a priority rating of 1 or 2 were added per the Master Plan. The Clinton projects listed in the Master Plan all have a priority rating of 3 or 4. A new project for sludge digester rehabilitation work is expected to be added for the FY10 CIP cycle.

Sub-phase	Scope
Clinton Soda Ash Replacement	Added in the Final FY06 budget cycle. The soda ash delivery system required for pH control in the activated sludge process is obsolete and needs to be replaced. The contract was awarded in November 2007, and is scheduled to finish in the first quarter of FY09.
Clinton Permanent Standby Generator	New for FY07. Install a permanent standby generator at the Clinton Wastewater Treatment Plant. Completed in November 2007.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$482	$0	$482	$369	$369	$114	$114	$0

Project Status 5/08	61.3%	Status as % is approximation based on project budget and expenditures.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Change	FY08	FY09	Change	FY08	FY09	Change
$605	$482	($123)	Sep-08	Sep-08	None	$156	$114	($42)

Explanation of Changes

- The Budget decrease is due entirely to the Clinton Soda Ash Replacement contract being awarded less than budgeted.

CEB Impact

- The projects are required to replace obsolete equipment and systems. The soda ash system replacement project is expected to result in decreased maintenance and/or operating costs, however the potential benefits are not quantified at this time. The standby generator will only be used as needed in an emergency, or run periodically to ensure it is in good operating condition.

S. 211 Laboratory Services

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Provides environmental benefits*
☑ *Extends current asset life*
☑ *Improves system operability and reliability*

Project History and Background

The Central Laboratory at the Deer Island Treatment Plant began operating in 1995. The infrastructure needs to be maintained so that the laboratory operation can keep samples uncontaminated and the staff safe. It is prudent industry practice to take a proactive approach by establishing programs to anticipate when equipment and systems are near the end of their reliable service lives, and then overhaul, upgrade, or replace the equipment, systems, and structures as needed.

Scope: These are specialty projects, all related to laboratory modifications. In the Proposed FY09 cycle, these sub-phases were moved from the DI Asset Protection Project and set up as a separate project. No new projects are added at this time.

Sub-phase	Scope
Metals Lab Fume Hood Replacement Design & Construction	Replace the metals lab fume hood. Scope not included in other lab projects. Expanded the project to include a design & construction phase in FY09; previously expected the design to be done by As-Needed task order. Design scheduled to begin in FY09, construction in FY10.
Metals Lab Modification Construction	Build-out of a laboratory room to house the new ICP/MS instrument. This trace metal analyzer needs clean space to function properly. Also, replace a failed fume hood and an obsolete TKN digestion unit in the Wet Chemistry lab. Contract awarded in April 2007, scheduled for completion by September 2008.
Lab Sample Area Modifications Design and Construction	Design and construction of improvements at the Central Lab at Deer Island. Improvements include changes in the physical layout to improve workflow and to capture fumes from sample containers and bottle-wash process. Design scheduled to begin in FY11, construction in FY12.
Central Lab Fume Hood Replacements	Replacement of approximately 35 fume hoods in the Lab at Deer Island not included in other projects above. The first replacement cycle is scheduled for FY11 through FY14 at $1.7M, with future replacements expected every fifteen years.
Laboratory As-needed Technical Design	Technical design services & construction support, increased in the Final FY09 CIP from $100k per year to $250k annually from mid-FY09 through FY25 for a total estimated project cost of $4 million. Future requirements for these services from FY25-FY48 to match Master Planning schedules will need to be funded in subsequent CIP cycles.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$8,409	$28	$8,381	$904	$932	$326	$4,079	$3,398

Project Status 5/08	10.7%	Status as % is approximation based on project budget and expenditures.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	**FY09**	**Change**	**FY08**	**FY09**	**Change**	**FY08**	**FY09**	**Change**
$0	$8,409	$8,409	Jun-48	Jun-25	(23 yrs)	$0	$4,079	$4,079

Explanation of Changes

- Project costs are shown as -$0- for FY08, because the subphases were included in Deer Island's Asset Protection project. This project series was broken out of DI Asset Protection – Specialties project category and set up as a separate project category for FY09.
- A comparison of only these projects for Final FY08 and Final FY09 shows that the lab subphases increased a total of $1.07M, primarily due to the addition of the Metals Lab Fume Hood Replacement - Construction phase for $613k and the revised cost estimate for Metals Lab Fume Hood Replacement-Design, which increased $331k. Inflation and expected change orders for the metals lab modification work accounts for the remainder of the increase.
- The schedule change of -23 years is due to increasing the annual spending for the Laboratory As-Needed Technical Design from the Master Plan level of $100k per year to $250k per year. This change is based on the DITP Engineering Department's experience on task order contracts with technical design consultants.

CEB Impact

- The projects are required to replace obsolete equipment and systems. Some of the projects are expected to result in decreased maintenance and/or operating costs, however the potential benefits are not quantified at this time.

S. 271 Residuals Asset Protection

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Provides environmental benefits*
☑ *Extends current asset life*
☑ *Results in a net reduction in operating costs*
☑ *Improves system operability and reliability*

Master Plan Project ☑ 2008 Priority Rating 1 (see Appendix 3)

To protect the investment of MWRA ratepayers by ensuring timely replacement of equipment and systems. MWRA expects to replace equipment and structures in the facility as they reach the end of their useful life.

Project History and Background

The Residuals Asset Protection program was created in FY08 as part of the Master Plan. The program consists of the anticipated contracts for maintaining and improving the operations and infrastructure of the biosolids processing plant in the long term. MWRA's Biosolids Processing Facility (aka the "pellet plant") was built in 1991 and expanded in 2001. By 2015, the major pieces of processing equipment will be 20 - 25 years old. The facility is currently in good condition, but significant reinvestment is anticipated in the FY14-18 timeframe. For this facility, operability of mechanical equipment and maintenance of electric/standby power systems are key elements to minimizing the risk of component failure. Key decisions to minimize risk hinge on results from cost/benefit analyses, to determine when to replace equipment, and which/how many spare parts to pre-purchase. The residuals pelletizing process is also currently energy-intensive; future uncertainties include long-term energy costs and supply.

Under the terms of the contract for operation of the biosolids processing facility, NEFCO is responsible for all facility operation and maintenance including any necessary capital improvements until 2015. They are obligated to turn the facility back over to the MWRA in an operable condition. The Asset Protection phase is intended to provide a dual-track planning approach addressing: (1) the existing facility capital improvement needs beyond the year 2015, if the Authority continues with pelletization, and (2) the option of assessing alternative technologies prior to the current contract expiration date; culminating in a decision point sometime in FY10-11.

A comprehensive Residuals Condition Assessment/Reliability Study project is planned for the FY09-10 timeframe (concurrent with a study to assess the latest technology and regulatory trends) followed by a Facility Plan/EIR project. These projects will review the adequacy of existing facility components and processes, to provide replacement recommendations based upon the latest existing or alternative technologies. Information developed by these project will be used by MWRA to produce a prioritized list of recommended design and construction projects that will be scheduled over an 8-year period (FY11-18). Scheduling of upgrade projects will be based on equipment failure risk, construction sequencing to maintain facility operations, and capital expenditure planning.

For the residuals biosolids processing facility, proposed spending of $180.3 million on eighteen projects is identified in the 40-year master plan timeframe of FY07 through FY48. Fifteen projects (equaling $148.6M) out of the eighteen are included in the FY08 CIP. The other three (addressing the rehabilitation of the polymer system, building envelope, and thermal oxidizers) have a priority rating of 3, and therefore are not yet included in the CIP.

Scope

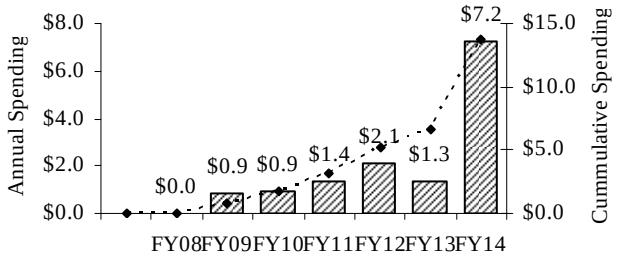
Sub-phase	Scope
Condition Assessment/Reliability Study* (1)	Evaluate the condition of the entire facility at the mid-point of the current contract; and assess other residuals processing options and regulatory changes, that may provide cost-saving opportunities. Currently scheduled at $1M to commence in FY09.

Sub-phase	Scope
Residuals Plant Facility Plan/EIR* (1)	The design and construction of improvements to the plant utilities infrastructure (electric, water, sanitary, and drainage) may be necessary. This $870K CIP project slated to start in FY10 will address issues identified during the initial study.
Residuals Plant Upgrades - Design & Constr* (1)	Select a consultant to design and oversee implementation of equipment replacements (all of the individual replacement projects listed below) to coincide with the end of the operations contract. The total project is estimated at $4M for the designs and $10M for ESDC/REI services during construction of all other subphases, for the duration of 8 years.
Six Rotary Dryer Replacements-Construction* (1)	Replace the rotary dryers. Estimated at $20M over three years beginning in FY14, with repeat cycles in FY29 and FY44. The dryers are core equipment, and the most expensive items at the facility in terms of acquisition, installation, and operational costs.
Six Air Scrubber Replacements - Construction* (1)	Replacement of the air scrubbers/packed towers. Estimated at $3M to be spent over two years beginning in 2016, with repeat cycles every 15 years (FY31 and FY46).
Plant MCC Construction* (1)	Replacement of the main control console (MCC) equipment. Estimated at $1.5M over two years starting in FY17 with repeat cycles every 15 years (FY32 and FY47).
FRSA Pier Rehab Design & Construction* (2)	To complete a study, and then design for rehabilitation (or demolition) of piers at the Biosolids Processing Facility if/as needed, at an estimated cost of $700k. MWRA does not own Pier 2; however, the pier may need to be demolished at some future date.
Rail System Rehab Construction* (2)	To rehabilitate portions of the rail system. Estimated at $1M over two years beginning in FY17, with repeat cycles in FY32 and FY47 for $1M each.
Replace 9 Pellet Storage Silos - Construction* (2)	To replace the pellet storage silos at the end of their expected useful life of 15 years. The project is estimated at $2M with a duration of 2 years beginning in FY16. Based on the Master plan, the replacement cycle repeats in FY31 and FY46.
Sludge Feed Conveyor Replacement - Construction* (2)	Replacement of the sludge feed conveyors and weigh scales (from the centrifuges to the rotary dryers). The project is estimated at $1M with a duration of one year beginning in FY15. Based on the Master plan, the conveyors and weigh scales may need to be replaced again in FY30 and FY45.
Sludge Storage Tank Rehab* (2)	Rehabilitation of the sludge storage tanks and related valves. Estimated at $1M over one year beginning in FY16, with repeat cycles in FY31 and FY46.
Pumping Systems Upgrade - Construction* (2)	For the replacement or rehabilitation of the sludge, centrate, and chemical pumps. Cost estimate of $2M with a duration of 2 years beginning in FY15. Future replacement or rehab cycles recur in 15-year intervals, in FY30 and FY45 at $2M per cycle.
Replace 12 Centrifuges – Construction* (2)	To replace the sludge thickening centrifuges at the end of their expected 18-year useful life. The project is estimated at $18M with a duration of two years beginning in FY15. Based on the Master plan, the centrifuges may need to be replaced again in FY33.
Utility Upgrades - Construction* (2)	Upgrades to the water, sewer, electrical, and telephone systems. Estimated at $2M over two years beginning in FY17. Repeat cycles every 15 years (FY32 & FY47).
Odor Control System Upgrade - Construction* (2)	Replacement of the pipelines and odor control equipment for treating the off-gases from the sludge storage tanks prior to release to the atmosphere. Estimated at $500k over one year beginning in FY18, with repeat cycles in FY33 and FY48.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$148,570	$0	$148,570	$0	$0	$857	$6,570	$142,000

Residuals Asset Protection



Project Status 5/08	0.0%	Status as % is approximation based on project budget and expenditures. The Residuals Plant Condition Assessment is expected to begin in August 2008.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	**FY09**	**Change**	**FY08**	**FY09**	**Change**	**FY08**	**FY09**	**Change**
$148,570	$148,570	$0	Jun-48	Jun-48	None	$6,252	$6,570	$318

Explanation of Changes

- The Residuals Plant System Facility Plan schedule has been pushed out and project scope was re-evaluated and combined with the Condition Assessment subphase.

CEB Impact

- The majority of the projects are required to replace obsolete equipment and systems. Some of the projects are expected to result in decreased maintenance and/or operating costs, however the potential benefits are not quantified at this time.

Introduction to Combined Sewer Overflow (CSO) Program

In 1987, MWRA entered a stipulation in the Federal District Court Order in the Boston Harbor Case ("First Stipulation") by which it accepted responsibility for developing and implementing a long-term CSO control plan for all combined sewer overflows hydraulically connected to MWRA's system, including the outfalls owned and operated by the communities of Boston (BWSC), Cambridge, Chelsea and Somerville (the "CSO communities"). In response to the First Stipulation, MWRA conducted site-specific and watershed based planning to meet short-term CSO control requirements pursuant to federal regulations (including EPA Nine Minimum Controls) and to develop a long-term control plan to bring Boston area CSOs into compliance with the Federal Clean Water Act and State Water Quality Standards. MWRA developed these plans in conformance with federal and state CSO policies and associated guidance documents, which evolved during MWRA's nearly 20-year planning period, to 2006.

EPA's National CSO Policy (April 1994) requires CSO permitees to develop and implement a series of system optimization measures and reporting procedures intended to quantify and minimize CSO discharges in the short term, in part using detailed system characterization, easily implemented and less expensive system improvements, and optimized operations and maintenance. In compliance with the policy, MWRA submitted its Nine Minimum Controls compliance documentation by January 1, 1997. While most of the reported compliance measures involve operations, maintenance and regulatory functions of MWRA that are funded through the Current Expense Budget, system characterization and hydraulic optimization measures described below were funded through the CIP.

The National Policy also requires permitees to develop and implement a long-term control plan in accordance with the provisions of the policy. In the CIP, MWRA undertook two major planning efforts: one in the period 1986 through 1990, which produced the 1990 CSO Facilities Plan primarily in accordance with the EPA CSO Strategy of 1989, and a second and final planning effort in 1992-1997 (with modifications made through April 2006), which produced a revised plan for CSO control that conformed to EPA's 1994 policy.

MWRA's CSO planning efforts were primarily conducted under the System Master Planning phase of the CIP and produced the following components of a broad plan to control CSO discharges and meet water quality standards:

- Through extensive inspections, system monitoring and modeling, MWRA developed a detailed, field-calibrated assessment of its planned collection and treatment system performance in advance of developing a long-term CSO control plan. The performance assessment incorporated major capital investments in the sewer system already underway or planned by MWRA, including upgrades to the transport system, pumping stations, headworks and Deer Island treatment plant. Together with MWRA's and the CSO communities' efforts in the late 1980s and the 1990s to operate and maintain their respective systems more efficiently, these improvements were shown to effectively maximize the system's capacity to control wet weather flows and markedly reduce CSO discharges system-wide. In the period 1988 through 1992, total annual CSO discharge predicted for a typical rainfall year dropped from 3.3 billion gallons to 1.5 billion gallons, with approximately 51% of the remaining discharge treated at five MWRA CSO screening and disinfection facilities. The Charles River especially benefited from these improvements.

- In 1993-1994, MWRA presented a System Optimization Plan ("SOP"), which recommended approximately 160 low cost, easily implemented system modifications to maximize wet weather storage and conveyance. The SOP projects, which were fully implemented by MWRA and the CSO communities by 1997, further reduced CSO discharge by about 20 percent.

- MWRA recommended a large set of projects covering a range of control technologies to achieve long-term, site-specific CSO control goals based on site-specific and watershed-based assessments of receiving water impacts and uses. MWRA recommended a conceptual plan of these improvements in 1994 and refined the recommendations in a facilities plan and environmental impact report it issued in 1997. The long-term plan received initial federal and state approvals in early 1998, allowing MWRA to move the projects into design and construction.

- As MWRA proceeded with implementation of the projects, it evaluated and recommended several adjustments and additions to the long-term plan in the period 1998 through 2006. These adjustments and additions responded to regulatory inquiries seeking higher levels of control (Charles River) or to new information that raised concerns about construction requirements, cost or CSO control performance (North Dorchester Bay, Reserved

Channel, East Boston, and Alewife Brook). A final, comprehensive long-term plan was approved by EPA and DEP in March 2006 and accepted by the Federal Court in April 2006. MWRA predicts that the long-term plan will further reduce total annual CSO discharge in a typical rainfall year to 0.5 million gallons (resulting in an 85% reduction from the 1988 level), with 94% of the remaining discharge to be treated at four MWRA screening and disinfection facilities.

On April 27, 2006, Federal District Judge Richard G. Stearns 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 approved motion, MWRA entered a Second CSO Stipulation by which it agreed to implement its previously recommended plans for Alewife Brook/Upper Mystic River and East Boston and to undertake limited additional work to further reduce CSO discharges to the Charles River from its Cottage Farm CSO Facility. The Cottage Farm facility had been 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 the additional Charles River 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 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.

The Federal Court ordered schedule 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 and the Schedule Seven it created revises these 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 July 2014 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 by July 2013.

In exchange for MWRA agreeing to implement its revised long-term control plan, DEP agreed to issue a series of five (5), three-year water quality variances for the Charles River and Alewife Brook/Upper Mystic River through 2020. As they relate 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 Seven).

The Second CSO Stipulation replaces the stipulation entered 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 it owns and operates. 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. The elements of the final long-term CSO control plan and the control goals for each receiving water segment are presented in Table 1.

The CSO project schedules in Schedule Seven are aggressive and reflect project-specific design, permitting and construction requirements. 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 need to coordinate work where major projects by others are in construction, such as in East Boston. 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 goals of controlling project costs, maintaining schedule, and fully achieving the projects' CSO objectives.

MWRA commenced implementation of the long-term CSO control plan in 1996. Updated project schedules are presented in Table 2. By June 2008, MWRA and the CSO communities completed 22 of the 35 projects in the plan, and an additional ten projects were in design or construction. With this level of completion, MWRA has achieved significant progress in reducing CSO discharges to Boston Harbor and its tributaries. Together with improvements to MWRA's wastewater conveyance and treatment systems, including the upgraded Deer Island Treatment Plant and associated pump stations, the 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 630 million gallons, an 81% reduction. In addition, 73% of the remaining overflow receives treatment at MWRA's four CSO treatment facilities. While 2015 is the required completion 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.

Table 1

Receiving Water	CSO Discharge Goals (typical rainfall year) Activations	Volume (million gallons)	Projects	Capital Cost* ($ million)
Alewife Brook/Upper Mystic River	7 untreated and 3 treated @ Somerville Marginal	7.3 3.5	• Cambridge/Alewife Sewer Separation • MWR003 Gate and Rindge Siphon Relief • Interceptor Connection Upgrades • Somerville Baffle Manhole Separation	62.0
Mystic River/Chelsea Creek Confluence	1 untreated and 39 treated @ Somerville Marginal	0.6 60.6	• Somerville Marginal CSO Facility Upgrade • Somerville Baffle Manhole Separation • Hydraulic Relief at BOS017 • Chelsea Trunk Sewer Replacement	9.2
Charles River (including Stony Brook and Back Bay Fens)	2 untreated and 2 treated @ Cottage Farm	6.8 6.3	• Cottage Farm CSO Facility Upgrade • Stony Brook Sewer Separation • Hydraulic Relief at CAM005 • Cottage Farm Brookline Connection and Inflow Controls • Charles River Interceptor Gate Controls • Brookline Sewer Separation • Bulfinch Sewer Separation • MWRA Outfall Closings and Floatables Control	91.8
Inner Harbor (including Chelsea Creek)	6 untreated and 30 treated @ Prison Point	9.6 335.0	• Prison Point CSO Facility Upgrade • Prison Point Optimization Study • Chelsea Trunk Sewer Replacement • Chelsea Branch Sewer Relief • CHE008 Outfall Repairs • BOS019 Storage Conduit • E. Boston Branch Sewer Relief	133.6
Fort Point Channel	3 untreated and 17 treated @ Union Park	2.5 71.4	• Union Park Treatment Facility • BOS072-073 Sewer Separation and System Optimization	61.4
Constitution Beach	Eliminate		• Constitution Beach Sewer Separation	3.8
North Dorchester Bay	Eliminate		• N. Dorchester Bay Storage Tunnel and Related Facilities • Pleasure Bay Storm Drain Improvements • Morrissey Blvd Storm Drain	271.2
Reserved Channel	3 untreated	1.5	• Reserved Channel Sewer Separation	113.8
South Dorchester Bay	Eliminate		• Fox Point CSO Facility Upgrade (interim improvement) • Commercial Pt. CSO Facility Upgrade (interim improvement) • South Dorchester Bay Sewer Separation	124.9
Neponset River	Eliminate		• Neponset River Sewer Separation	2.7
Regional			• Planning, Technical Support and Land Acquisition	50.2
TOTAL **Treated**		**505.1** **476.8**		**924.6**

MWRA's capital program includes temporary flow metering and other efforts to gather and evaluate new data to track system performance. The performance of the sewerage system is continuously improving as CSO and non-CSO projects are completed. Updated assessments of the system's hydraulic performance and estimates of CSO discharges using actual field data and model simulations are essential to verify the predicted benefits of the CSO-related improvements, to ensure the system hydraulic model reflects updated conditions, and to provide up-to-date information to support continuing CSO design efforts and long-term goal tracking. MWRA's NPDES permit and the variances for the Charles River and Alewife Brook/Upper Mystic River require MWRA to estimate CSO discharges at each permitted outfall for all storm events on an annual basis. This is accomplished by MWRA staff using the InfoWorks collection system model and data from permanent and temporary meters located in the interceptor system, at CSO treatment facilities and at other CSO outfalls. The Federal Court schedule requires MWRA to conduct a system-wide performance assessment after completing the implementation of the CSO plan in 2015, with a required assessment report to be submitted by 2020.

Table 2
(Shading indicates completed project.)

Project		Commence Design	Commence Construction	Complete Construction
North Dorchester Bay Storage Tunnel and Related Facilities		Aug 97	Aug 07	Mar 11
Pleasure Bay Storm Drain Improvements		Sep 04	Sep 05	Mar 06
Hydraulic Relief Projects	CAM005 Relief	Aug 97	Jul 99	May 00
	BOS017 Relief		Jul 99	Aug 00
East Boston Branch Sewer Relief		Mar 00	Mar 03	Jun 10
BOS019 CSO Storage Conduit		Jul 02	Mar 05	Mar 07
Chelsea Relief Sewers	Chelsea Trunk Sewer Relief	Jun 97	Aug 99	Aug 00
	Chelsea Branch Sewer Relief		Dec 99	Jun 01
	CHE008 Outfall Repairs		Dec 99	Jun 01
Union Park Detention/Treatment Facility		Dec 99	Mar 03	Apr 07
CSO Facility Upgrades and MWRA Floatables Control	Cottage Farm Upgrade	Jun 96	Mar 98	Jan 00
	Prison Point Upgrade		May 99	Sep 01
	Commercial Point Upgrade		Nov 99	Sep 01
	Fox Point Upgrade		Nov 99	Sep 01
	Somerville-Marginal Upgrade		Nov 99	Sep 01
	MWRA Floatables Control and Outfall Closings		Mar 99	Mar 00
Brookline Connection and Cottage Farm Overflow Interconnection and Gate		Sep 06	Jun 08	Jun 09
Charles River Interceptor Gate Controls and Additional Connections		Jan 08	Jan 10	Jan 11
Optimization Study of Prison Point CSO Facility		Mar 06	Mar 07*	Mar 08*
South Dorchester Bay Sewer Separation		Jun 96	Apr 99	Jun 07
Stony Brook Sewer Separation		Jul 98	Jul 00	Sep 06
Neponset River Sewer Separation			Apr 96	Jun 00
Constitution Beach Sewer Separation		Jan 97	Apr 99	Oct 00
Fort Pt Channel Conduit Sewer Separation and System Optimization		Jul 02	Mar 05	Mar 07
Morrissey Boulevard Storm Drain		Jun 05	Dec 06	Jun 09
Reserved Channel Sewer Separation		Jul 06	May 09	Dec 15
Bulfinch Triangle Sewer Separation		Nov 06	Aug 08	Dec 14
Brookline Sewer Separation		Nov 06	Nov 08	Jun 12
Somerville Baffle Manhole Separation			Apr 96	Dec 96
Cambridge/Alewife Brook Sewer Separation	CAM004 Outfall and Detention Basin		Oct 09	Oct 11
	CAM004 Sewer Separation	Jan 97	Jul 98	Apr 15
	CAM400 Manhole Separation	Oct 08	Oct 09	Oct 10
	Interceptor Connection Relief/ Floatables Control	Oct 08	Apr 10	Mar 11
	MWR003 Gate and Rindge Ave. Siphon	Jul 11	Feb 13	Apr 14
Region-wide Floatables Control and Outfall Closings		Sep 96	Mar 99	Dec 07

* Scope of work involves the implementation and testing of modified operational procedures to reduce treated discharges.

Anticipated operating cost impacts of the CSO program are summarized below and will be further developed as part of the planning and design phases for individual projects.

Program

The following projects are court mandated, are recommended in MWRA's approved long-term CSO control plan, and are required to meet DEP water quality standards.

Project	Purpose
MWRA Managed	
North Dorchester Bay & Reserved Channel	Eliminate CSO discharges and provide a high level of separate stormwater control to greatly reduce beach closings along North Dorchester Bay in South Boston.
Hydraulic Relief	Eliminate hydraulic restrictions between local and MWRA systems at two locations, in Boston (BOS017) and Cambridge (CAM005) to improve collection and conveyance of wet weather flows, thereby reducing CSO discharges into the Mystic and Charles Rivers, respectively.
East Boston Branch Sewer Relief	Increase hydraulic capacity and provide long-term structural integrity to MWRA's East Boston Branch Sewer through the replacement or rehabilitation of the existing sewers. Completion of this project will increase wet weather transport capacity and reduce CSO discharges along the East Boston shoreline, minimizing CSO impacts to the Mystic/Chelsea Confluence and Boston Inner Harbor and facilitating the beneficial uses of these receiving water segments.
BOS019 Storage Conduit	Control CSO discharges at outfall BOS019 by storing most of the overflows and pumping them back into the interceptor system after storms. Outfall BOS019 discharges to the Little Mystic Channel in Charlestown.
Chelsea Trunk Sewer Relief	Control CSO discharges at outfalls CHE002, CHE003, CHE004, and CHE008 by relieving a local trunk sewer and the MWRA Chelsea Branch Sewer and by repairing outfall CHE008. These outfalls discharge to the Mystic/Chelsea Confluence and Chelsea Creek. The Chelsea Branch Sewer relief project also provides relief to the lower portion of the Revere Extension Sewer to improve service and control surcharging.
Union Park Detention Treatment Facility	Reduce the frequency and impacts of CSO discharges from the BWSC Union Park Pumping Station to CSO outfall BOS070, which discharges into the Fort Point Channel by providing fine screening, disinfection, dechlorination and a level of detention and solids removal.
Upgrade Existing CSO Facilities and MWRA Floatables Control	Minimize CSO impacts to the Lower Charles River, Upper Inner Harbor, Mystic/Chelsea Confluence, and South Dorchester Bay receiving waters by upgrading five MWRA CSO treatment facilities (Fox Point, Commercial Point, Cottage Farm, Prison Point, and Somerville Marginal), and providing floatables control to MWRA CSO outfalls not associated with treatment facilities (located along the Lower Charles River Basin).
MWR003 Gate and Siphon	Minimize CSO discharges to Alewife Brook as part of MWRA's Alewife Brook CSO control plan by providing a control gate at outfall MWR003 and relieving MWRA's Rindge Ave. Siphon.
Charles River CSO Controls	Bring the MWRA's "Brookline Connection" into service, implement Cottage Farm influent gate controls and other facility inflow controls, and evaluate and implement interceptor optimization measures that may further reduce CSO discharges to the Charles River Basin.
Community Managed	
South Dorchester Bay Sewer Separation (Fox Point)	Eliminate CSO discharges to South Dorchester Bay by separating combined sewer systems in Dorchester. This project will allow MWRA to decommission the Fox Point CSO Facility.

Project	Purpose
South Dorchester Bay Sewer Separation (Commercial Point)	Eliminate CSO discharges to South Dorchester Bay by separating combined sewer systems in Dorchester. This project will allow MWRA to decommission the Commercial Point CSO Facility.
Stony Brook Sewer Separation	Minimize CSO discharges to Stony Brook Conduit and the Back Bay Fens, both of which drain to the Charles River, by separating combined sewer systems in parts of Roxbury and Jamaica Plain. Implementation of this sewer separation project is intended to reduce the number of overflows to the Stony Brook Conduit from as many as 22 to 2 in a typical year.
Neponset River Sewer Separation	Elimination of CSO discharges to the Neponset River and protection of water quality at downstream swimming areas in South Dorchester (primarily Tenean Beach) by separating combined sewer systems in the Neponset section of Dorchester and by permanently closing CSO regulators associated with outfalls BOS093 and BOS095.
Constitution Beach Sewer Separation	Elimination of CSO discharges at the Constitution Beach CSO Facility, allowing decommissioning of the facility, by separating combined sewer systems in parts of East Boston.
Cambridge CAM002-004 Sewer Separation	Minimize CSO discharges to Alewife Brook by separating combined sewer systems in parts of Cambridge and upgrading local system connections to MWRA's Alewife interceptors.
BWSC Floatables Control	Limit the discharge of floatable materials from five BWSC combined sewer outfalls along Boston Inner Harbor and Fort Point Channel.
Cambridge Floatables Control	Limit the discharge of floatable materials from eight Cambridge CSO outfalls.
Fort Point Channel Sewer Separation	Minimize CSO discharges to Fort Point Channel by separating sewer systems tributary to outfalls BOS072 and BOS073. Implementation of the recommended sewer separation plan will reduce the number of overflows from these outfalls from as many as 23 to zero in a typical year.
Morrissey Boulevard Drain	Reroute stormwater away from the BOS087 area and the North Dorchester Bay consolidation storage tunnel to Savin Hill Cove, to increase level of stormwater control along the South Boston beaches.
Reserved Channel Sewer Separation	Minimize CSO discharges to Reserved Channel by separating combined sewer systems in a portion of South Boston. Implementation of the recommended sewer separation plan will reduce the number of overflows to Reserved Channel from as many as 37 to 3 in a typical year.
Brookline Sewer Separation	Separate several areas of Brookline, totaling 72 acres, where there are remaining combined sewers tributary to MWRA's Charles River Valley Sewer. The project is intended to reduce CSO discharges to the Charles River at the Cottage Farm Facility.
Bulfinch Triangle Sewer Separation	Separate the combined sewers in a 61-acre area of Boston bounded by North Station, Haymarket Station, North Washington St., and Cambridge St. The project is intended to reduce CSO discharges to the Charles River, reduce overflows to the Prison Point CSO Facility and close outfall BOS049.
CSO Support	
CSO Planning and Support	The goals of the CSO Program are to minimize CSO discharges, greatly reduce beach closings following wet weather events, and maximize the beneficial use of CSO receiving waters. This project includes CSO conceptual planning, system master planning, and facilities planning/environmental review that support these goals. It also includes directly related watershed planning activities, development of short-term CSO control measures (known as System Optimization Plans or SOPs), various as-needed technical support activities, and acquisition of land and easements required for CSO project implementation.

Expenditure Forecast (in $000s) and Program Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$924,578	$411,710	$512,868	$116,650	$323,020	$113,017	$351,687	$44,531

Program Status 5/08	55.7%	Status as % is approximation based on project budget and expenditures. MWRA and the CSO communities continue to make significant progress towards completing the remaining CSO projects in compliance with Schedule Seven. (See individual project status and background information).

Changes to Program Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$811,413	$924,578	$113,164	Dec-15	Dec-15	None	$277,909	$351,688	$73,779

Explanation of Changes

- **MWRA Managed +$32.3M**
  Project Changes: North Dorchester Bay +$20M, East Boston Branch Sewer Relief +$12.5M, Charles River CSO Controls ($858K).

- **Community Managed +$80.9M**
  Project Changes: Reserved Channel Sewer Separation +$54.6M, Brookline Sewer Separation +$14.4M, Bulfinch Triangle Sewer Separation +$5.8M Cambridge Sewer Separation +$3.7M, Fort Point Channel Sewer Separation +$2.9M, South Dorchester Bay Sewer Separation (Comm. Pt.) ($1.3M),

CEB Impact

- Completion and start-up of these projects will result in a total net increase of $380,000 (in FY09 dollars) by FY12. By year, the CEB impact is as follows:

Fiscal Year	CEB Impact	Explanation
2010	$5,000	Placeholder for Maintenance for the Cottage Farm Brookline Connection.
2012	$375,000	Estimate for operation, maintenance, and odor control for infrastructure associated with North Dorchester Bay project.

S. 339 North Dorchester Bay CSO Project

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Provides environmental benefits*
☑ *Fulfills a regulatory requirement*

The project will eliminate CSO discharges and provide a high level of stormwater control to greatly reduce beach closings along North Dorchester Bay in South Boston. The project is court mandated and is in accordance with revisions to MWRA's approved long-term CSO control plan recommended in the Supplemental Facilities Plan and Environmental Impact Report for North Dorchester Bay and the Reserved Channel filed with MEPA in April 2004. The project is necessary to meet DEP water quality standards, which prohibit CSO discharges to North Dorchester Bay and similar sensitive receiving waters (i.e. where swimming and/or shell fishing occur).

Project History and Background

Under MWRA's original (1997) recommended plan for CSO control in South Boston, CSO flows along North Dorchester Bay and the Reserved Channel would be captured by two consolidation conduits (near-surface tunnels). In small storms, the tunnels would hold all CSO and stormwater flows and be dewatered, after each storm, to the South Boston Interceptor for transport to the Columbus Park Headworks and Deer Island. In storms when flows exceed the tunnel storage capacity, the excess flows would be discharged to Reserved Channel through a 600 mgd CSO treatment and pumping facility that MWRA had proposed to construct on vacant land off East First Street, adjacent to the Massachusetts Bay Transportation Authority (MBTA) power plant. This proposed was designated "Site J".

Despite MWRA's belief at the time it filed the related *1999 Notice of Project Change* that the projects could be implemented as outlined in that Notice, opposition by elected officials and some residents to siting the Reserved Channel CSO Facility on Site J intensified. In December 1999, elected officials representing South Boston informed the MWRA's Board of Directors that they would block efforts by MWRA to obtain legislation necessary to build parts of the project on or under designated parkland.

MWRA suspended design work on all elements of the project in January 2000, and was unable to commence construction by September 2000, as required. In April 2001, MWRA filed a Notice of Project Change with MEPA, recommending a reassessment of the project and overall CSO control approach for North Dorchester Bay and Reserved Channel. The reassessment was finalized in April 2004, when MWRA filed the Supplemental Facilities Plan and Environmental Impact Report for North Dorchester Bay and the Reserved Channel (the "SEIR"), recommending a new plan.

The new plan calls for a larger diameter tunnel along the North Dorchester Bay beaches, sized to provide storage of CSO flows up to the 25-year design storm and, together with a recommended storm drain along Morrissey Boulevard, provide a 5-year level of stormwater control for the beaches. The tunnel will be dewatered with a 15 mgd pumping station to be located on Massport's Conley Terminal. At the upstream end of the tunnel, a remote odor control facility to provide tunnel ventilation will be constructed adjacent to CSO outfall BOS087 and the State Police building. Surface piping, diversion chambers and control gates will be constructed at each existing outfall to direct CSO and stormwater flows into the tunnel. The Morrissey Boulevard storm drain (included in the CSO CIP under "Community Managed Projects") will allow large stormwater flows at outfall BOS087 to be redirected away from the tunnel to Savin Cove (South Dorchester Bay) in storms greater than the one-year design storm, to further increase the level of stormwater control afforded by the project to the beaches and to dedicate the tunnel to CSO control in the largest storms. Finally, the North Dorchester Bay plan also includes improvements to the Department of Conservation and Recreation's stormwater system along Pleasure Bay to redirect stormwater that discharges into Pleasure Bay Beach to the Reserved Channel, which does not support primary contact recreation.

In June 2005, MWRA filed a motion with the Federal District Court seeking revisions to the court milestones in Schedule Six to substitute the original plan and schedule for North Dorchester Bay and the Reserved Channel with the new plans and a new schedule. The Court allowed the motion on June 30, 2005. MWRA began design of the revised plan for North Dorchester Bay in August 2004. The revised court milestones require MWRA to commence construction by August 2006 and complete the North Dorchester Bay tunnel and related facilities (including dewatering pumping station and odor control facility) by May 2011. The revised milestones also require MWRA to complete construction of the Pleasure Bay storm drain improvements by May 2006, which MWRA accomplished.

For the Morrissey Boulevard storm drain, the revised milestones require MWRA, in cooperation with BWSC, to commence design by June 2005, commence construction by December 2006, and complete construction by June 2009.

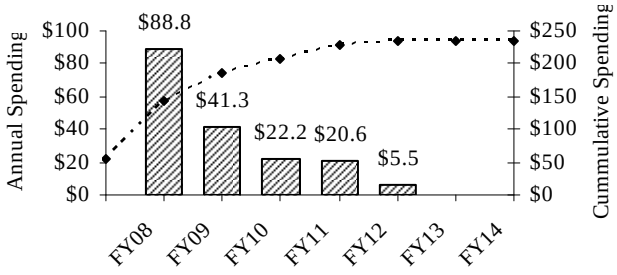
Scope

Sub-phase	Scope
Design/ESDC:Tunnel and Pleasure Bay	Design and engineering services during construction for the North Dorchester Bay tunnel and CSO/stormwater control structures and the Pleasure Bay drainage improvements; preliminary design for the dewatering pump station, force main and remote odor control facility.
Tunnel Construction	Construction of the North Dorchester Bay tunnel, drop shafts, access shafts and CSO/stormwater control structures.
Dewater/Odor Control Construction	Construction of the 15 mgd dewatering pump station at Conley Terminal, connecting force main and the remote odor control facility near outfall BOS087. CSO storage tunnel and facilities startup activities are included.
Tunnel and Facilities CM Services	Construction management services for the North Dorchester Bay tunnel, dewatering and odor control facilities, related piping and diversion/control structures and Pleasure Bay drainage improvements, including final design review and assistance during facilities start-up and optimization.
Pleasure Bay Construction	Construction of Pleasure Bay drainage improvements.
Final Design ESDC/CSO Facilities	Final Design and engineering services during construction for the dewatering pump station, force main and remote odor control facility.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$234,299	$55,521	$178,778	$88,758	$130,618	$41,335	$90,020	$0

North Dorchester Bay



Project Status 5/08	53.7%	Status as % is approximation based on project budget and expenditures. The Tunnel Construction contract NTP was issued on August 31, 2006. The Tunnel and Facilities Construction Management Services contract was awarded in October 2005. In June 2006, the Authority executed a MOU with Massport for the Authority's construction on Massport land including the tunnel mining shaft and the dewatering pumping station. Construction of Pleasure Bay Drain Improvements was substantially complete on March 28, 2006. The Authority issued the NTP for Final Design services for related CSO facilities in November 2006; Construction is scheduled to begin in March 2009.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**
$214,281	$234,299	$20,018	Mar-11	Mar-11	None	$98,150	$90,020	($8,130)

Explanation of Changes

- Primarily due to revised cost estimate for Dewater/Odor Control Construction. This increase was partially offset by revised expected change order estimates at drop shaft locations.
- Spending changed primarily due to cost changes above.

CEB Impact

- Estimate $375k/year as of FY12 for operation, maintenance, and odor control for infrastructure associated with this project.

S. 354 Hydraulic Relief

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Provides environmental benefits*
☑ *Fulfills a regulatory requirement*

Elimination of hydraulic restrictions between local and MWRA systems at locations in Boston and Cambridge to improve transport of wet weather flows, thereby reducing CSO discharges into the Mystic and Charles Rivers. The project is court mandated, is in accordance with MWRA's approved long-term CSO control plan, and is required to meet DEP water quality standards.

Project History and Background

This project combines two local hydraulic relief projects, one in Cambridge to minimize CSO discharges at CAM005 and one in Charlestown to minimize CSO discharges at BOS017.

In Cambridge, the 24-inch, 40-foot long dry weather connection between the CAM005 regulator and the North Charles Metropolitan Sewer, adjacent to Mount Auburn Hospital, was relieved with a new 54-inch connection.

In Charlestown at BOS017, 190 feet of 36-inch pipe were installed in Sullivan Square to divert two local (BWSC) combined sewers to a direct connection with the Cambridge Branch Sewer. In addition, a 10-foot long restriction between the Charlestown and Cambridge Branch Sewers, adjacent to Sullivan Square, was eliminated. This improvement is expected to lower hydraulic grade lines in the Charlestown Branch Sewer during wet weather.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$2,295	$2,295	$0	$0	($7)	$0	$0	

Project Status 5/08	100%	Completed in 2000.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$2,295	$2,295	$0	Aug-01	Aug-01	None	$0	$0	$0

Explanation of Changes

None.

CEB Impact

- No impacts identified at this time.

S. 347 East Boston Branch Sewer Relief

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Provides environmental benefits*
☑ *Fulfills a regulatory requirement*
☑ *Improves system operability and reliability*

To increase hydraulic capacity and provide long-term structural integrity to MWRA's East Boston Branch Sewer through the replacement or rehabilitation of the existing sewers. Completion of this project will increase wet weather transport capacity and reduce CSO discharges along the East Boston shoreline, minimizing CSO impacts to the Mystic/Chelsea Confluence and Boston Inner Harbor and facilitating the beneficial uses of these receiving water segments most of the time. The project is court mandated, is in accordance with MWRA's approved long-term CSO control plan, and is required to meet DEP water quality standards.

Project History and Background

This project will relieve the interceptor system serving most of East Boston, minimizing CSO discharges to Boston Harbor and Chelsea Creek through outfalls BOS003-014. Existing sewers will be replaced using a combination of construction methods including microtunneling, pipe bursting and open cut. Some were rehabilitated using relining method. The rehabilitation construction contract commenced in March 2003 and was substantially completed in May 2004. Other design and construction was delayed pending completion of a project reassessment to assure cost benefit. Regulatory agreement that the original hydraulic relief project is the appropriate plan for East Boston CSO control was achieved in March 2006. In June 2006, Design 2/CS was awarded for completion of design and construction administration for the microtunneling and pipebursting contracts.

Scope

Sub-phase	Scope
Design/CS/RI	Design, project reassessment, and construction administration/resident inspection for rehabilitation contract.
Design 2/CS	Completion of design for replacement of sewers by microtunneling and pipebursting contracts, and construction administration for these contracts.
Resident Inspection Services	Resident Inspection Services for the Design 2 construction contracts.
East Boston Branch Relief Sewer Construction	Construction of 14,500 feet of replacement sewers primarily by microtunneling.
Boston Paving	Payment to City of Boston for paving.
East Boston Branch Sewer Rehab Construction	Rehabilitation of 5,400 feet of existing sewer.
Sections 38 & 207 Replacement Construction	Replacement of 6,000 feet of existing sewers by pipe bursting.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
88,423	$9,617	$78,806	$1,013	$7,586	$30,838	$77,793	-

Project Status 5/08	12.1%	Status as % is approximation based on project budget and expenditures. The rehabilitation contract was substantially complete in May 2004. Design 2/CS was awarded in June 2006. East Boston Branch Relief Sewer construction expected to commence in July 2008.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$75,937	$88,423	$12,487	Jun-10	Jun-10	None	$64,401	$77,793	$13,392

Explanation of Changes

- Cost increase primarily due to revised construction cost estimates for the Relief Sewer and Section 38 and 207 Replacement contracts.
- Spending shifted primarily based on revised costs above.

CEB Impact

- No impacts identified at this time.

S. 348 BOS019 Storage Conduit

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Provides environmental benefits*
☑ *Fulfills a regulatory requirement*

This project is intended to reduce CSO activations and annual volume to the Little Mystic Channel (Upper Inner Harbor) from 18 to 2 discharges per year and from 8 million gallons to 0.4 million gallons, respectively, a greater than 90% reduction. The project will bring CSO discharges at outfall BOS019 into compliance with the state receiving water quality designation B(cso).

Project History and Background

In compliance with Schedule Seven, MWRA issued the notice to proceed with construction to Walsh Construction of Illinois on March 31, 2005. The BOS019 storage conduit comprises two, parallel 10-foot by 17-foot conduits, each 280 feet in length, providing 670,000-gallons of off-line storage that will capture CSO discharges at outfall BOS019 from all but the two largest storms in a typical year. The project reduces CSO activations to the Little Mystic Channel from 18 to 2 times per year and reduces annual discharge volume from 8 million gallons to 0.4 million gallons. The new facility includes a small pump station to dewater the stored flows into the collection system when available capacity in the local BWSC sewer system has returned after storms have past. Appurtenant equipment also includes an odor control system, diversion chambers and motor control center. The operation of this facility is conducted remotely from the Operations Control Center via a System Control and Data Acquisition (SCADA) system. Construction reached substantial completion in March 2007.

Scope

Sub-phase	Scope
Design (Contract 6258)	Project reassessments and preliminary design for BOS019 storage conduit and Fort Point Channel storage conduit/sewer separation. Final design for BOS019 storage conduit only.
BOS019 Storage Conduit Construction (Contract 6260)	Construction of the BOS019 storage conduit commenced March 31, 2005 and was substantially complete on March 31, 2007.
Construction Management Services (Contract 7008)	Resident engineering and inspection services for the BOS019 storage conduit.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$14,344	$14,221	$123	$83	$13,855	$40	$40	$0

Project Status 5/08	99.2%	Status as % is approximation based on project budget and expenditures. Construction was substantially complete in March 2007.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$14,191	$14,344	$153	Mar-07	Mar-07	None	$0	$40	$40

Explanation of Changes

- Revised RE/I cost for level of effort beyond original scope of services including SCADA coordination.

CEB Impact

- No additional impacts are identified at this time.

S. 349 Chelsea Trunk Sewer Relief

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Provides environmental benefits*
☑ *Fulfills a regulatory requirement*
☑ *Improves system operability and reliability*

To control CSO discharges at outfalls CHE002, CHE003, CHE004, and CHE008 in accordance with MWRA's approved long-term CSO control plan. These outfalls discharge to the Mystic River/Chelsea Creek Confluence and Chelsea Creek. In addition, the project will relieve the MWRA Chelsea Branch Sewer as well as the lower portion of the Revere Extension Sewer to improve service and control surcharging. The project is court mandated, is in accordance with MWRA's approved long-term CSO control plan, and is required to meet DEP water quality standards.

Project History and Background

This project combines three components recommended in MWRA's long-term CSO control plan: 1) relief of a City of Chelsea-owned trunk sewer to minimize CSO discharges to the Inner Harbor at three outfalls, 2) relief of the MWRA Chelsea Branch Sewer and Revere Extension Sewer to minimize CSO discharges to Chelsea Creek and reduce surcharging in the upstream transport system, and 3) repair of the existing CSO pipe in Chelsea at outfall CHE008. All of the work is complete and the contracts have been closed out.

Scope

Sub-phase	Scope
Design/CS/RI	Design, construction services, and resident inspection for the entire project.
Chelsea Trunk Relief	The existing Chelsea Trunk Sewer, which varies in diameter from eight to 15 inches, was replaced with 2,300 feet of 30-inch diameter pipe. Information obtained during design about the physical conditions of the CHE002, CHE003, and CHE004 outfalls led to a decision to include rehabilitation of sections of the CHE002 and CHE003 outfalls. Underflow baffles were installed at each regulator to provide floatables control.
Chelsea Branch Sewer	The MWRA Chelsea Branch and Revere Extension Sewers, which run in parallel along Eastern Avenue in Chelsea, were replaced and/or relieved with approximately 4,200 feet of 42-inch pipe and 3,500 feet of 66-inch pipe along or near Cabot Street and along Eastern Avenue in Chelsea. The construction also included repairs at outfall CHE008. One underflow baffle was installed at the sole regulator structure associated with this outfall to provide floatables control.
Rehab/Chelsea Branch/Revere Extension	Cured in place pipe rehabilitation methods were used to line approximately 4,200 feet of 36-inch pipe in the Chelsea Branch and 3,000 feet of 54-inch pipe in the Revere Extension Sewer.
Modify Chelsea Screen House	Installations of connection points and provision of flow control at the Chelsea Screen House in support of the Chelsea Branch Sewer rehabilitation.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$29,779	$29,779	$0	$0	$23	$0	$0	$0

Project Status 5/08	100%	Status as % is approximation based on project budget and expenditures. Project is complete.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$29,779	$29,779	$0	Jun-02	Jun-02	None	$0	$0	$0

Explanation of Changes

- Project completed.

CEB Impact

- No impacts identified at this time.

S. 350 Union Park Detention Treatment Facility

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Provides environmental benefits*
☑ *Fulfills a regulatory requirement*

To reduce the frequency and impacts of CSO discharges from the BWSC Union Park Pumping Station (CSO outfall BOS070). Outfall BOS070 discharges into the Fort Point Channel. This project is court mandated, is in accordance with MWRA's approved long-term CSO control plan, and is required to meet DEP water quality standards.

Project History and Background

This project improves water quality in the Fort Point Channel by providing treatment of CSO discharged from BWSC's Union Park Pumping Station. The existing pumping station, constructed in 1976, provides flood control for the South End neighborhood of Boston. The Final EIR called for the detention/treatment facility to be constructed adjacent to the existing pumping station, on property owned by BWSC at the intersections of Albany, Malden, and Union Park Streets in the South End. Flows pass through the new treatment facility before entering the pumping station wet well. Construction of the treatment facility commenced in March 2003 and was substantially complete in April 2007.

The treatment facility includes fine screens, chlorination with sodium hypochlorite, dechlorination with sodium bisulfite, and below-ground, rapid-settling detention tanks measuring approximately 90 feet by 140 feet and 20 feet deep. The buried tanks, which have a combined storage capacity of 2.2 million gallons, reduce the number of pumping station discharges to the Fort Point Channel. While most of the new facility is below ground, the plan includes an addition to the aboveground structure of the existing pumping station.

Some layout changes within the existing pumping station optimize use of available space and minimize aboveground construction. The pumping station remained in service during construction of the treatment facility. Operation and maintenance of the new treatment facility and the existing pumping station is integrated and is conducted by a private operator under contract to both MWRA and BWSC.

A neighborhood playground operated by the Boston Parks Department covered approximately half of the proposed treatment facility site. As discussed at public meetings during facilities planning and as stipulated in a lease agreement signed by Boston Parks, BWSC, and MWRA in 1997, MWRA removed the playground during construction. A park (in place of the former playground) was constructed at a nearby site owned by the Boston Parks Department, and MWRA will partially fund Boston Parks construction of another passive park over the CSO facility detention basin following construction.

Scope

Sub-phase	Scope
Design	Design and engineering services during construction for the Union Park Detention/Treatment Facility, including storage tanks with a capacity of 2.2 MG, and an addition to the existing above grade pumping station.
Construction	Construction of MWRA's Union Park Detention/Treatment Facility.
Construction – Park	Construction of replacement and passive park by Boston Parks & Recreation, funded by MWRA.
BWSC Construction	Portions of the construction project involve upgrades to the existing pumping station that will directly support BWSC. To coordinate construction activities, the project was bid jointly and BWSC will pay for its portions of the contract.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$49,736	$47,714	$2,022	$2,022	$43,854	$0	$0	$0

Project Status 5/08	100%	Status as % is approximation based on project budget and expenditures. Construction was substantially complete in April 2007.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$49,879	$49,736	($143)	Apr-07	Apr-07	None	$0	$0	$0

Explanation of Changes

Project cost decreased due to expected amendment for additional change order support, testing and start-up is no longer needed. This decrease was partially offset by additional change orders for construction.

CEB Impact

- No additional impacts are identified at this time.

S. 353 Upgrade Existing CSO Facilities and MWRA Floatables Control

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Provides environmental benefits*
☑ *Fulfills a regulatory requirement*
☑ *Extends current asset life*

To minimize CSO impacts to the Lower Charles River, Upper Inner Harbor, Mystic/Chelsea Confluence, and South Dorchester Bay receiving waters by upgrading five MWRA CSO treatment facilities (Fox Point, Commercial Point, Cottage Farm, Prison Point, and Somerville Marginal), closing outfall MWR010, and providing floatables control at all MWRA CSO outfalls not associated with treatment facilities (located along the Charles River). These projects are court mandated, are in accordance with MWRA's approved long-term CSO control plan, and are required to meet DEP water quality standards.

Project History and Background

Five of the six existing CSO facilities (Commercial Point, Cottage Farm, Fox Point, Prison Point, and Somerville Marginal) were upgraded to improve treatment performance and meet new residual chlorine discharge limits. The work generally included replacement and upgrade of the existing chlorine disinfection systems and construction of dechlorination systems, as well as other process control and safety improvements. At the Cottage Farm and Prison Point facilities, the upgrade work took place entirely within the existing facility site bounds. The Commercial Point upgrade called for a remote 36-feet by 36-feet dechlorination building to be constructed nearly one-half mile downstream of the facility on Massachusetts Highway Department (MHD) property adjacent to the Southeast Expressway. The Fox Point upgrade included construction of a new chlorination and dechlorination building next to the existing facility and a 2,700-feet force main from the new building to the dechlorination point, where a 12-feet by 12-feet process control and sampling building was constructed adjacent to Morrissey Boulevard. The plan for Somerville Marginal was similar to that for Fox Point. A new chlorination and dechlorination building was constructed adjacent to the existing facility under the elevated portion of Route 93. A force main was installed to the dechlorination point 1,800 feet downstream of the facility, where a 12-foot by 12-feet process control and sampling building was constructed on the Assembly Square Mall property.

By 2002, MWRA completed systems optimization as part of the start-up period referenced in Schedule Six for all five upgraded facilities. Funds for programming process control systems at Cottage Farm were added to the CIP during FY01. Work has been completed.

Based on reevaluations conducted in 2001, MWRA recommended not closing outfall MWR010 and not implementing the second phase of floatables control tributary to outfall MWR018. These recommendations were accepted by DEP in October 2002.

Scope

Sub-phase	Scope
Design	Design and engineering services during construction for upgrades to the five CSO facilities.
Design 2	Design of floatables controls upstream of MWRA outfalls along the Charles River. (eliminated)
Cottage Farm CSO Facility	Replacement/upgrade of the existing disinfection system and construction of a dechlorination system.
Prison Point CSO Facility	Replacement/upgrade of the existing disinfection system and construction of a dechlorination system.

Sub-phase	Scope
Commercial Point, Fox Point, Somerville Marginal	Upgrades including the replacement/upgrade of the existing disinfection systems. A 36-foot by 36-feet dechlorination facility was constructed approximately 0.5 miles downstream of the Commercial Point facility. New chlorination/dechlorination facilities were constructed next to the existing Fox Point and Somerville Marginal facilities. Force mains, 2,700 and 1,800 feet respectively; connect each facility to 12 feet by 12 feet process control/sampling buildings.
Non-Treated Floatables (Beacon)	MWRA non-treated CSO floatables control. Bulkhead and close MWR021 and MWR022 CSO outfalls (completed by MWRA). Construct underflow baffles at four regulators tributary to outfalls MWR019 and MWR020.
Non-Treated Floatables (Other)	Construction of underflow baffles at seven regulators tributary to outfall MWR018. (eliminated)
Closure of Outfall MWR010	Close CSO Outfall MWR010. (eliminated)
Cottage Farm Programming	Program final process control systems.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$22,385	$22,385	$0	$0	$84	$0	$0	$0

Project Status 5/08	100%	Status as % is approximation based on project budget and expenditures. Project is completed.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$22,385	$22,385	$0	Oct-02	Oct-02	None	$0	$0	$0

Explanation of Changes

- Project completed.

CEB Impact

- No impacts identified at this time.

S. 355 MWR003 Gate and Siphon

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Provides environmental benefits*
☑ *Fulfills a regulatory requirement*

Minimizes CSO discharges to Alewife Brook as part of MWRA's Alewife Brook CSO control plan. This project is court mandated, is in accordance with MWRA's approved long-term CSO control plan, and is required to meet DEP water quality standards determinations.

Project History and Background

The MWR003 Gate and Siphon project was recommended in the *Notice of Project Change for the Long Term CSO Control Plan for Alewife Brook, April 2001*, and is part of the revised recommended CSO plan for Alewife Brook. The project consists of the following elements: an automated hydraulic relief gate and associated controls at CSO regulator RE031 upstream of CSO outfall MWR003; an inverted siphon barrel parallel to the existing inverted siphon barrel connecting the Alewife Brook Sewer and Alewife Brook Conduit; and floatables control consisting of an in-line net in outfall MWR003. Also included are improvements to the Alewife Reservation in the immediate project area that are expected conditions of the Department of Conservation and Recreation (DCR) construction permit and license agreement, based on preliminary discussions with DCR. Implementation of this project and other elements of the recommended plan for Alewife Brook are required by the Court Order and by conditions in the Alewife Brook/Upper Mystic River CSO Variance extension, last issued by DEP on September 1, 2007and expected to be sequentially reissued to 2020.

Scope

Sub-phase	Scope
Design	Design and engineering services during construction.
Construction	Construction of an automated gate and associated controls, 150 feet of new siphon and a floatables control structure.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$2,718	$0	$2,718	$0	$0	$0	$1,780	$938

Project Status 5/08	0%	Status as % is approximation based on project budget and expenditures. Design contract is now expected to be awarded in July 2011.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$2,111	$2,718	$607	Jan-13	Nov-13	10 mos.	$2,109	$1,780	($329)

Explanation of Changes

- Revised planning level cost estimate based on expected permitting, modeling, and coordination demands. Also, construction inflation adjustment due to new ENR index.
- Schedule changed due to delay in wetlands appeal decision for Cambridge Contract #12 (stormwater outfall and wetland detention basin).

S. 357 Charles River CSO Controls

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Provides environmental benefits*
☑ *Fulfills a regulatory requirement*

Implements wastewater system optimization measures, including structural and operational improvements, to further reduce CSO discharges to the Charles River Basin at and near the Cottage Farm CSO Facility. Also, evaluates the cost and benefit of making additional hydraulic interconnections within the interceptor systems related to Cottage Farm. This project is required to minimize CSO discharges to the Charles River Basin in accordance with the long-term control plan accepted by EPA, DEP and the Federal Court in April 2006.

Project History and Background

In response to the long-term CSO control plan MWRA recommended in 1997, DEP and EPA issued variances to water quality standards for the Charles River. With the variance, DEP approved and required implementation of MWRA's plan for the Charles River Basin, and required MWRA to identify and evaluate additional measures that could further reduce CSO discharges to the Basin. In August 2005, MWRA recommended a series of optimization measures and investigations to further lower CSO discharges, including 1) bringing into operation the existing but unutilized 54-inch "Brookline Connection" that crosses beneath the Charles River from the Cottage Farm influent chamber (Cambridge side) to an improved connection with the South Charles Relief Sewer (Boston side); 2) developing gate controls and a control system to optimize and potentially automate the operation of the existing Cottage Farm influent gates; 3) providing a piped interconnection between the two overflow chambers outside the Cottage Farm facility and optimizing overflow weir settings within each chamber; 4) developing an operational strategy for optimizing the transfer of flows between the Charles River Valley Sewer and the South Charles Relief Sewer using existing gates located at three connections between these interceptors; and 5) evaluating the feasibility of improving hydraulic performance along the North Charles Metropolitan Sewer and the North Charles Relief Sewer by creating new connections or modifying existing connections between these interceptors and by adjusting overflow regulators along these interceptors.

Scope

Sub-phase	Scope
Cottage Farm Brookline Connection Inflow Controls Design CA	Design/CA services to bring the 54-inch Brookline Connection into operation; develop controls and operational strategy for the existing Cottage Farm influent gates and provide a piped interconnection between the two overflow chambers outside the Cottage Farm facility.
Cottage Farm Brookline Connection Inflow Controls Construction	Construction and implementation of the above improvements and controls, as recommended in design.
Interceptor Optimization Evaluations and Design CS/RI	Study, Design and CS/RI to implement an operational strategy for optimizing the transfer of flows between the Charles River Valley Sewer and the South Charles Relief Sewer using existing gates and to evaluate the feasibility of improving hydraulic performance along the North Charles Metropolitan Sewer and the North Charles Relief Sewer by creating new connections or modifying existing connections between these interceptors and by adjusting overflow regulators along these interceptors.
Existing Gate Control System	Construction and improvements designed above regarding existing gates between the Charles River Valley Sewer and the South Charles Relief Sewer.

REI Services Cottage Farm Brookline Connection Inflow Controls	New subphase added for Resident Engineering Inspection Services for the Cottage Farm Brookline Connection Inflow Controls.
Additional Interceptor Connections Construction	Construction of any additional connections recommended in the study above. Scope, schedule, and cost to be determined from study recommendations.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$5,601	$465	$5,137	$783	$1,248	$2,646	$4,354	$0

Project Status 5/08	18.4%	Status as % is approximation based on project budget and expenditures. Design/CA contract for the Brookline Connection/Cottage Farm was awarded in September 2006. Interceptor Optimization Engineering/Design began in January 2008. Cottage Farm Brookline Connection and Inflow Controls Construction was awarded in June 2008.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$6,460	$5,601	($859)	Jan-11	Jan-11	None	$5,325	$4,354	($971)

Explanation of Changes

- Budget decreased due to revised cost estimate for Cottage Farm/Brookline Connection Controls Construction and REI Services being done under East Boston RI contract. This decrease was partially offset by actual award amount for the Interceptor Optimization Engineering/Design contract.

CEB Impact

- $5,000 for maintenance in FY10 for the Cottage Farm Brookline Connection project.

S. 340 South Dorchester Bay Sewer Separation (Fox Point)

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Provides environmental benefits*
☑ *Fulfills a regulatory requirement*

This project, together with sewer separation at Commercial Point, will eliminate CSO discharges to South Dorchester Bay by separating combined sewer systems in Dorchester. The project is court mandated, is in accordance with MWRA's approved long-term CSO control plan, and is required to meet DEP water quality standards.

Project History and Background

This project involves the construction of new storm drains and appurtenant structures, relocation of storm runoff connections from the existing combined sewers to the new storm drains, and rehabilitation of existing combined sewers for use as sanitary sewers. The plan calls for construction of approximately 71,000 feet of new storm drains. BWSC is implementing the project with MWRA funds.

A contract for design services was executed by BWSC in June 1996, and a preliminary design report was submitted in December 1997. BWSC executed a separate contract for construction management services in December 1998 and commenced construction in April 1999. While Schedule Seven requires MWRA and BWSC to complete the project by November 2008, BWSC completed all of the sewer separation contracts and closed all of the CSO regulators tributary to South Dorchester Bay by June 2007. BWSC is conducting flow monitoring and hydraulics evaluations to verify that the project performance objectives have been achieved and that the CSO regulators can remain closed permanently. Downspout disconnection and street paving contracts will continue into 2008.

Scope

Sub-phase	Scope
Design	Design services for construction contracts to be bid, awarded and managed by BWSC.
Construction	Construction of 71,000 feet of new storm drains and appurtenant structures, managed by BWSC. Relocation of storm runoff connections from the existing combined sewers to the new storm drains, rehabilitation of the existing combined sewers for use as sanitary sewers, individual building downspout removal and street paving are also included.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$53,783	$52,230	$1,553	$1,533	$27,567	$20	$20	$0

Project Status 5/08	99.9%	Status as % is approximation based on project budget and expenditures.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**
$53,783	$53,783	$0	Nov-06	Nov-06	None	$19	$20	$1

Explanation of Changes

- None

CEB Impact

- Impacts absorbed within the current year's CEB.

S. 341 South Dorchester Bay Sewer Separation (Commercial Point)

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Provides environmental benefits*
☑ *Fulfills a regulatory requirement*

This project, together with sewer separation at Fox Point, will eliminate CSO discharges to South Dorchester Bay by separating combined sewer systems in Dorchester. The project is court mandated, is in accordance with MWRA's approved long-term CSO control plan, and is required to meet DEP water quality standards.

Project History and Background

This project involves the construction of new storm drains and appurtenant structures, relocation of storm runoff connections from the existing combined sewers to the new storm drains, and rehabilitation of the existing combined sewers for use as sanitary sewers. The plan calls for construction of approximately 65,000 feet of new storm drains. BWSC is implementing the project with MWRA funds.

A contract for design services was executed by BWSC in June 1996, and a preliminary design report was submitted in December 1997. BWSC executed a separate contract for construction management services in December 1998 and commenced construction in April 1999. While Schedule Seven requires MWRA and BWSC to complete the project by November 2008, BWSC completed all of the sewer separation contracts and closed all of the CSO regulators tributary to South Dorchester Bay by June 2007. BWSC is conducting flow monitoring and hydraulics evaluations to verify that the project performance objectives have been achieved and that the CSO regulators can remain closed permanently. A placeholder contract (and budget) for additional hydraulic relief, if necessary, is included in the CIP. Downspout disconnection and street paving contracts will continue into 2008.

Scope

Sub-phase	Scope
Design	Design services for construction contracts to be bid, awarded, and managed by BWSC.
Construction	Construction of 65,000 feet of new storm drains and appurtenant structures, managed by BWSC. Relocation of storm runoff connections from the existing combined sewers to the new storm drains, rehabilitation of the existing combined sewers for use as sanitary sewers, individual building downspout removal and street paving are also included.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$ 63,134	$53,419	$9,715	$2,248	$28,605	$2,431	$7,467	$0

Project Status 5/08	86.9%	Status as % is approximation based on project budget and expenditures.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**
$64,396	$63,134	($1,262)	Nov-07	Nov-07	None	$5,448	$7,467	$2,019

Explanation of Changes

- Budget decrease is primarily due to funds transferred to Fort Point Channel Sewer Separation Project for Lower Dorchester Brook System Regulator. This was partially offset by increases for an amendment for additional resident inspection. Also, updated inflation adjustments on unawarded contracts.
- FY09-13 spending increase due to revised schedule for Dorchester Interceptor Relief work.

CEB Impact

- Impacts absorbed within the current year's CEB.

S. 344 Stony Brook Sewer Separation

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Provides environmental benefits*
☑ *Fulfills a regulatory requirement*

To minimize CSO discharges to Stony Brook Conduit and the Back Bay Fens, both of which drain to the Charles River, by separating combined sewer systems in parts of Roxbury and Jamaica Plain. Implementation of the recommended sewer separation plan will reduce the number of overflows to the Stony Brook Conduit from as many as 22 to zero in a typical year. This project is court mandated, is in accordance with MWRA's approved long-term CSO control plan, and is required to meet DEP water quality standards.

Project History and Background

This project, which involves constructing approximately 73,000 feet of new storm drains, is managed by BWSC with MWRA funds and oversight. The CIP reflects the 1997 FEIR recommendation for sewer separation. BWSC has agreed to complete the project and fund any costs in excess of $45 million plus appropriate inflation adjustments.

BWSC commenced construction in July 2000 and completed the sewer separation work in September 2006, in compliance with Schedule Seven. Street paving, flow metering and analyses to verify the project's intended hydraulic performance and level of CSO control will continue through 2007 and into 2008.

Scope

Sub-phase	Scope
Design CS/RI	Design services managed by BWSC.
Construction	Construction of 73,000 feet of new storm drains, managed by BWSC.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$45,322	$44,089	$1,233	$963	$29,128	$270	$270	$0

Project Status 5/08	99.4%	Status as % is approximation based on project budget and expenditures. Remaining work is limited to street paving, flow metering and hydraulic performance assessment.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$45,096	$45,322	$226	Sep-06	Sep-06	None	$0	$270	$270

Explanation of Changes

- Budget increase primarily due to amendment for additional monitoring of post construction system conditions and overhead rate adjustment. Also, for extended monitoring program.

CEB Impact

- No impacts identified at this time.

S. 342 Neponset River Sewer Separation

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Provides environmental benefits*
☑ *Fulfills a regulatory requirement*

Elimination of CSO discharges to the Neponset River and protection of water quality at downstream swimming areas in South Dorchester (primarily Tenean Beach) by separating combined sewer systems in the Neponset section of Dorchester and by permanently closing CSO regulators associated with outfalls BOS093 and BOS095. The project is court mandated, is in accordance with MWRA's approved long-term CSO control plan, and is required to meet DEP water quality standards.

Project History and Background

This project involved construction of approximately 10,000 feet of new storm drains, and was managed by BWSC with MWRA funds and oversight. It is complete and has resulted in closing the last two CSO outfalls to the Neponset River (BOS093 and BOS095).

Scope

Sub-phase	Scope
Design CS/RI	Design services by BWSC (complete).
Construction	Three contracts for the construction of 10,000 feet of new storm drains, by BWSC (complete).

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$2,681	$2,444	$236	$0	$0	$0	$236	$0

Project Status 5/08	91.2%	Status as % is approximation based on project budget and expenditures. Project was substantially complete in October 2002. MWRA will release remaining balance pending completion of its final review of cost eligibility.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$2,681	$2,681	$0	Oct-02	Oct-02	None	$236	$236	$0

Explanation of Changes

- None

CEB Impact

- No impacts identified at this time.

S. 343 Constitution Beach Sewer Separation

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Provides environmental benefits*
☑ *Fulfills a regulatory requirement*

Elimination of CSO discharges at the Constitution Beach CSO facility by separating combined sewer systems in parts of East Boston. The project is court mandated, is in accordance with MWRA's approved long-term CSO control plan, and is required to meet DEP water quality standards.

Project History and Background

The separation work involved construction of approximately 14,000 feet of new storm drains. The project was managed by BWSC with MWRA funds and oversight. It resulted in the elimination of the CSO discharge to the Constitution Beach area and the decommissioning of the MWRA's Constitution Beach CSO Facility, which has been surplused.

Scope

Sub-phase	Scope
Design	Design services, managed by BWSC.
Construction	Construction of 14,000 feet of new storm drains, managed by BWSC.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$3,769	$3,769	$0	$0	$0	$0	$0	$0

Project Status 5/08	100%	Status as % is approximation based on project budget and expenditures. Project is completed.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$3,769	$3,769	$0	Apr-02	Apr-02	None	$0	$0	$0

Explanation of Changes

- Project completed.

CEB Impact

- No impacts identified at this time.

S. 346 Cambridge Sewer Separation

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Provides environmental benefits*
☑ *Fulfills a regulatory requirement*

To minimize CSO discharges to Alewife Brook by separating combined sewer systems in parts of Cambridge and upgrading local connections to MWRA's interceptors. This project is court mandated, is in accordance with MWRA's approved long-term CSO control plan, and is required to meet DEP water quality standards.

Project History and Background

The City of Cambridge is managing the separation work with MWRA funds and oversight. The City of Cambridge executed a contract for design services in January 1997. The first four construction contracts were completed in 2002.

As reported to the court in 1999, information gathered by the City of Cambridge during the design phase of this project indicated that the physical configurations of the Cambridge sewer and storm drain systems, including the degree to which these systems are interconnected, was significantly different from conditions shown on the city's base plans and older design plans. Both sets of plans were used by MWRA to develop the conceptual plan for the project. As a result, extensive additional work to separate sewers is required to meet CSO control goals. While construction began in 1998 on schedule, completion of construction has been delayed.

MWRA responded to the significant increase in estimated project costs by instructing Cambridge to suspend remaining final design efforts and award of any construction contracts not yet approved, until MWRA and Cambridge could complete a thorough reassessment of project costs and alternatives. At that time, Cambridge had received approval from MWRA to commence four of the ten proposed construction contracts that comprised the original scope.

Based upon an evaluation conducted by MWRA and Cambridge of alternatives that considered cost, performance, and non-monetary factors, the revised recommended plan for controlling CSO discharges to Alewife Brook, like the original plan, is a partial sewer separation alternative that includes the following components:

- Completion of sewer separation in the CAM004 tributary area (similar to the original CSO control plan, but with expanded scope).
- Separation of the CAM400 tributary area (new).
- Relief of dry weather flow connections at CAM002, CAM401B, and SOM01A (new).
- Relief of an existing siphon and installation of a flow control gate at MWR003 (new).
- No further sewer separation in the CAM002 tributary area. (Although this work was included in the original plan and a small, related construction contract was completed by Cambridge in 1999, the revised plan recommends not completing separation in this area.
- No additional CSO control recommended for the recently discovered outfall at CAM401B.
- Floatables control at remaining CSO outfalls.

On May 24, 2000, the Board of Directors approved the revised CSO Control Plan for Alewife Brook. This budget reflects MWRA's estimate of the cost and MWRA's share of the revised plan. The federal court schedule milestone for completion of construction of sewer separation was January 2000. MWRA previously informed the court and court parties that MWRA would be unable to meet this milestone due to the increased scope of the project. In April, 2006 the court schedule was amended to incorporate milestones for each of the components of the revised recommended plan.

Cambridge submitted a Second Supplemental Preliminary Design Report (SSPDR) for the final recommended plan as presented in the Final Variance Report for the Alewife Brook/Upper Mystic River. However, Cambridge was unable to move forward with construction of the new stormwater outfall and constructed stormwater wetland of Contract 12 due to delays in obtaining relief from the citizens' appeal of the Superseding Order of Conditions that was issued by Massachusetts Department of Environmental Protection ("DEP") in March, 2005, pursuant to the Wetlands Protection Act. The stormwater outfall and constructed stormwater wetland are critical early components

of the long-term CSO control plan for the Alewife Brook and are necessary to support planned sewer separation in the CAM004 area and the closing of the CAM004 regulator. Administrative law decisions were issued in the spring of 2007, allowing DEP to issue a final superseding order of conditions. On June 1, 2007 the Acting DEP Commissioner issued a final decision sustaining the earlier superseding order DEP had issued. On June 12, 2007, the citizens group that had appealed the earlier orders filed a request for reconsideration of the DEP final decision, but DEP formally declined this request on October 16, 2007. On November 14, the appellants appealed this final DEP decision to Superior Court. Notwithstanding the Superior Court filing, the City of Cambridge now has wetlands approval to construct Contract 12. Design and construction activities related to the revised Alewife Brook CSO control plan have been delayed by at least 27 months beyond the Schedule Seven milestones.

Scope

Sub-phase	Scope
Design CS/RI	Design services.
Construction	Four construction contracts for sewer separation work have been completed The remaining scope of work for this project is outlined above.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$56,151	$18,451	$37,700	$0	$4,517	$1,936	$34,286	$3,414

Project Status 5/08	32.9%	Status as % is approximation based on project budget and expenditures. City of Cambridge has submitted the Second Supplemental Preliminary Design Report for the final recommended plan.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$52,434	$56,151	$3,717	Jan-14	Dec-14	11 mos.	$27,677	$34,286	$6,609

Explanation of Changes

- Budget increase primarily due to revised cost estimates.
- Schedule pushed out due to delay in resolution of wetlands appeal related to Cambridge Contract 12.

CEB Impact

- No impacts identified at this time.

S. 351 BWSC Floatables Control

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Provides environmental benefits*
☑ *Fulfills a regulatory requirement*

To limit the discharge of floatable materials from five BWSC combined sewer outfalls. The project is court mandated, is in accordance with MWRA's approved long-term CSO control plan, and is required to meet DEP water quality standards.

Project History and Background

Floatables control at the five BWSC outfalls included in this project involved the installation of underflow baffles in existing CSO regulator structures. The work was managed by BWSC with MWRA funds and oversight. Design began in December 1998, following completion of an MWRA study on the performance of underflow baffles and a preliminary design report, which was completed in November 1999. All work was completed in 2002.

Scope

Sub-phase	Scope
Design	Design services.
Construction	Installation of underflow baffles at ten BWCS combined sewer outfalls.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$933	$933	$0	$0	$0	$0	$0	$0

Project Status 5/08	100%	Status as % is approximation based on project budget and expenditures. Project is complete.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$933	$933	$0	Mar-02	Mar-02	None	$0	$0	$0

Explanation of Changes

- Project completed.

CEB Impacts

- No impacts identified at this time.

S. 352 Cambridge Floatables Control

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Provides environmental benefits*
☑ *Fulfills a regulatory requirement*

To limit the discharge of floatable materials from eight Cambridge CSO outfalls. This project is court mandated, is in accordance with MWRA's approved long-term CSO control plan, and is required to meet DEP water quality standards.

Project History and Background

Floatables control devices will be installed at each Cambridge-owned CSO outfall on the Charles River and Alewife Brook, primarily using underflow baffles. Floatables control at one location (CAM401A) was completed in 2004. The City of Cambridge is managing the work with MWRA funds and oversight

Scope

Sub-phase	Scope
Design	Design for the City of Cambridge construction contract.
Construction	Installation of floatables control devices at eight combined sewer outfalls.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$3,377	$922	$2,455	$0	$545	$324	$2,455	$0

Project Status 5/08	27.3%	Status as % is approximation based on project budget and expenditures.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$2,855	$3,377	$522	Jun-09	Nov-10	17 mos.	$513	2,455	$1,942

Explanation of Changes

- Budget increase primarily due to revised cost estimates.
- Schedule extended due to delay in resolution of wetlands appeal at Alewife Brook, Cambridge Contract 12.

CEB Impact

- No impacts identified at this time.

S. 356 Fort Point Channel Sewer Separation

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Provides environmental benefits*
☑ *Fulfills a regulatory requirement*
☑ *Extends current asset life*

To minimize CSO discharges to Fort Point Channel by separating combined sewer systems tributary to outfall BOS073 and implementing system optimization measures at BOS072. Implementation of the recommended sewer separation plan will reduce the number of overflows from these outfalls from as many as 23 to zero in a typical year. This project is court mandated, is in accordance with MWRA's approved long-term CSO control plan, and is required to meet DEP water quality standards.

Project History and Background

On August 14, 2003, MWRA received a Certificate from the Secretary of Environmental Affairs accepting the Notice of Project Change that recommended replacing the Fort Point Channel CSO Storage Conduit project (1997 FEIR recommended plan) with a plan for sewer separation and system optimization. On September 17, 2003, the Board of Directors authorized the Executive Director to negotiate related revisions to the Federal Court Order in the Boston Harbor Case. On February 27, 2004, MWRA's motion to revise the court schedule was approved by the Federal Court.

MWRA and BWSC agreed that this project, like other sewer separation projects in the CSO control plan, would be implemented within the MOU and FAA, with BWSC performing final design, construction services and construction and MWRA funding eligible costs. BWSC would also own and operate the separated systems upon construction completion.

The goal of the project is to eliminate CSO discharges in a typical year at outfalls BOS072 and BOS073. On March 30, 2007, BWSC substantially completed construction of the project, in compliance with Schedule Seven. BWSC installed 4,550 linear feet of new storm drain and completed weir raising and floatables controls at the related CSO regulators. BWSC is conducting flow monitoring and hydraulics evaluations to verify that the CSO control goals have been met.

Scope

Sub-phase	Scope
Design	Design services for construction contracts to be bid, awarded and managed by BWSC.
Construction	Construction of approximately 4,550 linear feet of new storm drains and appurtenant structures tributary to outfalls BOS072 and BOS073, managed by BWSC. Relocation of storm runoff connections from the existing combined sewers to the new storm drains and rehabilitation of the existing combined sewers for use as sanitary sewers are also included.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$11,239	$7,663	$3,576	$628	$8,291	$1,118	$2,948	$0

Project Status 5/08	73.8%	Status as % is approximation based on project budget and expenditures. Construction reached substantial completion in March 2007.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**
$8,304	$11,239	$2,935	Mar-07	Mar-07	None	$0	$2,948	$2,948

Explanation of Changes

- Budget and spending increase in part reflects a transfer of funds from South Dorchester Bay Sewer Separation (Commercial Point) for relocation of a BWSC Lower Dorchester Brook Sewer CSO regulator and limited sewer separation work by BWSC that are intended to bring CSO discharges to the Dorchester Brook Conduit and Fort Point Channel into compliance with the long-term levels of control. Also, additional change orders, CS/RI and revised preliminary eligibility estimates.

- No impacts identified at this time.

S. 358 Morrissey Boulevard Drain

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Provides environmental benefits*
☑ *Fulfills a regulatory requirement*

Reroute stormwater from the BOS087 area (and the North Dorchester Bay consolidation storage tunnel) to Savin Cove to increase level of stormwater control to the beaches.

Project History and Background

In April 2001, MWRA filed a Notice of Project Change with MEPA, recommending a reassessment of the overall CSO control approach for North Dorchester Bay and Reserved Channel. The Secretary's Certificate, issued in June 2001, approved the reassessment as scoped by MWRA. MWRA began the reassessment in September 2001, which included updating the planning assumptions and water quality information and evaluating a full range of CSO control goals and technologies. The reassessment was completed in April 2004, when MWRA filed the Supplemental Facilities Plan and Environmental Impact Report for North Dorchester Bay and the Reserved Channel. The revised recommended plan included rerouting stormwater away from the North Dorchester Bay storage tunnel to Savin Hill Cove in storms greater than the 1 year design storm, in order to provide a 5-year level of stormwater control along the South Boston beaches. BWSC began design in June 2005 and commenced the first construction contract in December 2006. BWSC awarded a second and much larger construction contract in July 2007. Construction is scheduled to be complete by June 2009.

Scope

Sub-phase	Scope
Design CS/RI	Design services for construction contracts to be bid, awarded and managed by BWSC.
Construction	Construction of a new storm drain and appurtenant structures along Morrissey Boulevard to Savin Hill Cove.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$36,863	$1,984	$34,879	$12,692	$14,676	$20,392	$22,187	$0

Project Status 5/08	39.8%	Status as % is approximation based on project budget and expenditures. Design began in June 2005 and construction began in December 2006.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$36,890	$36,863	($27)	Jun-09	Jun-09	None	22,397	$22,187	($210)

Explanation of Changes

- Spending change due to revised expenditure forecast.

CEB Impact

- No impacts identified at this time.

S. 359 Reserved Channel Sewer Separation

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Provides environmental benefits*
☑ *Fulfills a regulatory requirement*

To minimize CSO discharges to the Reserved Channel by separating combined sewer systems in an area of South Boston. Implementation of the recommended sewer separation plan will reduce the number of overflows to the Reserved Channel from as many as 37 to 3 in a typical year. This project is court mandated, is in accordance with MWRA's approved long-term CSO control plan, and is required to meet DEP water quality standards.

Project History and Background

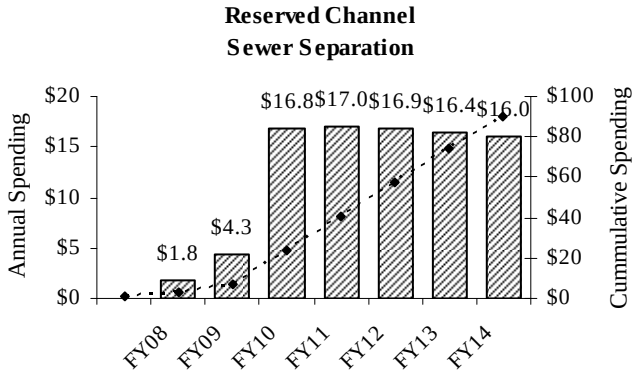
In April 2001, MWRA filed a Notice of Project Change with MEPA, recommending a reassessment of the overall CSO control approach for North Dorchester Bay and the Reserved Channel. The reassessment was completed in April 2004, when MWRA filed the Supplemental Facilities Plan and Environmental Impact Report for North Dorchester Bay and the Reserved Channel, which recommended a new plan for controlling CSO discharges to the Reserved Channel, by separating sewers in a 355 acre drainage area tributary to the Channel. Schedule Seven in the Federal District Court Order requires MWRA, in cooperation with BWSC, to commence design by July 2006, commence construction in May 2009 and complete construction in December 2015.

Scope

Sub-phase	Scope
Design CS/RI	Design services managed by BWSC for construction contracts to be bid, awarded and managed by BWSC.
Construction	Construction of new storm drains and appurtenant structures within a 355-acre tributary area to the SBI-NB. Relocation of storm runoff connections from the existing combined sewers to the new storm drains. Rehabilitation of the existing combined sewers for use as sanitary sewers.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$113,835	$902	$112,933	$1,815	$2,717	$4,313	$71,443	$39,675



Project Status 5/08	2.4%	Status as % is approximation based on project budget and expenditures. BWSC began design in July 2006.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**
$59,275	$113,835	$54,560	Dec-15	Dec-15	None	$38,840	$71,443	$36,603

Explanation of Changes

- Budget and spending increase reflects revised cost estimates based on new information from BWSC's preliminary design work into the site-specific conditions and project engineering requirements to complete sewer separation in the Reserved Channel area. The overall congestion of utilities within the roadways, the density of the lots/buildings and the significant pedestrian and vehicular traffic that are expected to be encountered within the project area increases the complexity of construction and will also impact the productivity of the contractor.

CEB Impact

- No impacts identified at this time.

S. 360 Brookline Sewer Separation

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Provides environmental benefits*
☑ *Fulfills a regulatory requirement*

To minimize CSO discharges to the Charles River by separating combined sewer systems in several areas of Brookline. Implementation of the recommended sewer separation plan will reduce the number of overflows to the Charles River. This project is court mandated, is in accordance with MWRA's approved long-term CSO control plan, and is required to meet DEP water quality standards.

Project History and Background

In response to the long-term CSO control plan MWRA recommended in 1997, DEP and EPA issued variances to water quality standards for the Charles River. With the variance, DEP approved (and required implementation of) MWRA's plan for the Charles River Basin, but maintained the water quality standard Class B pending the collection of additional water quality information and the evaluation of higher levels of CSO control. The original variance, issued in October 1998, and subsequent extensions to the variance required MWRA to prepare a report assessing the performance of the upgraded Cottage Farm CSO treatment facility. The report also evaluated the cost and benefit of constructing additional storage at this facility to lower treated discharges to the Basin. MWRA submitted the Cottage Farm CSO Facility Assessment Report to MEPA and DEP in January 2004. While concluding that additional storage at Cottage Farm would not be cost effective, the report also concluded that further CSO control could be achieved through system optimization and inflow removal such as with sewer separation projects already underway or planned by the City of Cambridge and the Town of Brookline. This project will separate several areas of Brookline, totaling 72 acres, where there are remaining combined sewers tributary to MWRA's Charles River Valley Sewer. The project is intended to reduce discharges to the Charles River at the Cottage Farm facility.

Scope

Sub-phase	Scope
Design CS/RI	Design services for construction contracts to be bid, awarded and managed by the Town of Brookline.
Construction	Construction of new storm drains and appurtenant structures within a 72-acre tributary to MWRA's Charles River Valley Sewer, managed by the Town of Brookline.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$23,483	$540	$22,943	$732	$1,272	$2,708	$22,211	$0

Project Status 5/08	5.4%	Status as % is approximation based on project budget and expenditures. The Town of Brookline began design in November 2006 and construction is expected to begin in November 2008.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$9,094	$23,483	$14,389	Jul-13	Jun-12	(13 mos.)	$7,639	$22,211	$14,572

Explanation of Changes

- Budget increased due to revised cost estimates presented in the preliminary design report. Also, St. Mary's Outfall cleaning added to scope.

CEB Impact

- No impacts identified at this time.

S. 361 Bulfinch Triangle Sewer Separation

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Provides environmental benefits*
☑ *Fulfills a regulatory requirement*

To minimize CSO discharges to the Charles River by separating combined sewer systems in several areas of Boston, bounded by North Station, Haymarket Station, North Washington Street, and Cambridge Street. Implementation of the recommended sewer separation plan will reduce the number of overflows to the Charles River. This project is court mandated, is in accordance with MWRA's approved long-term CSO control plan, and is required to meet DEP water quality standards.

Project History and Background

In response to the long-term CSO control plan MWRA recommended in 1997, DEP and EPA issued variances to water quality standards for the Charles River. With the variance, DEP approved (and required implementation of) MWRA's plan for the Charles River Basin, but maintained the water quality standard Class B pending the collection of additional water quality information and the evaluation of higher levels of CSO control. The original variance, issued in October 1998, and subsequent extensions to the variance required MWRA to prepare a report assessing the performance of the upgraded Cottage Farm CSO treatment facility. The report also evaluated the cost and benefit of constructing additional storage at this facility to lower treated discharges to the Basin. MWRA submitted the Cottage Farm CSO Facility Assessment Report to MEPA and DEP in January 2004. While concluding that additional storage at Cottage Farm would not be cost effective, the report also concluded that further CSO control could be achieved through system optimization and inflow removal, such as with sewer separation projects already underway or planned by the City of Cambridge and the Town of Brookline. In 2005, MWRA identified and recommended a set of system optimization measures and inflow removal projects to further reduce treated CSO discharges at Cottage Farm. This project will separate the combined sewers in the area of Boston bounded by North Station, Haymarket Station, North Washington St, and Cambridge St. The project is intended to reduce discharges to the Charles River, reduce overflows to the Prison Point CSO facility and allow BWSC to permanently close outfall BOS049.

Scope

Sub-phase	Scope
Design CS/RI	Design services for construction contracts to be bid, awarded and managed by BWSC.
Construction	Construction to separate the combined sewers in the area of Boston including North Station, Haymarket Station, North Washington St, Cambridge St and immediate environs, managed by BWSC.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$10,236	$182	$10,054	$315	$497	$2,407	$9,739	$0

Project Status 5/08	4.9%	Status as % is approximation based on project budget and expenditures. BWSC began design in August 2006 and construction is expected to begin in August 2008.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**
$4,394	$10,236	$5,842	Jul-13	Dec-14	17 mos.	$3,715	$9,739	$6,024

Explanation of Changes

- Budget increased and schedule changed due to revised construction cost estimate and construction duration.

CEB Impact

- No impacts identified at this time.

S. 324 CSO Planning and Support

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Provides environmental benefits*
☑ *Fulfills a regulatory requirement*

The goals of the CSO Program are to minimize CSO discharges and their impacts, eliminate beach closings caused by CSOs, and maximize the beneficial use of CSO receiving waters, in accordance with national and state CSO policies and in compliance with state water quality standards. This project includes CSO conceptual planning, system master planning, and facilities planning/environmental review. It also includes directly related watershed planning activities, development of short-term CSO control measures (known as System Optimization Plans or SOPs), various as-needed technical support activities, and acquisition of land and easements required for CSO control plan implementation.

Project History and Background

MWRA CSO planning work began in 1986. A revised Final Conceptual Plan and System Master Plan were completed in 1994, and a Final CSO Facilities Plan and Environmental Impact Report were filed with MEPA in August 1997. A MEPA certificate was issued in October 1997. In December 1997, DEP issued water quality determinations that were necessary for final CSO plan approval by DEP and EPA. DEP issued a two-year variance for the Charles River in October 1998 and has extended this variance several times. DEP issued a three-year variance for Alewife Brook and Upper Mystic CSOs in March 1999 and has extended the term of the variance several times. Consultant services have included assistance to MWRA in satisfying variance conditions.

As part of CSO Planning and Support, MWRA provided financial and technical assistance to the Charles River Watershed Association in its watershed planning efforts for the Charles River in the 1990s, known as the IM3 Study. MWRA also funded a portion of the costs of a USGS water quality study of the Charles River Basin. Results of these studies will provide additional technical information to support the reassessment of the appropriateness of the recommended Charles River controls in MWRA's CSO plan. To comply with its requirements under the Charles River CSO variance, in 1999 MWRA began funding USGS efforts to collect updated information on Charles River water quality. Final payments to the Charles River Watershed Association and USGS were made in the fall of 1998 and the fall of 2001, respectively.

The federal court order in the Boston Harbor Case required MWRA to develop, by June 1993, a plan for optimizing the existing combined sewer systems to maximize transport and in-system storage capacities, thereby minimizing CSO discharges prior to developing and implementing a long-term control plan. In June 1993, MWRA completed a report entitled System Optimization Plans for CSO Control, which recommended more than 100 relatively low cost and easily implemented projects to optimize operation of existing systems. The projects were designed and constructed primarily by the CSO communities, pursuant to SOP financial assistance agreements executed between MWRA and each CSO community. Under the agreements, MWRA reimbursed the communities for design and construction costs. SOP work also includes two projects that are part of the long-term plan: Somerville Baffle Manhole Separation and Somerville Floatables Control. Short-term plans for CSO SOPs were completed in 1997 and MWRA obtained regulatory approvals for its long-term plan in 1997 and 1998.

The performance of the sewerage system is constantly improving as CSO and non-CSO projects are completed and as maintenance efforts continue to increase the system's capacity. Updated assessments of the system's hydraulic performance and estimates of CSO discharges based on actual field data are essential to verify the predicted benefits of various CSO-related improvements, to recalibrate the system hydraulic model to reflect updated conditions, and to provide up-to-date information to support CSO planning and design efforts. This project provides for temporary flow metering and other efforts to gather and evaluate new data and track system performance.

Various CSO plan reevaluations and systems assessments have been performed under amendments to the CSO Master Planning contract. These include: reevaluation of the Alewife Brook sewer separation plan; assessment of Cottage Farm CSO Facility performance: reevaluation of the need for the Dorchester Brook In-line Storage Project (not included in the CSO Plan or the CIP); reevaluation of the feasibility of closing MWR010; reassessment of CSO discharges from the Boston Marginal Conduit to reevaluate the need for floatables control; and reevaluation of the cost-effectiveness of the East Boston Branch Sewer Relief project in light of cost increases.

By amendment to the Master Planning contract MWRA also added system modeling services to estimate and report actual CSO discharges on an annual basis (through 2003), in compliance with provisions in MWRA's new NPDES permit.

This project also supports land and easement acquisitions and funds permit costs for all MWRA managed projects in the long-term CSO Control Plan.

Scope

Sub-phase	Scope
Technical Assistance	Preliminary planning services prior to and in support of the 1988-90 Facilities Planning/EIR efforts.
Planning/EIR	Facilities planning and environmental review of CSO control alternatives (1990 Recommended CSO Control Plan).
Master Planning	System inspections, flow monitoring, water quality monitoring, and performance assessments to improve MWRA's understanding of the combined sewer and regional wastewater systems, optimize the performance of the existing systems, and reassess CSO control needs in the context of evolving EPA policy and a system master plan. Development of the 1997 Facilities Plan/EIR and subsequent reassessments of, and revisions to, that plan.
Watershed Planning	External watershed planning efforts that may affect CSO control needs, including the Charles River Watershed Association IM3 Study and ongoing USGS water quality studies.
Modeling	Receiving water quality modeling support to the Master Planning efforts.
SOP Program	Development and implementation of System Optimization Plans for short-term CSO control. Implemented by CSO communities. Also includes funding for Somerville Baffle Manhole Separation in the long-term control plan.
System Assessment	Temporary flow metering and other efforts to gather and evaluate new data on system performance.
Technical Review	Technical assistance for the entire CSO control plan including affordability analysis.
Land/Easements	Acquisition of land and easements for construction of MWRA-implemented projects. Also, permits not covered in design and construction contracts.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$50,191	$42,185	$8,006	$3,065	$7,946	$2,238	$4,437	$504

Project Status 5/08	86.6%	Status as % is approximation based on project budget and expenditures. Master Planning was substantially complete in September 2004. On September 14, 2005, the MWRA Board of Directors approved an MOU with Massport that will govern the Authority's construction on land owned by Massport, including the tunnel mining shaft and the dewatering pump station.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$50,191	$50,191	$0	Jun-20	Jun-20	None	$5,438	$4,437	($1,001)

Explanation of Changes

- Spending shifted in FY09-13 due to revised schedule for easement expenses.

CEB Impact

- No impacts identified at this time.

S. 128 Infiltration/Inflow Local Financial Assistance Program

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Provides environmental benefits*
☑ *Fulfills a regulatory requirement*

Infiltration and inflow (I/I), groundwater and storm water that enter the collection system, contributes significantly to the total wastewater flow treated by MWRA. This depletes capacity that would otherwise be available to transmit sanitary flows, resulting in sewer surcharging, overflows of untreated sewage, more frequent combined sewage overflows, and higher pumping and treatment costs. The I/I Local Financial Assistance Program provides funding assistance for communities to rehabilitate their collection systems with the goal of structurally reducing I/I flows. Funding assistance for local projects complements other MWRA strategies for regional I/I reduction including wastewater metering to support flow based rates, provision of I/I estimates to communities, technical assistance to communities on local projects, regional coordination of I/I policy issues, and interaction with DEP and EPA.

Project History and Background

MWRA's Deer Island Wastewater Treatment Plant receives flow from 43 communities. The collection system encompasses 230 miles of MWRA interceptors and 5,400 miles of community sewers. These sewers are of varying size, shape, age, material, depth, and conditions. All contribute some quantity of infiltration and inflow.

On August 19, 1992, the Board of Directors approved $25 million to fund the initial phase of the I/I Local Financial Assistance Program. On June 28, 1995, the Board approved $38.8 million to fund a second phase of the program. Both Phase1 and 2 funds were distributed as 25% grants and 75% interest-free loans. The Board approved $37 million to fund a third phase of the program on June 24, 1998, an additional $40 million for Phase 4 on June 13, 2001, an additional $40 million for Phase 5 on June 23, 2004, and an additional $40 million for Phase 6 on June 28, 2006. Because the grant/loan ratio was revised for Phase 3, 4, 5 and 6 to 45% grants and 55% interest-free loans, MWRA decided that a community would need to exhaust its available Phase 2 funds prior to becoming eligible for any Phase 3, 4, 5 and 6 allocations. As of June 2006, all Phase 2 funds have been fully utilized by member communities. All program funds are allocated to the 43 member communities based on their share of MWRA's wholesale sewer assessment. Binding commitments for funds are issued by MWRA in the form of Financial Assistance Agreements. Distribution of funds is authorized through FY2015. Through May 2008, MWRA has distributed $63 million in grants and $106 million in no-interest loans to fund 340 separate projects in 43 communities under the I/I Local Financial Assistance Program.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$86,594	$86,507	$87	$5,239	$42,213	($2,341)	($4,085)	($1,068)

Project Distribution Status 5/08	76.7%	Through May 2008, MWRA has distributed $63.4 million in grants and $105.7 million in no-interest loans to fund 340 separate projects in 43 communities under the I/I Local Financial Assistance Program.

Project Repayment Status 5/08	58.4%	Through May 2008 a total of $78.3 million has been repaid by member communities receiving interest-free loans.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**
$86,594	$86,594	$0	Jun-20	Jun-20	None	$17,104	($4,085)	($21,189)

Explanation of Changes

- Spending shift is a result of the timing of member community requests for financial assistance.

CEB Impact

None

Integrated Water Supply Improvement Program

MWRA's Integrated Water Supply Improvement Program is a 10-year, $1.7 billion initiative consisting of a series of projects to protect reservoir watersheds, build new water treatment and transmission facilities, and upgrade distribution storage and MWRA and community pipelines. The program improves each aspect of the water system from the watersheds to the consumer to ensure that high quality water reliably reaches to MWRA customers' taps. The program began in 1995 and the principle components have been completed by 2005. The main program components are as follows:

Watershed Protection The watershed areas around Quabbin and Wachusett Reservoirs are pristine areas with 85% of the land covered in forest or wetlands and about 75% protected from development by direct ownership or development restrictions. MWRA works in partnership with the Department of Conservation and Recreation (DCR) to manage and protect the watersheds. MWRA also finances all the operating and capital expenses for the watershed activities of DCR, including CIP funding for a completed sewer project and on-going land acquisition activities.

MetroWest Water Supply Tunnel The 17-mile-long 14-foot diameter tunnel connects the new John J. Carroll Water Treatment Plant at Walnut Hill in Marlborough to the greater Boston area. It is now the main transmission line moving water into the metropolitan Boston area. Once inspection, repairs and interconnections are complete, the old Hultman Aqueduct will be used in parallel as the back-up transmission link. Construction began on the tunnel in 1986 and the completed tunnel placed in service in October 2003.

John J. Carroll Water Treatment Plant The new water treatment plant in Marlborough began operating in July 2005 and it has a maximum day capacity of 405 million gallons per day. This project consolidates all treatment steps into one plant which uses ozone for primary disinfection because ozone is a strong disinfection agent against pathogens such as *Cryptosporidium* while reducing levels of chlorine disinfection byproducts. The plant also provides corrosion control by adding carbon dioxide and sodium carbonate to raise the water's pH and alkalinity and thus control lead leaching from home plumbing fixtures. The treatment process concludes with fluoridation and residual disinfection with chloramines. A 45 million gallon storage tank on the site allows for daily variation in demand and flexibility in plant operation.

Water Storage Tanks As required by Massachusetts Department of Environmental Protection (DEP) rules, MWRA is building covered storage tanks to replace open distribution storage reservoirs near cities and towns to lessen the risk that contaminants will get into the tap water. A 20 million gallon tank in Stoneham replaced the open Fells Reservoir, two 12.5 million gallon circular tanks in Ludlow replaced the Nash Hill Reservoir and the 20 million gallon Loring Road tank replaced the Weston Reservoir. The largest tank, the 115 million gallon Norumbega Covered Storage Facility replaced the open Norumbega Reservoir in Weston and was placed in full service in 2004. MWRA has completed environmental review of a 20 million gallon tank to replace the currently off-line Blue Hills Reservoir in Quincy and awarded a design/build contract for this project in November 2006. MWRA's Water Master Plan also identifies additional storage facilities that are currently scheduled to be built beyond FY13.

Pipeline Rehabilitation An important component of the overall Integrated Water Supply Improvement Program is focus on the long-term rehabilitation of older, unlined cast iron water mains in the MWRA and community systems. Water in direct contact with the iron surface corrodes through both biological and chemical processes resulting in tuberculation, thus narrowing the pipes and providing surfaces for bacteria growth. These processes also often result in consumer complaints about rusty water. To reap the full value of the other investments in the water system, MWRA decided to replace or rehabilitate the poor quality pipe particularly given that as of 1993, more than 80 percent of MWRA pipes were unlined. Since then, MWRA has been proceeding with a program of replacing or rehabilitating (normally through cleaning and lining) unlined cast iron mains. Furthermore, in 1998, almost half (47%) of community pipes were unlined. In 1999, MWRA created a $250 million zero-interest loan program to encourage and facilitate rehabilitation of local mains.

S. 542 John J. Carroll Water Treatment Plant (JJCWTP)

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Fulfills a regulatory requirement*

To provide high quality drinking water to MWRA customers and to ensure that the water delivered from the Wachusett Reservoir meets the drinking water quality standards established by the federal Safe Drinking Water Act (SDWA). Part of this objective was met by constructing a 405 million-gallon per day (maximum) water ozonation/chloramination treatment plant primarily in Marlborough with portions of the facility located in Southborough and Northborough. Ultraviolet light disinfection facilities will be added to comply with new drinking water facilities.

Project History and Background

MWRA provides drinking water to 2.3 million people in 41 metropolitan Boston communities. The source water supply comes from the Quabbin and Wachusett reservoirs; two large, high quality water bodies in Central Massachusetts. About 50% of the water flowing from the Wachusett Reservoir comes first from the Quabbin Reservoir, the larger reservoir to the west. MWRA received a waiver from filtration requirements for the Quabbin Reservoir in 1991 from the Massachusetts Department of Environmental Protection (Mass DEP), the agency granted primacy to enforce the SDWA by the United States Environmental Protection Agency (USEPA) in Massachusetts.

In June 1993, MWRA negotiated an administrative consent order with DEP setting forth the steps needed to comply with the Surface Water Treatment Rule (SWTR). The consent order required MWRA to find a site, design a filtration plant, and build it, unless MWRA along with MDC could demonstrate to Massachusetts DEP no later than 1998 that the system met the criteria for avoiding filtration and therefore that filtration was not required. After an extensive research and decision-making process, the MWRA Board of Directors voted in October 1998 to request a waiver of the filtration requirements from Mass DEP and to build a new water treatment facility using ozonation with chloramination for the water from Wachusett Reservoir as part of the Integrated Water Supply Improvement Program. The decision recognized that an ozonation/chloramination plant would provide appropriate treatment of the MWRA water supply from Wachusett Reservoir and that adding filtration components costing $180 million to the new plant would not provide as much additional benefit as would using funds to rehabilitate old, unlined cast iron pipes in the MWRA and local distribution systems. As part of the treatment technology decision, MWRA's Board also made a commitment to an expanded program of public health surveillance, financial incentives for communities to target rehabilitation of community pipes, and a full review of the need for further treatment including filtration when the plant was complete.

Mass DEP agreed with the MWRA approach in December 1998 and determined that filtration was not required for the MWRA system. Through the Department of Justice, USEPA sued under its SDWA "overfiling" rights, seeking to require MWRA to build a filtration plant and contending that the SDWA allowed no other option. After an extended trial, on May 5, 2000 Judge Stearns issued his decision that MWRA currently complies with all 11 federal criteria for avoiding filtration under the Surface Water Treatment Rule of the Safe Drinking Water Act. He evaluated the current quality of MWRA water and found MWRA's integrated drinking water improvement program including ozonation treatment technology the better approach to "preserving its safety." He found EPA failed to show that filtration of MWRA water was required either as a matter of cost-benefit or scientific necessity. The judge denied EPA's request for injunctive relief but ordered MWRA to give the Court notice of any future violations of the avoidance criteria to allow the consideration of whether the type of relief requested by USEPA might be necessary. No other order was issued. On July 16, 2001, the U.S. Court of Appeals for the First Circuit affirmed Judge Sterns ruling.

The new John J. Carroll Water Treatment Plant (formerly Walnut Hill Treatment Plant) was placed in service in July 2005. It provides treatment necessary to fully comply with all current drinking water regulations. EPA issued new regulations in January 2006 for microbial protection (Long Term 2 Enhanced Surface Water Treatment Rule) and disinfection byproduct control (Stage 2 Disinfectants/Disinfection Byproducts Rule). MWRA will not need to make

changes to comply with the Stage 2 D/DBP rule, but the LT2ESWT rule will require a second primary disinfectant and a somewhat more stringent inactivation of cryptosporidium than the plant's current design. This project includes the addition of an ultraviolet light disinfection treatment process at the plant to meet requirements of both the D/DBP and LT2ESWT rules.

Scope

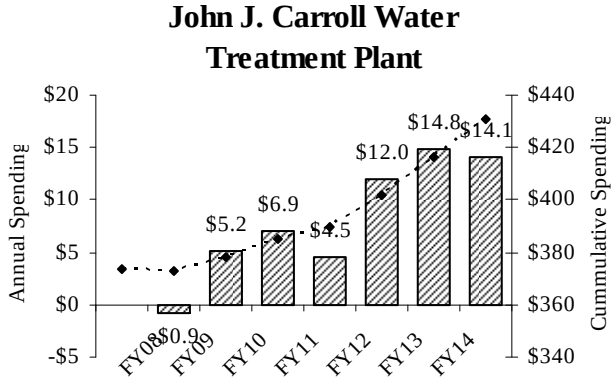
Sub-phase	Scope
Study 1	Investigation of the potential impacts of SDWA amendments on the MWRA system and evaluation of the need, feasibility, and benefits of improved treatment processes.
Study 2	Evaluation of alternative filtration, disinfection, and corrosion control processes to determine the most appropriate for MWRA source waters. Construction and operation of a pilot plant at the Wachusett Reservoir to allow testing of various treatment technique combinations. Identification of potential locations for treatment facilities.
AWWARF Red Water Control Strategy Study	Evaluation of treatment options for eliminating discolored water caused by unlined cast-iron pipe. Also investigation of the fundamental aspects of iron chemistry and corrosion using unlined cast-iron pipe from the MWRA community distribution system.
Emergency Distribution Reservoir Water Management Study	Investigation of potential impacts on the emergency distribution reservoirs resulting from their replacement by new covered distribution reservoirs, and study of ways to maintain their water quality for emergency supply. Norumbega, Weston, Spot Pond, Fells, and Blue Hills Reservoirs have been studied. A pilot study was conducted to evaluate in-reservoir algae treatment for Wachusett Reservoir.
Cryptosporidium Inactivation Study	Determination of the site-specific efficacy of inactivating *Cryptosporidium* in Wachusett Reservoir source water using disinfectant alternatives (chlorine/chloramine and ozone/chloramine), and then development of design criteria for the full-scale disinfection contacting system.
Construction: Cosgrove Disinfection Facility Phases I and II	Construction of the Cosgrove Disinfection Facility. Free chlorine is applied at the Cosgrove Aqueduct to utilize travel time to achieve primary disinfection prior to corrosion control treatment and secondary disinfection.
Immediate Disinfection-MECo	Massachusetts Electric Co. power line installation to support the disinfection process at the Cosgrove Disinfection Facility.
Distribution Water Consultant	To provide technical assistance related to distribution system management.
EIR/Conceptual Design	Environmental reviews, data collection and analyses, and facility designs to support the dual track compliance approach, evaluation of design criteria, site plans, plant hydraulics, and construction of a small-scale demonstration water treatment plant.
Design/CS/RI: Walnut Hill WTP	Design and Engineering Services During Construction for the water treatment plant and associated components.
WHCP1: Wachusett and Cosgrove Intakes	Upgrade of the Cosgrove Intake and powerhouse to allow automatic, unstaffed operation of the facility. Replacement of the valves and piping in the Wachusett Intake is required to allow this facility to serve as a backup water supply.
WHCP2: Interim Aqueduct Rehabilitation	Shotcrete lining of the Wachusett Aqueduct to ensure supply of water continues to greater Boston during modifications to Shaft C and to enable it to serve as a backup to the Cosgrove Tunnel.
WHCP3: Site Work and Storage Tank	Includes clearing and excavation, site access roads, yard piping, and construction of a 45-million gallon storage tank.

Sub-phase	Scope
WHCP4: Treatment Facilities	Construction of ozonation, corrosion control, chloramination operations and emergency generator buildings, modifications to Shafts B and C, and installation of system wide instrumentation from Wachusett Reservoir to Norumbega Reservoir.
WHCP6: Late Site Work	Final grading, landscaping, and paving of treatment facility site.
Design & Construction WHCP7: Existing Facilities Modifications	Modification to and conversion of the Interim Corrosion Control Facility, Cosgrove Disinfection Facility, Transmission Maintenance Facility. These buildings will be converted from water treatment/quality uses to expanded maintenance/storage/warehouse facilities for the new water treatment plant. In addition, the contract includes demolition of old electrical building, some miscellaneous items at Cosgrove Intake Building and replacement of the roof and HVAC system for Water Quality Lab at Southboro. Also, buildings rehab will incorporate achievable LEED (Leadership on Energy & Environmental Design) goals during detail design.
Design Management Support	Professional services and value engineering support to MWRA in review of the water treatment plant design.
Construction Management/RI	Construction management and resident inspection during construction of the water treatment plant.
Cosgrove Disinfection Facility Underwater Improvements	Installation of underwater piping needed to apply sodium hypochlorite at Shaft A.
Community Chlorine Analyzers	Purchase of free chlorine residual analyzers for eight communities to work in association with interim chloramination facilities.
OCIP	Owner Controlled Insurance Program, providing pollution liability, workers' compensation, general liability, and excess loss coverage during construction of the JJCWTP.
Professional Services	As needed legal, insurance, design, and construction specialty services for the John J. Carroll Water Treatment Plant.
Marlborough MOA	Agreement to mitigate the impacts of the construction of the John J. Carroll Water Treatment Plant on Marlborough.
WHWTP – MECo	Relocation of electric power lines.
Site Security Services	Site security services at the John J. Carroll Water Treatment Plant.
CSX Crossing	Railroad track improvements adjacent to JJCWTP.
Wachusett Algae Design and Construction	Design and Construction of automated chemical dispensing system for algae control.
Public Health Research	With the assistance of public health agencies and researchers, evaluation of the public health impact of the water treatment changes that occurred in 2004.
Security Equipment	Design and installation of card access, improved motion and intrusion alarm systems, video surveillance, and monitoring equipment for MWRA facilities.
WHCP8– Cosgrove Screens Design/CS/RI and Construction	Replace existing manual screens with finer automatically controlled traveling screens.
Cosgrove Tunnel Inspection	Inspection of Cosgrove Tunnel while it is inactivated during construction of the connection to the John J. Carroll Water Treatment Plant.
AWWARF-Evaluation Ozone and UV	Study of the effects of ozone and ultraviolet treatment on cryptosporidium to ensure inactivation in Wachusett Reservoir.
Fitout/Construction	Non-construction related items for start-up and operation of the new water treatment plant including furnishings, shop and maintenance equipment, audio/visual supplies, laboratory equipment, and miscellaneous consumable supplies.

Sub-phase	Scope
Walnut Hill Ultra Violet Disinfection Design, and Construction	Design and construction programs to add Ultra Violet (UV) to the JJCWTP.
JJCWTP UV Validation	Validation testing for Ultra Violet reactors.
As-Needed Technical Assistance #1 and #2	As-needed design services to support the start-up of the JJCWTP including electrical engineering, HVAC engineering, mechanical engineering, civil engineering and a variety of geotechnical, environmental, and architectural technical assistance.
Ancillary Modifications Construction 1	Follow-up construction from the As-Needed Technical Assistance contracts.
Ancillary Modifications Construction 2	Address improvements in reliability, optimization of plant performance and/or reduce plant operating costs.
Ancillary Mods Design 3 and 4	Additional As-Needed design services as a follow-up for additional improvements at the John J. Carroll Water Treatment Plant.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$431,085	$373,791	$57,294	($878)	$86,892	$5,173	$43,509	$14,662



Project Status 5/08	86.4%	Status as % is approximation based on project budget and expenditures. WH CP4 Treatment Plant and WH CP6 Late Site Work were substantially complete in July 2005 and January 2006, respectively. The Existing Facilities Modifications draft concept finalization report was received in November 2005 and the project is in design phase. UV Design contract was awarded in April 2008.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$437,668	$431,085	($6,583)	Dec-14	Dec-14	None	$51,965	$43,509	($8,456)

Explanation of Changes

- Cost decrease primarily due to actual award of the Ultra Violet Design ESDC contract being less than anticipated. Also, claim payment received for Wachusett Design CS/RI contract, and Ancillary Modifications Design 3 and 4 budget reduced for estimated As-Needed CEB work.
- Schedule for the WHCP7 Existing Modifications contract pushed out to resolve issues on Concept Finalization Report (CFR) and to address Authority-wide space planning issues. Also, work anticipated to be performed under Ancillary Modifications #1 will now be performed under Ancillary Modifications #2.

CEB Impact

- Estimate $100K for tank cleaning in FY10 and $1.1M for UV licensing fees when new UV facility comes on-line in FY14. Expect $20K for Wachusett Algae Facility in FY15 and $20K in FY16 for utilities.

S. 543 Quabbin Water Treatment Plant

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Fulfills a regulatory requirement*

To improve the quality of drinking water delivered to the Chicopee Valley Aqueduct (CVA) communities of Chicopee, Wilbraham, and South Hadley Fire District No. 1, and to ensure that the water delivered meets the drinking water quality standards established by the federal Safe Drinking Water Act. Improvements to the CVA system thus far have included the construction of covered storage at Nash Hill and construction of disinfection and contact time (CT) monitoring facilities. Design and construction of UV treatment are anticipated in the future.

Project History and Background

MWRA provides water to the three CVA communities under long-term contracts. The three communities pay assessments based on actual capital and operating costs for the CVA system. MWRA expects that these agreements will continue beyond the contract dates. In the event the communities do not choose to extend the contracts, they would be required to reimburse MWRA for the capital investment to improve the CVA system.

Quabbin Reservoir is the source of the water delivered to the CVA communities. Massachusetts DEP has granted a conditional waiver from filtration for Quabbin Reservoir water serving the CVA. MWRA and DEP signed a consent order covering activities to support the continuation of the filtration waiver under the Surface Water Treatment Rule (SWTR) in December 1991. It required new disinfection facilities and the replacement of the open Nash Hill Reservoir with covered storage. The Nash Hill Covered Storage Facilities were constructed and put on-line in March 1999 in compliance with the consent order requirements. In February 1994, MWRA submitted to DEP a consent order schedule for design and construction of permanent disinfection facilities, which were needed to comply with the federal and state drinking water standards. Under the consent order, the approved treatment processes for disinfection were chlorination for primary disinfection, and chloramination for residual disinfection.

The publication of new regulations (Enhanced Surface Water Treatment Rule (ESWTR) and Disinfectant/Disinfection By-Products Rule (D/DBPR)), and discussions regarding a possible *Cryptosporidium* rule raised questions regarding the long-term efficacy of these treatment technologies and whether future modifications would be required. A life cycle cost analysis performed in 1995 as part of an action plan for the CVA system determined that disinfection with chlorine/chloramine was the most cost-effective treatment option, even if the treatment processes had to be upgraded as early as two years later. MWRA issued the notice to proceed for construction of the chlorination and chloramination facilities in November 1998. After commencement of field construction activities in March 1999, citizen opposition arose relative to the sitting of the secondary disinfection facility resulting in the cancellation of construction of the secondary disinfection facility in Ludlow. Instead, MWRA built a CT monitoring station at the Ludlow site. Both the primary disinfection facility and the Ludlow monitoring facility went on-line in summer 2000, in compliance with the consent order schedule, which is now closed out.

EPA issued new regulations in January 2006 (LT2ESWTR and Stage 2 D/DBP, see John J. Carroll Water Treatment Plant project description) that will require cryptosporidium inactivation and the addition of a second primary disinfectant to the CVA system. MWRA conducted an evaluation of the application of ultraviolet technology and determined it was the most cost-effective and efficient upgrade for the system. Design and construction of the addition of UV treatment to the existing Ware Disinfection Facility are included in this project.

Scope

Sub-phase	Scope
Quabbin WTP: Design/CA/RI and Construction	System hydraulics study, design, construction administration, resident inspection, and construction of disinfection and CT monitoring facilities.
Ware Fire Department MOA	"First Responder" training and protective clothing for the Ware Fire Department for Quabbin Disinfection Facility emergency scenarios.
WQ Analysis Equipment	Water quality analysis equipment for the Quabbin Disinfection Facility in Ware.
Quabbin Ultraviolet Water Treatment Plant: Study/Pilot, Design CS/RI, and Construction	Evaluation and implementation of ultraviolet technology at the Quabbin Disinfection Facility to meet new regulations requiring cryptosporidium inactivation and two primary disinfectants for unfiltered systems.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$17,729	$10,144	$7,585	$0	$700	$418	$7,586	$0

Project Status 5/08	57.2%	Status as % is approximation based on project budget and expenditures. Completed disinfection and contact time monitoring facilities in September 2000. The Quabbin Study/Pilot was completed in Dec 2005. Expect to begin Quabbin UVWTP Design CS/RI by September 2008.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$16,085	$17,729	$1,644	Sep-12	Dec-11	(9 mos.)	$5,912	$7,586	$1,674

Explanation of Changes

- Budget increased primarily due to revised UV Design CA/RI cost estimate and inflation adjustment due to new ENR index on UV Construction.

CEB Impact

- Annual incremental operating costs for UV treatment are estimated at $105,000 with impacts beginning in FY2013. Also, $60,000 for UV license fee starting in FY13.

S. 544 Norumbega Covered Storage

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Fulfills a regulatory requirement*
☑ *Improves system operability and reliability*

To help provide high quality drinking water to MWRA customers and to ensure that the water meets the drinking water quality standards established by the federal Safe Drinking Water Act (SDWA) by constructing a 115 million gallon covered storage facility at Norumbega Reservoir.

Project History and Background

Norumbega Reservoir is an uncovered distribution storage reservoir that was connected to the Hultman Aqueduct in Weston. It normally provides active distribution storage and hydraulic control for 100% of the water supplied to the metropolitan Boston area. The reservoir has a capacity of 205 million gallons and a surface area of approximately 40 acres.

DEP, MWRA, and MDC entered into a consent agreement on June 11, 1993 for the Wachusett Reservoir water supply. The consent order requires MWRA to bring Norumbega Reservoir into compliance with state and federal regulations. Based on the fifth amendment to the consent order (dated July 12, 1999), construction of two cells of covered storage facilities must be substantially complete by December 2003. The third tank cell and final site work must be completed by December 2004. MWRA has met these milestones by using a design/build project delivery approach to construct distribution storage, connect to the MetroWest Water Supply Tunnel, and provide associated facilities in the vicinity of Norumbega Reservoir. The project site boundaries on the north, east, south, and west are the Massachusetts Turnpike (Mass Pike), Oak Street, the Hultman Aqueduct right-of-way, and Wellesley Street, respectively.

The primary component of the project is construction of a 115 million gallon reinforced concrete storage tank west of Schenk's Pond, between Norumbega Reservoir and the Mass Pike, on land previously owned by the Town of Weston and the Weston Forest and Trail Association. The tank covers approximately 17 acres, and stores water that has been fully treated at the John J Carroll Water Treatment Plant. Start-up of the new covered reservoir coincided with the start-up of the MetroWest Water Supply Tunnel.

Existing disinfection facilities will be modified for emergency use in the event that it is necessary to draw water directly from the open Norumbega Reservoir and/or Schenck's Pond. Chlorine would be applied at the Norumbega gatehouse during emergency operation.

On January 14, 1998, the Board of Directors authorized staff to proceed with a design/build project delivery approach for the project. The Norumbega Covered Storage Design/Build contract notice to proceed was issued in November 1999. The MWRA took partial utilization of the covered tank in November 2003 and the open reservoir was removed from service in March 2004. The Covered Storage Tank became fully operational in August 2004.

Scope

Sub-phase	Scope
Conceptual Design/EIR	Environmental reviews, data collection and analyses, conceptual designs, and wetland permitting for covered storage at Norumbega Reservoir.
Owner's Representative	Provision of technical program management for the Norumbega covered storage design/build contract procurement, monitoring, and administration.
Design/Build	Design and construction by a single contractor of a 115 million gallon covered storage facility at Norumbega Reservoir.
Land	Land Acquisition for Norumbega Covered Storage.

Sub-phase	Scope
Professional Services	Technical assistance services for the Norumbega Covered Storage project.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$106,684	$105,962	$722	$537	$17,225	$185	$185	$0

Project Status 5/08	99.9%	Status as % is approximation based on project budget and expenditures. The Covered Storage Tank became fully operational in August 2004.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$106,736	$106,684	($52)	Jun-08	Jun-08	None	$11	$185	$174

Explanation of Changes

- Spending pushed out to account for construction warranty period.

CEB Impact

- Assume up to $200,000 per year for tank cleaning and/or maintenance for these tanks and other tanks in the MWRA system. Included incremental cost in FY10. The same general level of spending will be incurred through at least FY20 for all Buried Water Tanks (Norumbega, Loring Road, Blue Hills, Nash Hill, Fells, CWTP, Arlington (small), Low Service and Standpipes (DI, Bellevue).

S. 545 Blue Hills Covered Storage

Project Purpose and Benefits

☑ *Improves system operability and reliability*
☑ *Contributes to improved public health*

To ensure sufficient distribution storage for MWRA's Southern High Service Area. Presently, the area relies on the existing open reservoir for non-potable emergency storage, creating the potential for supply disruption and a boil water order if repairs are needed on a major transmission line for Quincy and other communities in the Southern High Service Area. Covered distribution storage will equalize pressure at the extremities of the Southern High pressure zone and provide potable emergency storage in case of unexpected interruptions of supply. New covered storage facilities at the Blue Hills Reservation will have a capacity of 20 million gallons.

Project History and Background

Blue Hills Reservoir was constructed in the 1950's and was removed from active service in 1981 due to contamination from birds and animals. The reservoir is currently used as non-potable emergency supply. MWRA's long-term plan is to provide 320 million gallons of enclosed storage at various locations throughout the waterworks system. This quantity represents approximately one day of maximum demand. A covered storage facility in the Southern High Service Area will equalize water pressure during periods of peak demand and work in conjunction with surface mains and the Chestnut Hill emergency pump station to supply water to the Southern High service area in the event that the Dorchester Tunnel requires repairs. Two 10 million-gallon buried drinking water storage tanks are proposed to be constructed in the east end of the existing Blue Hills Reservoir. In addition, this facility will supply water to Quincy and Milton if the northern portion of Section 22 is shut down because of a break or for repairs. A citizens' working group has been formed to participate in the EIR/Conceptual Design process.

The Blue Hills Working Group was formed in 1997 to review alternatives and met periodically for 3-1/2 years to provide input to the MWRA. MWRA has worked closely with various interested parties to include features that will mitigate environmental impacts and improve the look of the finished site.

MWRA's consultant began conceptual design and environmental assessment activities in April 1997. The Secretary of Environmental Affairs certified the Final Environmental Impact Report as adequate and complete in December 2001. The DEP Commissioner issued a Wetlands Protection Act Variance for the project in November 2003, which was appealed by a citizens group. The wetlands appeal was dismissed by the Superior Court in October 2006 and MWRA awarded a Design/Build contract in November 2006 to complete the project.

Scope

Sub-phase	Scope
EIR/Conceptual Design/OR	Completion of an Environmental Impact Report, Conceptual Design and wetlands permitting. Preparation of Design/Build contract scope and specifications and technical support throughout Design/Build process.
Roadway Resurfacing Design & Construction	Design and Construction for Roadway paving adjacent to the site.
Design/Build Field Oversight	Field oversight and administration of the Design/Build contract will be performed by in-house staff.
Design/Build	Design/Build of a 20 million gallon covered storage facility.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$40,740	$6,639	$34,101	$12,184	$17,542	$10,758	$21,891	$25

Project Status 5/08	41.6%	Status as % is approximation based on project budget and expenditures. Design/Build contract was awarded on November 15, 2006. Contractor progress through June is 44.2%.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$40,427	$40,740	$312	Apr-10	Oct-11	18 mos.	$22,288	$21,891	($397)

Explanation of Changes

- Budget increase due to new subphases added for Roadway Resurfacing Design and Construction.
- Spending shifted based on revised expenditure forecast based on contractor progress.

CEB Impact

- Assume up to $200,000 per year for tank cleaning and/or maintenance for these tanks and other tanks in the MWRA system. Included incremental cost in FY10. The same general level of spending will be incurred through at least FY20 for all Buried Water Tanks (Norumbega, Loring Road, Blue Hills, Nash Hill, Fells, CWTP, Arlington (small), Low Service and Standpipes (DI, Bellevue).

S. 550 Low Service Storage Near Spot Pond

Project Purpose and Benefits

☑ *Contributes to improved public health* ☑ *Improves system operability and reliability*

Master Plan Project ☑ 2008 Priority Rating 2 (see Appendix 3)

A new storage facility is required to meet the state and federal drinking water guidelines and MWRA's goal of providing a one-day supply of storage. With the Weston and Spot Pond Reservoirs removed from service, MWRA no longer meets the one-day supply goal.

Project History and Background

The Low Service System, which supplies 25% of the total metropolitan area demand, formerly had Weston Reservoir at its western end, where water was introduced into the system, and Spot Pond as its terminal reservoir at the northeast extremity. Due to transmission problems caused by old, corroded pipe with significantly reduced carrying capacity, this system gradually ceased to function properly and it became necessary, as a makeshift measure, to break this system into segments and transfer water from high service in order to serve large portions of the Low Service area.

The principal low service mains (Weston Aqueduct Supply Mains, Boston Low, and East and West Spot Pond Mains) are being rehabilitated or replaced, and their capacity is being restored to as-new condition. This makes it possible to restore the integrated low service system. Once Spot Pond is replaced with a covered distribution reservoir it will be possible to operate the system as it was originally designed. The new Weston Covered Storage Facility at Loring Road (constructed as part of the MetroWest Tunnel project) replaced the open Weston Reservoir. Low Service Storage near Spot Pond will replace Spot Pond Reservoir.

The new Low Service Storage near Spot Pond will be approximately 15 feet lower in elevation than the Weston Facility. At night, when water demand is low, the capacity of the Low Service transmission mains will be used to fill the Spot Pond tanks by gravity. During peak demand periods of the day, water will flow into the Low Service System from both Weston and Spot Pond.

At 20 million gallon capacity, the Low Service Storage near Spot Pond will be the same size as that at Loring Road. Just as pressure reducing valves allow the tanks at Loring Road to be filled from the high service Norumbega Covered Storage, it will also be possible to fill the Low Service Storage tank with water reduced in pressure from the high service system. However, this should only be necessary during periods of very high water use when the Low Service Storage tank does not fill at night by gravity.

Scope

Sub-phase	Scope
Environmental Reviews and Conceptual Design	Preliminary engineering for tank siting, environmental reviews and conceptual design.
Design/Build	Design and construction by a single contractor of a 20 million gallon water storage tank.
Owners's Representative	Provision of technical program management for the design/build contract procurement, monitoring, and administration.
Easements/Land Acquisition	To provide adequate land for construction of the water storage tank.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$44,856	$233	$44,623	$0	$0	$0	$1,155	$43,468

Project Status 5/08	0.5%	Status as % is approximation based on project budget and expenditures. Environmental Review and Conceptual Design services expected to begin in July 2011.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$39,456	$44,856	$5,400	Apr-14	Dec-17	44 mos.	$16,692	$1,155	($15,537)

Explanation of Changes

- Budget increase is primarily due to inflation adjustment due to new ENR index on Design/Build contract. Also, revised cost for Owners Representative services.
- Schedule and spending changed due to project priorities and workload.

CEB Impact

- See Blue Hills Covered Storage Project for general impacts for water storage tanks.

S. 604 MetroWest Water Supply Tunnel

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Fulfills a regulatory requirement*
☑ *Extends current asset life*
☑ *Improves system operability and reliability*

To provide transmission redundancy for the Hultman Aqueduct ensuring reliable water delivery and providing sufficient hydraulic capacity to support the new John J. Carroll Water Treatment Plant and covered storage distribution facilities. This project consists of construction of a 17.6-mile deep rock tunnel from Shaft D in Marlborough to Shaft 5 of the City Tunnel in Weston, and to Shaft W in Weston, as well as the construction of a covered storage facility at Loring Road in Weston. Also includes construction of shafts and valve chambers for connections of Shaft 4 in Southborough and to the Norumbega Covered Storage facility.

Project History and Background

Adequate transmission capacity is a critical component of MWRA's Integrated Water Supply Improvement Program. MWRA's water delivery depends on a system of tunnels and aqueducts that transport water from the Quabbin and Wachusett Reservoirs to the distribution reservoirs in western metropolitan Boston. The existing tunnels and aqueducts were deficient in several respects. First, the transmission system was unable to supply sufficient hydraulic capacity during peak flow periods, leading to pressure deficiencies in all high service areas during the summer months. Second, key sections of the transmission system, such as the Hultman Aqueduct and the Southborough Tunnel, rely on a single conduit. In the event of failure of any of the major transmission sections, the remaining waterworks system could not meet the demand for water.

Construction of the MetroWest Water Supply Tunnel and its extension to the Weston Aqueduct Terminal Chamber will provide the critically needed minimum level of transmission redundancy for the Hultman Aqueduct. In the future, enhancements and improvements to the reliability of the City Tunnel and the City Tunnel Extension will be planned as part of the Metropolitan Tunnel Loop project. This will also enhance system maintenance by allowing each major supply conduit to be taken out of service for inspection, cleaning, and repair.

In June 1989, MWRA began engineering work on reconstruction of the Sudbury Aqueduct. On May 9, 1990, the Board of Directors directed staff to put minimum effort into further study of the Sudbury Aqueduct reconstruction alternatives and maximum effort into study of the all-tunnel alternative. The advantages of tunneling included a large reduction in surface activities resulting in a reduced environmental impact, and the potential to obtain a large increase in water transmission capacity to enable the tunnel to supplant the Weston Aqueduct as well as provide redundancy to the Hultman Aqueduct. Other advantages included a higher pressure rating by constructing a tunnel deeper into rock, and the ability to construct along a straight line, reducing the overall length of the project by three miles.

In November 1990, the Board of Directors directed staff to eliminate the planned tunnel from Norumbega Reservoir to the Chestnut Hill Reservoir in favor of connecting to Shaft 5 of the City Tunnel and to the eastern end of the Weston Aqueduct. The connection will allow the Weston Aqueduct and Weston Reservoir to be taken off-line and used only for emergency supply as required by the Safe Drinking Water Act.

In December 1995, the Board of Directors authorized solicitation of bids on the first major construction contract of the MetroWest Tunnel project. In June 1996, a notice to proceed was issued on this contract, beginning the transition from design to construction of the project. In November 2003, the tunnel was placed in service.

In September 2005, the Board of Directors authorized executed an engineering services contract to rehabilitate the existing Hultman Aqueduct and to interconnect the MetroWest Tunnel with the Hultman Aqueduct. In the interim, Valve Chamber E-3 at Southborough was constructed in order to facilitate system operations and the demolition of an existing chlorine building is to be completed in preparation for construction of the interconnections.

Program Elements

The MetroWest Tunnel is 17.6 miles long with a 14-feet finished diameter. The first segment of the tunnel extends from the water treatment plant site at Walnut Hill on the Marlborough/Southborough line to Shaft 4 of the Hultman Aqueduct in Southborough. From there, the tunnel continues to a "WYE" connection east of Norumbega Reservoir, and continues east from the "WYE" to Shaft 5 of the City Tunnel and northward to the Weston Aqueduct Terminal Chamber. The tunnel depth varies from 200 to 500 feet below ground surface along the alignment.

With the MetroWest Tunnel and the John Carroll Water Treatment Plant now in service, the Hultman Aqueduct will be inspected and rehabilitated. Surface distribution facilities, including piping, valve chambers, and risers will connect the tunnel to the Hultman Aqueduct and local community services. Intermediate connections between the MetroWest Tunnel and the Hultman Aqueduct will permit operation of segments of either the aqueduct or the tunnel interchangeably, allowing flexibility in the maintenance of the two conduits.

Scope

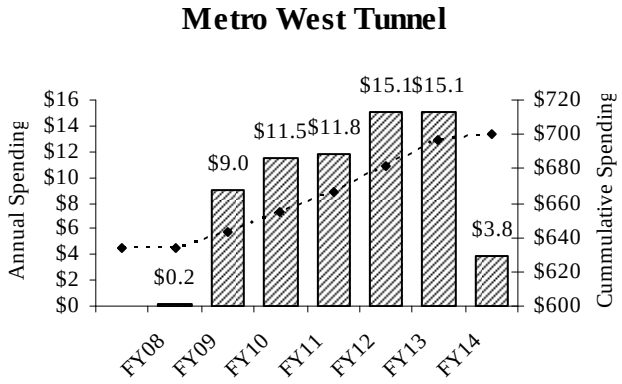
Sub-phase	Scope
Study	Study of the aqueduct/tunnel system to determine the best alternative to improve hydraulic capacity and create redundancy.
Construction-Sudbury Pipe Bridge	Rehabilitation of the Siphon Pipe Bridge at the Weston Aqueduct which experienced significant leakage.
Design/EIR-Tunnel-Engineering Services During Construction	Environmental impact report (EIR) process and design of the 17.6-mile long, 14-feet diameter tunnel. Construction support services, including environmental and safety compliance, claims assistance, contract administration, quality assurance testing, and community relations.
Construction: Western Tunnel Segment – CP1	Construction of the western portion of the tunnel and associated surface facilities. Shaft E was constructed at the Sudbury Dam and a tunnel was excavated 4.9 miles to Shaft D, located adjacent to the clear well of the Walnut Hill Water Treatment Plant (WHWTP). A riser shaft has been excavated to connect the tunnel to Southborough's Hosmer Pump Station and includes the surface piping facilities necessary to bring water from the Wachusett Reservoir.
Construction: Middle Tunnel Segment – CP2	Construction of approximately 11.9 miles of tunnel between Southborough and Weston. Construction was staged from Shaft L, located at a sand and gravel pit in Framingham, where a permanent connection to the Hultman will be constructed. Along the alignment, four small-diameter shafts have been constructed for community connections to Framingham and Weston. The western reach of the Middle Tunnel Segment portion of the tunnel terminates at Shaft E. The eastern reach terminates at the "WYE" where it meets the East Tunnel Segment. Shafts NE and NW will be constructed on the northwest side of Norumbega Reservoir where surface work will include construction of valve chambers and surface piping to allow connections to the Hultman Aqueduct and Norumbega Reservoir. The design at Shaft N includes provisions for future connections to the Norumbega Covered Storage Facility and the proposed Metropolitan Tunnel Loop.
Construction: Shaft 5A- CP3	Shaft 5A was excavated near the intersection of Route 128 and the Massachusetts Turnpike.
Construction: Eastern Tunnel Segment – CP3A	Construction of the eastern portion of the tunnel. An approximately 4,400-feet long, 12-feet finished diameter tunnel was constructed from the Shaft 5A bottom through the “WYE” where it meets the Middle Tunnel Segment and on to Shaft W where a shaft connection to the Loring Road storage tanks was made.

Sub-phase	Scope
Construction: MHD Salt Sheds – CP5	Massachusetts Highway Department (MHD) salt storage operations were relocated from the Shaft 5A site to a new, nearby location on MHD property on Recreation Road in Weston. This allowed demolition of the MHD salt sheds at the Shaft 5A site.
Testing and Disinfection – CP7	Pressure testing of the MWWST from Shaft E (west) to Shaft W and 5A, and disinfection and dechlorination of the entire tunnel from Shaft D to Shafts W and 5A, and final disinfection of the Norumbega Covered Storage tanks. Also includes the disinfection and dechlorination of the Wachusett Aqueduct and the piping connections through Walnut Hill to MetroWest Shaft D.
Construction: Loring Road Covered Storage-CP8	Construction of surface facilities at the Shaft W site including a 20 million-gallon storage facility that replaces the function of the existing Weston Aqueduct/Weston Reservoir system, allowing the system to be taken off-line and placed on emergency stand-by status. The storage facility has been constructed as two concrete tanks partially buried in a hillside adjacent to Shaft W. Connections will be made under this contract at Shaft W to two WASM (1 and 2) low service mains and the WASM 4 high service main, as well as to the 7-feet diameter branch of the Hultman Aqueduct. Also includes rehabilitation of 4,100 linear feet of 60-inch pipe and four master meters.
Construction Management/RI	Full inspection of all construction activity, as well as provision of construction support services including environmental and safety compliance, claims assistance, contract administration, quality assurance testing, community relations, labor relations, engineering services during construction, and provision of technical assistance.
Hultman Study	Risk analyses to determine which leaks should be repaired now and a monitoring plan for leaks which presently do not threaten the integrity of the aqueduct.
Hultman Leak Repair	Test pit excavation and leak repair on the Hultman Aqueduct.
Hultman Repair Bands	Purchase of external repair bands to be installed as part of Hultman investigation and repair.
Hultman Investigation and Repair	Evaluation of various segments of the Hultman Aqueduct and installation of repair bands at major leak sites.
Land Acquisition	Easements along the 17.5-mile tunnel construction route, as well as land at the Shaft W and Shaft L sites.
Professional Services	Services such as construction safety, contractor audit, legal services, risk management consulting services, and other miscellaneous services.
Framingham MOU	Agreement to mitigate the impacts of the construction on the City of Framingham.
Weston MOU	Agreement to mitigate the impacts of the construction on the Town of Weston.
Southborough MOU	Agreement to mitigate the impacts of the construction on the Town of Southborough.
Local Water Supply Contingency Design/CA/RI and Construction	Design and implementation of a Water Supply Contingency Plan including the installation of new local mains where residential well supplies could be affected by tunnel construction.
Community Technical Assistance	Funds to assist communities with the redesign of utility plans.
Owner Controlled Insurance	Owner controlled insurance program providing workers' compensation, general liability, and pollution liability insurance for MetroWest construction.

Sub-phase	Scope
Design CA/RI Hultman Interconnect CP6	Design CA/RI of the interconnections between the MetroWest Water Supply Tunnel and the Hultman Aqueduct as well as inspection of the Southboro Tunnel and rehabilitation of the Hultman Aqueduct.
Construction: Hultman CP9	Construction of Valve Chamber E-3.
Interim Disinfection	Temporary disinfection related to CP-7 sub-phase.
Equipment prepurchase	Prepurchased one 10-foot diameter butterfly valve for installation in Valve Chamber E3.
Construction CP6ALower Hultman Rehab. and 6B Upper Hultman Rehab.	Construction of interconnections between Metrowest Tunnel and the Hultman Aqueduct, and rehabilitation of Hultman Aqueduct including replacement or repair of air relief structures, blow off valves, culverts beneath the aqueduct; replacement of existing valves; and additional items to restore the aqueduct to safe and efficient operation after 60 years of service without an overhaul.
Construction 6A Demolition	Demolition of existing chlorine storage building to allow for construction of a new valve chamber on the Hultman Aqueduct.
CP6 Easements	Easements for CP-6 Contract.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$700,101	$633,558	$66,543	$230	$19,723	$8,970	$62,391	$3,922



Project Status 5/08	90.5%	Status as % is approximation based on project budget and expenditures. Placed Metrowest Tunnel into service in November 2003. Awarded Hultman Interconnect Final Design/CA contract in September 2005 and Hultman Rehab CP9 was completed in December 2006. Expect Lower Hultman CP6A contract to now be awarded in early FY09.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**
$698,025	$700,101	$2,076	Apr-13	Jul-13	3 mos.	$63,752	$62,391	($1,361)

Explanation of Changes

- Budget increased primarily due to inflation adjustment for CP-6B based on new ENR index. Also, OCIP claim settlement.
- Spending shifted primarily due to revised schedule for CP6-A.

CEB Impact

- No additional costs identified at this time.

S. 615 Chicopee Valley Aqueduct Redundancy

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Extends current asset life*
☑ *Improves system operability and reliability*

To provide redundancy for water service for the three communities supplied by the Chicopee Valley Aqueduct (CVA) in case of a CVA failure or shutdown.

Project History and Background

The Chicopee Valley Aqueduct (CVA) supplies water to South Hadley Fire District No. 1, Chicopee, and Wilbraham. The 48-inch and 36-inch diameter aqueduct was built in 1949 of reinforced concrete pipe with an embedded steel cylinder. It is the only means of supplying these communities with water. The capacity of the aqueduct is 23 million gallons per day, which is sufficient to meet the communities' peak summer demand. It is currently not possible to perform routine maintenance without disrupting supply to these communities. If supply through the CVA were shut off upstream of Nash Hill Covered Storage, Chicopee would be without water after two days, and South Hadley and Wilbraham would be without water even sooner. If the CVA were shut off downstream of Nash Hill Covered Storage, Chicopee would be immediately without water supply.

New construction under this project consists of a 8,100 feet long second barrel of the CVA from Nash Hill Covered Storage to Chicopee of 30-inch diameter pipe; 3,100 feet of 16-inch redundant pipeline between the Nash Hill Covered Storage and the South Hadley takeoff; and 2,400 feet of 20-inch redundant pipeline between the Route 21 Valve Chamber and the Wilbraham takeoff, new fire tanker hookups within the three host communities of Ludlow, Ware, and Belchertown, and two emergency mutual aid interconnections between the CVA system and the Springfield Water & Sewer Commission system in Ludlow. With these new pipelines in place, the three communities will be connected to Quabbin Reservoir, Nash Hill Covered Storage, or both in the event of a failure anywhere along the length of the aqueduct. Construction also includes rehabilitation of the Bondsville throttling station and the Route 21 Valve Chamber. This project will also provide additional mainline valves along the aqueduct that will help isolate manageable segments of the CVA; and rehabilitate appurtenances such as meters, air valves, and blow-off valves.

Scope

Sub-phase	Scope
Pipeline Redundancy – Planning	In-house planning of redundant pipelines and aqueducts for Chicopee, South Hadley Fire District # 1, and Wilbraham.
Pipeline Redundancy – Design and Construction	Design, construction administration, resident inspection, and construction for CVA redundancy facilities.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$8,914	$6,725	$2,189	$2,096	$7,998	$92	$92	$0

Project Status 5/08	95.8%	Status as % is approximation based on project budget and expenditures. Construction was substantially complete in April 2008.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**
$8,807	$8,914	$107	Oct-07	Apr-08	6 mos.	$0	$92	$92

Explanation of Changes

- Budget and spending increased due to additional change orders and design time extension.

CEB Impact

- None identified at this time.

S. 597 Winsor Dam Hydroelectric

Project Purpose and Benefits

☑ *Extends current asset life* ☑ *Results in a net reduction in operating costs*

Master Plan Project ☑ 2008 Priority Rating 1 (See Appendix 3)

To license and rehabilitate the turbine generator at the Winsor Power Station in Belchertown to produce hydroelectric power to be used to sell to the electric grid, or to potentially provide power to other MWRA facilities. Also, to consider station piping improvements which would allow water to go to the Swift River without going through the isolation valve. Quabbin Release Pipeline work is also included.

Project History and Background

Winsor Dam impounds the Quabbin Reservoir. At the dam, an intake feeds two conduits that are interconnected at a powerhouse below the dam. One conduit discharges to the Chicopee Valley Aqueduct; the other conduit feeds a hydroelectric turbine/generator unit that is inoperative due to a fire in 1991 that destroyed the electrical switchgear. A bypass valve at the Winsor powerhouse also allows flow to be discharged directly to the Swift River.

Around the time that the fire occurred, hydropower re-development was not a priority given the low value of energy and the capital costs of station rehabilitation (in addition to switchgear replacement, turbine/generator repairs were also required). Another factor that forestalled hydropower development was that the Winsor dam hydroelectric facilities were never licensed by the Federal Energy Regulatory Commission (FERC). Shortly before the fire occurred, FERC directed MWRA to license the facilities. Given that the Swift River hosts a valued trout fishery, fishery concerns promised to complicate an already onerous federal licensing process.

Efforts to rehabilitate the Winsor hydropower facilities began in 1995 when MWRA obtained a preliminary permit from FERC, the first step in the FERC process. The FERC preliminary permit secures the applicant a priority position to file a license application for development - it does not authorize development, however. The permit's conditions required MWRA to consult with resource agencies and to conduct environmental and engineering studies to assess the project's feasibility and to support a license application. Therefore, MWRA consulted with resource agencies and conducted a number of environmental studies required for a license application. Some specialized fisheries studies were conducted by a consultant; various other studies were prepared in-house by MWRA with assistance from MDC staff.

Engineering and economic feasibility studies and concept design were also required to develop information to satisfy FERC's license requirements and to develop preliminary cost information to support financial analysis and decisions regarding whether or not to proceed with hydropower re-development. Accordingly, in 1997, MWRA procured the services of Duke Engineering and Services (DE&S) to conduct certain technical evaluations.

The first phase of work was completed in mid-1998. DE&S evaluated two alternatives for redeveloping Winsor Dam hydropower facilities. The study found that it would be feasible to 1) rehabilitate the existing turbine/generator; or 2) install a new turbine generator that would operate at higher efficiencies due to modern technology and a design optimized for minimum flow conditions and 24-hour/day operations.

The hydroelectric subphase includes monies for an updated feasibility study to address permitting and energy economics. If restoration of the hydroelectric operation is viable, the project will continue with permitting, technical design, and ESDC.

The water supply infrastructure within the Winsor Power Station is in need of major repair and upgrade as much of it is over 75 years old. Several other subphases are needed to address the extensive work on the Quabbin Transmission System and the Swift River bypasses. These subphases include:

- Winsor Power Station Chapman Valve Repair & Purchase of Sleeve Valves: Immediate replacement of the existing damaged Chapman Valve with sleeve valves.
- Pipeline Replacement Phase 1 – To repair and upgrade large-diameter piping and valving in the basement of the Winsor Power Station including the bypasses;
- Shaft 12 Quabbin Aqueduct Sluice Gates- To replace the antiquated and unreliable shutter system with a sluice gate to control flow at the intake to the Quabbin Aqueduct on the shores of Quabbin Reservoir;
- Quabbin Release Pipeline- To convey cold, well-oxygenated hypolimnetic water from Quabbin Reservoir to the downstream trout hatchery via a new pipeline.

Scope

Sub-phase	Scope
Preliminary Permit Study	Study to determine project feasibility.
Licensing and Detail Design (potentially by design/builder)	Licensing and detail design for hydropower at the Winsor Dam. Work will include replacing switchgear, controls, and turbines.
Construction	Replacement or refurbishment of the hydroelectric generator.
Winsor Power Station Pipeline Replacement Construction Ph1	Construction to address Phase 1 station piping improvements for water supply and Swift River bypasses.
Shaft 12 Quabbin Aqueduct Sluice Gates/Winsor Pipe Design Ph 1 and Shaft 12 Sluice Gate Construction	Installation of a sluice gate to control flow at Shaft 12, the intake to the Quabbin Aqueduct, thereby improving safety and reliability of the transmission system. Also, design to address Phase 1 station piping improvements for water supply and Swift River bypasses.
Quabbin Release Pipeline Design and Construction	Design and construction of a pipeline to convey water from the Winsor Power Station to the downstream trout hatchery.
Winsor Power St. Chapman Valve Repair	Construction of replacement valving for the existing 36” Chapman BFV (design by Technical Assistance consultant).
Purchase of Sleeve Valves	For replacing the damaged Chapman BFV.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$15,081	$38	$15,043	$0	$0	$656	$15,021	$21

Project Status 5/08	0.5%	Status as % is approximation based on project budget and expenditures. Expect Design to commence by January 2009 for Shaft 12 Quabbin Aqueduct Sluice Gate/Winsor Pipe and Hydro Design. Also, repair Winsor Power St. Chapman Valve in October 2008.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**
$11,372	$15,081	$3,709	Jun-12	Oct-12	4 mos.	$11,083	$15,021	$3,938

Explanation of Changes

- Budget and spending increase due to revised cost estimates for Shaft 12 Quabbin Aqueduct Sluice Gates and Winsor Power Station Pipe Design and Construction subphases based on June 2007 Quabbin Transmission Facilities Report. Also, purchase of sleeve valves added as new subphase.

CEB Impact

- None identified at this time.

S. 616 Quabbin Transmission Rehabilitation

Project Purpose and Benefits

☑ *Provides environmental benefits*
☑ *Extends current asset life*
☑ *Improves system operability and reliability*

To ensure continued reliable delivery of high quality water to MWRA customer communities through inspection, evaluations, and rehabilitation of the aging transmission system. Many of the transmission facilities and structures were constructed in the 1930s and 1940s and are in need of repair, routine maintenance, updating, and modifications for code compliance, health and safety, and security. The hydraulic control facilities of the Quabbin Tunnel are 70 to 80 years old and badly in need of renewal and upgrade. Based on the findings and recommendations of this inspection phase, MWRA will add design and construction phases at a later date.

Project History and Background

This project will initially provide an engineering assessment of key water transmission facilities, structures and operations. Many of the 44 facilities were constructed in the 1930s and 1940s and are in need of repairs, routine maintenance, and modifications for code compliance, health and safety, and security. The facilities and structures include dams and spillways, structures on tops of shafts, hydraulic diversion facilities, gatehouses, intake buildings, service buildings, and garages. The facilities are spread over a large geographic area ranging from Quabbin Reservoir eastward to the Boston Metropolitan area.

The engineering assessment will utilize existing information and site visits to inventory the condition of each facility. The work will yield a facility report that identifies existing conditions and provides recommendations for needed improvements, rehabilitation, and repairs. The project will also result in the development of a conceptual design for each facility including alternatives, basic design criteria, cost estimates, required permits, and schedules. MWRA will use the final conceptual design reports to develop a detailed scope of work for the future procurement of engineering services for subsequent design, construction administration, and resident inspection services. Staff will integrate and coordinate project findings with MWRA's current master planning efforts.

One critical component of the Quabbin Tunnel, the pressure-reducing valves at the Oakdale Power Station, has already been targeted for immediate replacement. These valves are in poor condition. Due to their important function of reducing hydraulic head to allow water from the Quabbin Reservoir to flow into Wachusett Reservoir, replacement of the Oakdale Valves is a high priority.

Scope - New subphases added to the FY09 CIP are noted in **Bold.**

Sub-phase	Scope
Facilities Inspection	Assessment of existing conditions; update of infrastructure rehabilitation evaluation; identification of improvements/repairs/upgrades, establishment of priorities for repairs, and preparation of cost estimates.
Oakdale Valves Phase 1	Study, design, and construction for the rehabilitation/replacement of two valves and miscellaneous support equipment at the Oakdale facility.
Equipment Pre-Purchase	The two large butterfly valves (84 inch and 72 inch) and the fixed orifice valve (48 inch) that will be needed in Phase I Valve Rehabilitation, require 6 to 10 months to fabricate and must be pre-purchased so the valves will be available for installation.
Oakdale Phase 1A Electrical Design & Construction	Upgrade the 60 year old Oakdale electrical control systems & the switchyard which are antiquated and unsafe to personnel. Will lower the voltage from 2,200 to 480.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$7,780	$4,181	$3,599	$478	$4,659	$49	$3,114	$6

Project Status 5/08	56.9%	Status as % is approximation based on project budget and expenditures. Valves were received in February 2006 and Phase I Design was substantially complete in June 2007. Phase 1A Electrical Design phase anticipated to start in FY10.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$4,702	$7,780	$3,077	Oct-07	Oct-12	60 mos.	$5	$3,114	$3,109

Explanation of Changes

- Budget, schedule and spending increase due to addition of Oakdale Phase 1A Electrical Design and Construction as new subphases.

CEB Impact

- None identified at this time.

S. 617 Sudbury Aqueduct Repairs

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Extends current asset life*
☑ *Improves system operability and reliability*

To ensure continued reliable delivery of high quality water to MWRA customer communities through study, design, and implementation of repairs to the Sudbury and Weston Aqueducts. These backup systems are both more than 100 years old, and need to be ready for emergency use.

Project History and Background

This project includes the inspection of the Sudbury Aqueduct in preparation for future repairs. This aqueduct is 120 years old and is in need of renewal and upgrade. This is a critical back-up facility for the City Tunnel and the Sudbury Reservoir emergency supply. The inspection phase of the Sudbury Aqueduct was conducted in 2006. The Inspection Report identified several short-term repairs required to prepare the aqueduct for short-term use. The design of these repairs is now needed.

This project will also fund inspections of the Weston Aqueduct which is more than 100 years old. The results of the inspection will allow MWRA to evaluate and prioritize future construction and repair work for this aqueduct.

Scope

Sub-phase	Scope
Hazardous Materials	Remove contaminated sediment from aqueduct.
Sudbury Aqueduct Inspection	Inspection of the Sudbury Aqueduct to identify need for future repair work.
Sudbury Short-Term Repairs Design and Construction	Repairs needed in order to prepare the Sudbury Aqueduct for short-term use (flow test and emergency activation). Recent study indicated several issues need to be addressed before any short–term use.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$3,236	$635	$2,601	$160	$535	$0	$2,442	$0

Project Status 5/08	19.6%	Status as % is approximation based on project budget and expenditures. Inspection of Sudbury Aqueduct was completed in October 2006. Short Term Repairs and Weston Aqueduct Inspection is expected to begin in FY10.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**
$4,442	$3,236	($1,206)	Oct-09	Dec-10	14 mos.	$3,398	$2,442	($956)

Explanation of Changes

- Budget decreased for Sudbury Short-Term Repairs since Rosemary Brook cleaning was done by In-House staff. Also Sudbury Aqueduct Repairs design will be done in-house.
- Schedule shift due to extending Sudbury Short-Term Repairs one year to complete in-house cleaning of Rosemary Brook siphon and design of short-term repairs.
- Spending decreased due to budget and schedule changes noted above.

CEB Impact

- None identified at this time.

S. 620 Wachusett Reservoir Spillway Improvements/Winsor Dam Repair

Project Purpose and Benefit

☑ *Extends current asset life*
☑ *Improves system operability and/or reliability.*

Project will provide the necessary spillway improvements to the Wachusett Reservoir Dam including replacing the existing flashboards with motorized gate for regulating the reservoir water level and improving its storage capacity. This project will also repair the Winsor Dam drainage system to include upgrading the existing 24" corrugated metal pipe (CMP) and the 24" clay tile pipe to improve surface drainage and its water quality discharged into the Swift River.

Project History and Background

The Winsor Dam (Quabbin Reservoir) and the Wachusett Reservoir Dam are more than 60 and 100 years old respectively. Previously they were under the care and control of the Department of Conservation and Recreation (DCR), formerly the Metropolitan District Commission (MDC). However, MWRA assumed responsibility for capital improvements to this facility as of April 2004 per legislative approval of a Memorandum of Understanding between the MWRA and the Massachusetts DCR. This project will upgrade the existing flashboards that regulate the reservoir water level and improve its water storage capacity at the Wachusett reservoir, and rehabilitate the existing drainage system at the downstream of Winsor Dam.

The Wachusett Reservoir Dam is part of the major dam system that will be inspected, tested and repaired if necessary under a separate project. However, more urgently, its spillway and dike on the north side of the reservoir have shown signs of wear and tear since the early 1990s. In 1992, the DCR had contracted GZA Consultant to design the needed repairs to the dike as well as a series of mechanically operated gates to replace the old flashboards (100 ft lower section) that are used to regulate the reservoir level and to control flood. However, DCR postponed this project due to difficulty in issuing bonds to finance the work.

The scope of the Wachusett Reservoir Spillway portion of this project includes inspection and reassessment of the conditions for the entire spillway (100 ft lower section as well as 350 ft upper section) and the North Dike, and review of the existing Hydraulics & Hydrology study. Based on the H&H study results it will ensure that the auxiliary spillway channel will, together with the existing spillway, be able to pass the maximum probable flood (MPF). Also, included is design for the installation of the crest gate and piezometers. It also covers review and revision of the twelve (12) year old design as necessary to bring the existing design plans and specifications up to date for construction.

The Winsor Dam Repair portion of this project provides a review of the recently completed existing design specifications and drawings that were produced by the DCR. Work includes re-pointing to the main spillway, repair or replacing the drainage system and installing piezometers for monitoring any dam seepage.

Scope

Sub-phase	Scope
Design and Construction	Covers inspection and reassessment of the design and including Engineering Services during Construction (ESDC) and Resident Inspection (RI) for the rehabilitation of the spillway and dike at the Wachusett Reservoir and the drainage system at the Quabbin Reservoir.
Equipment Pre-Purchase	Pre-purchase the Wachusett Crest Gate so that it will be fabricated and delivered in time for installation by the construction contractor.
Cosgrove and Shaft A PCB Removal	Covers remediation of PCB contaminated materials at the Cosgrove Intake and Shaft A. Phase 2
Wachusett Dam PCB Removal	Covers remediation of PCB contaminated materials on the dam crest, and providing new water proofing and new concrete top slab of the dam.
Phase 2 PCB Material Remediation	Will remediate PCB material that has migrated to the downstream dam face and into the soil at the toe of the dam.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$15,489	$1,325	$14,164	$6,914	$8,239	$5,491	$7,250	$0

Project Status 5/08	45.8%	Status as % is approximation based on project budget and expenditures. Design contract was awarded in January 2006. Construction commenced in May 2007. Cosgrove and Shaft A PCB Removal work began in October 2007. Wachusett Dam PCB Removal began in November 2007.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$14,251	$15,489	$1,238	Nov-08	Nov-09	12 mos.	$6,113	$7,250	$1,137

Explanation of Changes

- Budget increase due to amendment to complete Phase 2 of the PCB Remediation Plan. Also, additional design efforts identified in Phase 1 in the event that ongoing investigations reveal further contamination. The increase is also due to Cosgrove and Shaft A PCB actual award being greater than original budget. The PCB Contamination Removal Phase 2 was subsequently repackaged and broken out into a separate subphase with a net increase in cost.
- Schedule and spending changes primarily due to the repackaging and of PCB Source Removal Phase 2.

CEB Impact

- None identified at this time.

S. 621 Watershed Land

Project Purpose and Benefit

☑ *Fulfills regulatory requirement.*
☑ *Provides water quality benefits.*
☑ *Continues to improve public health.*

Acquire, in the name of the Commonwealth, parcels of real estate or interests in real estate that are important or critical to the maintenance of water quality in MWRA water supply sources and the advancement of watershed protection.

Project History and Background

The Watershed Protection Act (WsPA) regulates land use and activities within critical areas of the Quabbin Reservoir, Ware River and Wachusett Reservoir watersheds for the purpose of protecting the quality of drinking water. Since the passage of WsPA in 1992, watershed lands had been purchased by the Commonwealth through its bond proceeds. The MWRA was then billed for and, over the years, paid increasing percentages of the debt service on those bonds, eventually reaching 100% of the debt service. MWRA also makes Payments In Lieu of Taxes (Pilot) to each watershed community for the land owned for water supply protection.

Since 1992, land acquisition has evolved into program-status and is a significant component of the Watershed Protection Plans for Quabbin Reservoir/Ware River and Wachusett Reservoir. Land in the watersheds undergoes analysis by the Land Acquisition Panel (LAP), which is comprised of Department of Conservation and Recreation (DCR) and MWRA staff. The LAP analyzes critical criteria for protection of the source water resources, including presence of streams and aquifers, steep slopes, forest cover, and proximity to the reservoirs. Parcels are ranked as to their value to the water supply system and, when the desirable parcels become available, are pursued through the LAP for acquisition through a "friendly taking" in fee or conservation restriction. LAP maintains an active list of parcels to pursue as seller and LAP interest, and funding availability, exist to support acquisition.

Under the revised Memorandum of Understanding between MWRA and DCR, executed April 2004, MWRA will utilize its own bond issuances for the purpose of acquiring, in the name of the Commonwealth, parcels of real estate or interests in real estate for the purpose of watershed protection. At its December 15th meeting, the MWRA Board of Directors approved the use of MWRA bond proceeds for such purpose.

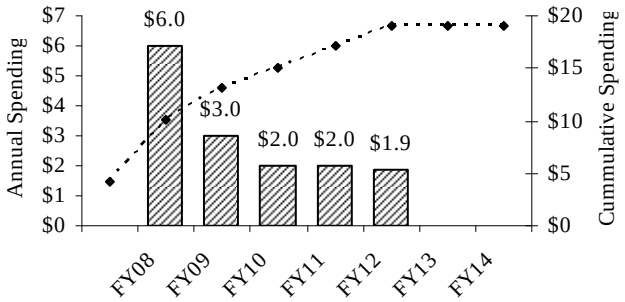
Scope

Sub-phase	Scope
Land Acquisition	Acquire parcels of real estate or interests in real estate critical to protection of the watershed and source water quality.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$19,000	4,116	$14,884	$6,000	$10,116	$3,000	$8,884	$0

Watershed Land



Project Status 5/08	27.5%	Status as % is approximation based on project budget and expenditures. MWRA began purchasing land in FY07.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**
$19,000	$19,000	$0	Jun-12	Jun-12	None	8,000	$8,884	$884

Explanation of Changes

- Spending changed due to revised timing of land purchases.

CEB Impact

- None identified at this time.

S. 623 Dam Projects

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Provides environmental benefits*
☑ *Extends current asset life*
☑ *Results in a net reduction in operating costs*
☑ *Improves system operability and reliability*

Master Plan Project ☑ 2008 Priority Rating 2 (See Appendix 3)

To evaluate, design, and make necessary safety modifications and repairs to dams for proper operation as a result of the 2004 MOU between MWRA and DCR.

Project History and Background

Machusetts Dam Safety Regulations, 302 CMR 10, require modifications to the Framingham Reservoir No. 3 (Foss) Dam and the Weston Reservoir Dam to provide a spillway system capable of passing the applicable Spillway Design Flood (SDF) or safely storing this same flood within the reservoir without a spillway or other emergency overflow structure. Based on existing Hydraulics and Hydrology studies for these two dams, Foss Dam will require spillway modifications and a parapet wave wall to pass the SDF while at the much smaller Weston Reservoir, the dam will only require the parapet wave wall to safely contain the SDF.

Additionally, all earthen dams and masonry dams under MWRA responsibility were built in the late 1800 to early 1900 are in need of repairs. Based on ongoing inspections, immediate repairs such as riprap re-setting and replacement, mitigation of erosion features, and addressing mortar loss and consequent minor leakage at gatehouses are necessary at Waban, Chestnut Hill, Sudbury and Reservoir No. 3 dams.

Scope

Sub-phase	Scope
Immediate Repair Dams Design & Repair	Provide Design and ESDC for required Dam Safety Modifications and Repairs. Equip Framingham Reservoir No. 3 (Foss) Dam's existing spillway with a reliable non-mechanical gate system capable of passing Massachusetts' regulatory spillway design flood (SDF). Construct parapet wave walls on dam crests to safely contain the SDF at the Foss and Weston Reservoir Dams. Design required repair measures at the Waban, Sudbury, Foss, and Chestnut Hill Dams and associated gatehouses.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$7,295	$0	$7,295	$0	$0	$0	$6,443	$852

Project Status 5/08	0.0%	Status as % is approximation based on project budget and expenditures. Design phase for Dam Risk is expected to begin in July 2009.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**
$4,529	$7,295	$2,766	Jun-11	Jun-13	24 mos.	$4,299	$6,443	$2,144

Explanation of Changes

- Project cost and spending increased due to revised cost estimates based on Conceptual Design Reports prepared by staff examining Dam Safety Modifications at Foss and Weston Dams.
- Schedule shifted due to project priorities and staff resources.

CEB Impact

- No impacts identified at this time.

S. 625 Long Term Redundancy

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Provides environmental benefits*
☑ *Extends current asset life*
☑ *Results in a net reduction in operating costs*
☑ *Improves system operability and reliability*

Master Plan Project ☑ 2008 Priority Rating 1 (See Appendix 3)

To plan, design and construct the recommended redundancy improvements to the City Tunnel, the City Tunnel Extension, the Dorchester Tunnel and the Cosgrove Aqueduct.

Project History and Background

This project includes the study, permitting, design and construction of redundancy improvements to critical elements of the water transmission system. The study phase will evaluate alternatives and develop conceptual designs and cost estimates to provide redundancy for the metropolitan tunnel system and the Cosgrove Tunnel. In addition, the Quabbin Tunnel will be inspected and recommendations for maintenance and/or repairs of the Quabbin Tunnel. Recommendations for inspections of other tunnels will also be provided.

The metropolitan tunnel system will be evaluated first with emphasis on providing redundancy for Shaft 7 of the City Tunnel. Historically, the plan for providing redundancy for the metropolitan tunnel system has involved one or more proposed parallel deep rock tunnel loops from the terminus of the Hultman Aqueduct and MetroWest Tunnel in Weston into the metropolitan area. The focus of this study is to develop and evaluate alternative surface pipe improvements, in addition to previously proposed tunnel loops, to achieve the required redundancy at a lower cost.

The tunnels in the Metropolitan Boston area, i.e. the City Tunnel, City Tunnel Extension and Dorchester Tunnel remain a weak link. While the integrity of the underground tunnel sections is believed to be good based on very low, unaccounted for water levels in the MWRA transmission system, there is still risk of failure mainly due to pipe failures at the surface connections to the distribution system or major subsurface issues such as structural issues due to earthquake or faults. A rupture of piping at surface connection points on any of the metropolitan area tunnel shafts would cause an immediate loss of pressure throughout the entire High Service area and would require difficult emergency valve closures and lengthy repairs. Although the assumption is that tunnels have a useful life of 100 years, due to the need to keep these lines in service, these subsurface structures have not been inspected and their actual condition is unknown. Facilities at the top of tunnel shafts have been examined and a number of hardening measures are needed for risk reduction at these sites. Completion of planned distribution system storage projects like the Blue Hills tanks also provide mitigation of the effects of piping rupture at these points.

In the event of a failure of the City Tunnel, a limited amount of water could be transferred through the WASM 3 line (scheduled for major rehabilitation) and WASM 4 and the Sudbury Aqueduct would need to be brought on-line. Extensive use of the Sudbury Aqueduct/Chestnut Hill Emergency Pump Station and open distribution storage at Spot Pond and Chestnut Hill would be required. Supply would be limited and a boil order would be put in place. Failure of the City Tunnel Extension would be similar with reliance on WASM 3 and open storage at Spot Pond.

If the Dorchester Tunnel were to experience a problem, flow could be routed to the south through surface mains. However, this relies on the completion of the Chestnut Hills Connecting Mains project.

The study will recommend a phased program of surface pipe projects, which can be implemented over a period of years. The study will review currently proposed MWRA pipeline improvement projects and recommend changes in size and/or alignment to contribute to the objective of transmission redundancy within the metropolitan system. The recommendations of this study will form the basis for subsequent projects for MEPA environmental review, permitting, design and construction.

For the western system, the study will evaluate the feasibility of pressurizing the Wachusett Aqueduct or constructing a new pump station to provide redundancy for water supply to the John J. Carroll Water Treatment Plant and to support the shutdown and repair of the Cosgrove Tunnel.

Finally, this study includes the inspection of the Quabbin Aqueduct and recommendations for maintenance and/or repairs of the Quabbin Tunnel. Recommendations for inspections of other tunnels will also be provided.

This study will provide information to support the Design and Construction cost estimates on which to better define the funds needed in the CIP and will help prioritize pressurization of the Wachusett Aqueduct with respect to other projects such as redundancy for the City Tunnel.

Subsequent Design, Permitting and Construction phases will follow-up on the recommendations of the study. The Design and Construction costs will also be updated based on the recommendations of the study.

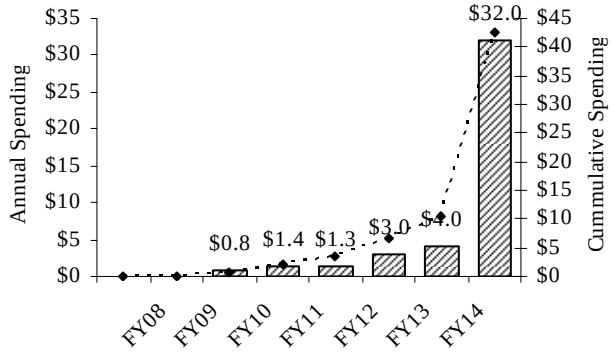
Scope

Sub-phase	Scope
Water Transmission Redundancy Plan	Redundancy Study/Tunnel Alternatives for long term redundancy.
Wachusett Aqueduct Pressurization Design & Construct.	To allow structural repair of cracks in the Cosgrove Tunnel, allocate design and construction funds for the pressurization of the Wachusett Aqueduct.
Long-term Redundancy Design and Construction	Following the Water Transmission Redundancy Plan phase, it is expected that design and construction of recommended redundancy improvements for the eastern part of the system will be needed.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$203,500	$0	$203,500	$0	$0	$817	$10,500	$193,000

Long Term Redundancy



Project Status 5/08	0.0%	Status as % is approximation based on project budget and expenditures. An engineering services contract for the Water Transmission Redundancy Plan is scheduled to be awarded in September 2008.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**
$100,000	$203,500	$103,500	Dec-23	Dec-23	-	$0	$10,500	$10,500

Explanation of Changes

- Project cost and spending increase due to inclusion of Water Transmission Redundancy Plan (formerly Metropolitan Tunnel Loop) and Wachusett Aqueduct Pressurization Design & Construction subphases which were separate projects; S.614 and S.624 respectively.

CEB Impact

- No impacts identified at this time.

S. 677 Valve Replacement

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Provides environmental benefits*
☑ *Fulfills a regulatory requirement*
☑ *Extends current asset life*
☑ *Improves system operability and reliability*

To retrofit approximately 500 blow-off valves and replace several hundred main line valves within the pipeline distribution system. Blow-off valve retrofits eliminate cross-connections into sewers or drainage piping. Main line valve replacements improve MWRA's ability to respond to emergency situations such as pipe breaks and provide tight shutdown for pipeline construction projects. Faster responses reduce negative impacts on customers. Combining the two valve replacement efforts reduces the need for repeat construction at sites and alleviates traffic impacts, re-paving needs, and other site-specific issues.

Project History and Background

MWRA owns and operates nearly 300 miles of distribution pipeline which contain approximately 1,109 blow-off valves and 1,246 main line valves. Some blowoff valves are cross-connected into sewers or drainage piping. To ensure there is no chance of contamination, DEP requires retrofiting of the blow off valves to provide air gaps to ensure that non-potable water cannot reach the potable water lines. In addition, many of the main line valves in the system are significantly beyond their original design life. Many of these are either inoperable or inadequate and require replacement, repair or retrofitting.

However, significant progress has been made in the last several years in correcting the cross connections at the blowoffs and in replacing defective main line valves and adding new valves to improve operations throughout the system. The valve replacement program continues this process. MWRA utilizes in-house crews and outside contractors to replace several blow-off and main line valves every year, both as part of the Valve Replacement Program and pipeline rehabilitation contracts.

Scope

Sub-phase	Scope
Design/Phase 1	Design of valve replacements, setting priorities based on the level of urgency or risk associated with each valve and scheduling work on valves that would not otherwise be replaced during upcoming pipeline rehabilitation projects.
Construction - Phase 1	Purchase and installation of 27 blow-off valve retrofits.
Construction - Phase 2	Purchase and installation of ten blow-off valve retrofits and ten main line valve replacements.
Construction - Phase 3	Purchase and installation of ten blow-off valve retrofits and 12 main line valve replacements as well as rehabilitation of two meters.
Construction - Phases 4, 5 & 6	For each phase, purchase and installation of blow-off valve retrofits and main line valve replacements and rehabilitation of miscellaneous meters. Phase 4 Contract included 12 main line valves, 10 blow-off retrofits, 2 check valves and the rehabilitation of 2 meters. Phase 5 Contract included 10 blow-off valve retrofits and 13 main line valve replacements. Phase 6 includes 4 blow-off valve retrofits, 8 main line valve replacements and 9 globe valves (tank isolation).
Construction Phases 7, 8 & 9	For each phase, purchase and installation of blow-off valve retrofits and main line valve replacements and rehabilitation of miscellaneous meters. Each phase includes approximately ten blow-off valve retrofits and ten main line valve replacements.

Sub-phase	Scope
Equipment Purchase	Purchase of approximately 20 main line valves per phase for ten phases for replacement work to be done by in-house staff. Also includes the cost of line stops associated with this work.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$19,666	$7,334	$12,332	$1,226	$2,894	$502	$5,306	$5,800

Project Status 5/08	43.5%	Status as % is approximation based on project budget and expenditures. Phases 1-5 are complete. Phase 6 NTP was issued in May 2007. Phase 7 scheduled to commence in October 2010. Phases 8 and 9 will commence in 2012 and 2014, respectively.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$19,254	$19,666	$412	Jun-16	May-16	(1 mo.)	$6,351	$5,306	($1,045)

Explanation of Changes

- Project cost increased primarily due to revised cost estimates and inflation adjustments due to new ENR index.
- Spending decreased primarily due to Construction 8 being broken out into phases 8 and 9.

CEB Impact

- None identified at this time.

S. 712 Cathodic Protection of Distribution Mains

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Extends current asset life*
☑ *Improves system operability and reliability*

To evaluate the condition of approximately 30 miles of steel pipelines and determine the feasibility of upgrading or installing cathodic protection systems to protect pipelines from corrosion.

Project History and Background

Approximately 68miles or 24% of MWRA's waterworks pipelines ranging from 24 inches to 60 inches in diameter are made of steel and are particularly subject to corrosion from acidic soils, fluctuating groundwater levels (especially where the groundwater is saline), and stray electrical currents. These steel pipelines are located in 26 of MWRA's 46 water communities.

Cathodic protection reduces deterioration of steel pipelines, thereby increasing pipeline life and deferring the need for replacement. Without proper cathodic protection, pipeline leaks and failures increase, causing potentially costly property damage and possible loss of service to customers.

Some sections of MWRA's existing steel pipes were originally equipped with cathodic protection systems intended to reduce the effects of corrosion. Other steel pipelines had cathodic protection systems installed sometime after the original pipe installation. Still other sections of steel pipeline have never received cathodic protection.

Scope

Sub-phase	Scope
Planning	Evaluation of the condition of the steel pipelines, identification of areas of rapid corrosion due to stray currents, and design and installation of corrosion test stations.
Test Station Installation 2 to 4	Installation of approximately 415 test stations at approximately 400-foot intervals. Wires will be attached to the pipes and to reference anodes to collect test data. Upon completion of the four test contracts, planning and engineering staff will set priorities and determine the scope of rehabilitation work needed to ensure cathodic protection of the pipelines.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$1,618	$141	$1,477	$0	$0	$0	$0	$1,477

Project Status 5/08	8.7%	Status as % is approximation based on project budget and expenditures. Project Planning Phase complete. Test Station Installations 2-5 will commence in May 2013.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**
$1,518	$1,618	$100	May-16	May-16	None	$0	$0	$0

Explanation of Changes

- Inflation adjustments due to new ENR index.

CEB Impact

- None identified at this time.

S. 730 Rehabilitation of Weston Aqueduct Supply Mains (WASM)

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Extends current asset life*
☑ *Improves system operability and reliability*

To improve the condition and carrying capacity of these major supply lines and the quality of the water supplied to the communities in the Low, High, Intermediate, and Extra High pressure zones. Timely rehabilitation will reduce the costs of replacing corroded pipes, reduce red water and chlorine tastes, and improve water pressure.

Project History and Background

MWRA's tunnels and aqueducts bring water to the metropolitan area from the supply reservoirs in central Massachusetts. In Weston, where the existing Hultman Aqueduct and the MetroWest Tunnel end, the water is still miles away from most customers. Together, the City Tunnel and the four Weston Aqueduct Supply Mains (WASMs) carry the water this final distance. When rehabilitation of the WASMs is complete, they will transmit about one-third of the water to MWRA's service areas, and the City Tunnel will carry the remaining two-thirds. The WASMs are now the only means of conveying water to the city in the event of a problem with the City Tunnel. The Sudbury Aqueduct can deliver non-potable water during extreme emergency.

WASM 1 is a 48-inch diameter unlined cast iron pipeline about 38,700 feet long that was constructed in 1904. WASM 2, built in 1916, is a 60-inch diameter unlined cast iron pipeline about 34,800 feet long. WASMs 1 and 2 begin in Weston at the Weston Aqueduct Terminal Chamber (WATC) and run parallel through Newton, mostly along Commonwealth Avenue, ending in Boston near Chestnut Hill Reservoir. These pipelines supply water to the Boston Low pressure zone.

WASM 3 is an 11-mile steel pipeline that was installed in 1926 and 1927. This major supply line carries high service water from the 7-ft diameter branch of the Hultman Aqueduct to community connections and MWRA pumping stations serving the Northern High, Intermediate High, and Northern Extra High service systems. It extends from the Hultman Aqueduct branch in Weston northeast to the Shaft 9 line in Medford and supplies 200,000 customers. WASM 4 was constructed in 1932 and is predominantly a 60-inch diameter pipeline consisting primarily of unlined steel with some pre-stressed concrete cylinder and cast iron sections. It extends 47,000 linear feet from Weston through Newton, Watertown, and Boston, and into Cambridge.

WASM 3 and WASM 4 were originally part of the Low Service System and conveyed water from the Weston Aqueduct to the Spot Pond Supply Mains. Upon completion of the Hultman Aqueduct, and its interconnection to the Weston Aqueduct Terminal Chamber in 1941, WASM 3 became part of the High Service System. With the addition of Newton to the metropolitan service area in the early 1950s, the western portion of WASM 4 was transferred to the High Service System as a temporary means of conveying water from the Hultman to portions of Newton and Watertown. Supply to the Spot Pond Supply Mains from WASMs 3 and 4 was maintained at their east ends through pressure reducing valves.

The WASMs are currently functioning below full capacity because of the build up of rust deposits and other matter along the pipeline walls, and undersized main line valves. Rehabilitation of these pipelines is necessary to restore their original carrying capacity and will include replacement of valves to provide more efficient operations and emergency response, elimination of tuberculation on the interior walls, and application of cement mortar lining to the interior pipe walls to prevent further internal corrosion and improve water quality.

The joints on WASM 1 and WASM 2 are constructed of bells and spigots filled with lead packing. The bell and spigot construction gives the joints some flexibility, but lead packed joints are more prone to failure compared to push-on or mechanical joints with modern synthetic gasket material. The existing joints are subject to potential failure because of deterioration, or pipe movement due to frost, settlement, or adjacent construction. Water leaking from a failing joint can undermine the pipe, causing catastrophic failure. These failures can cause severe damage and disruption. WASM 2 also has insulating joints consisting of cast-iron pipes with wood fillers. These joints

were intended to prevent electrical current from flowing along the pipeline but, in general, have been prone to failure and leakage.

When this project is complete WASM 1 and WASM 2 will connect to the new Loring Road tanks in Weston and will supply the Boston Low mains in Clinton Road, Beacon Street, and Boylston Street, which were rehabilitated as part of the Boston Low Service Rehabilitation project. With the completion of these projects the entire Boston Low Service System, which accounts for 15% of overall MWRA water demand, will have been rehabilitated from Weston to Boston. The rehabilitation of WASMs 1 and 2 is complete.

There is no back up for WASM 3, which is the sole source of supply for the higher elevation portions of Waltham, Belmont, Arlington, Lexington, Bedford, and Winchester. This pipeline cannot be shut down for maintenance or rehabilitation until the initial segments of the Shaft 7 to WASM 3 connecting mains project are constructed. Next to a failure of the Hultman Aqueduct, analysis has shown that failure of WASM 3 is one of the highest risks in the MWRA distribution system. The Shaft 7 to WASM 3 Connecting Mains project will provide redundancy so that the main can be rehabilitated in phases.

Until recently, the middle portion of WASM 4 along Nonantum Road was shut down due to an excessive leakage rate. Nonantum Road construction (rehabilitation by sliplining and cleaning and lining) was completed in March 1997 and the rehabilitation of the western portion of WASM 4 was completed in March 2001, including meter upgrades. In order to remove the western portion of WASM 4 from service to allow it to be rehabilitated, MWRA provided alternative supplies for Watertown Meter 103 and Newton Meters 104 and 105. Meter 103 was upgraded and local water main improvements were built along Galen Street in Watertown. These efforts allow the other Watertown meters to temporarily supply the area normally served by Meter 103. These improvements were constructed as non-participating bid items (i.e., funded by MWRA) under a contract administered by the Massachusetts Highway Department. Alternative sources for the Newton northern pressure district, normally supplied by Meters 104 and 105, have been constructed. Two pressure reducing valves, one at Chestnut Street and one at Walnut Street, were installed to allow the southern pressure district that is supplied by the Commonwealth Avenue Pumping Station to temporarily serve the northern pressure district. The rehabilitation of the eastern portion of WASM 4 included fixing a portion of the South Charles River Valley Sewer Sections 163 (D) and 164 (E), a 100+ year old brick sewer that is located directly below the water main. The rehabilitation of WASM 4 is substantially complete.

WASM 4, since rehabilitated will continue to operate as a high service main from the Hultman Aqueduct Branch connection to Shaft W of the MetroWest Tunnel up to the sleeve valve facility at Nonantum Road. It will then continue as a low service main to its connection with the East and West Spot Pond Supply Mains. WASM 4 also has the capability to operate completely as a low service main. This flexibility in operating conditions allows WASM 4 to best support the system. When in the split high/low mode, WASM 4 will be able to support WASM 3 through the planned connecting mains during planned shutdowns or emergencies. The availability of this support has significantly reduced the cost of the New Connecting Mains-Shaft 7 to WASM 3 project.

Scope

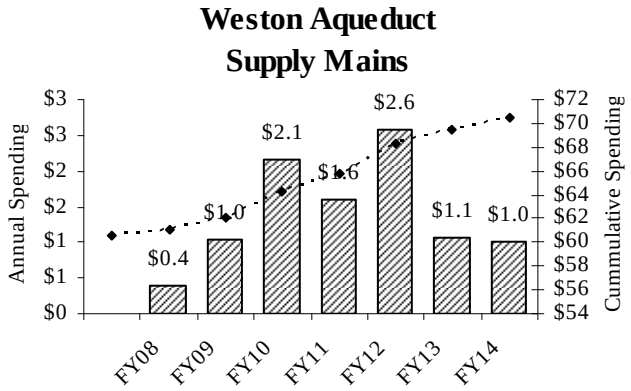
Sub-phase	Scope
Design/CA/RI – WASMs 1 & 2 (6142)	Design, construction administration, and resident inspection for the rehabilitation of WASM 1 and WASM 2 (construction contracts 6280 and 6281).
Design/CA/RI - WASM 4 (5147)	Design, construction administration, and resident inspection for the rehabilitation of WASM 4 (construction contracts 6203, 6175, 6312, 6176, and 6313).
Construction - Newton WASMs 1 & 2 (6280)	Construction work on WASM 1 and WASM 2 along Commonwealth Avenue and WASM 1 through Centre Street to the Newton Commonwealth Golf Course.

Sub-phase	Scope
Construction - Boston WASMs 1 & 2 (6281)	Construction on the remaining lengths of WASMs 1 and 2 consists of rehabilitation of 8,640 linear feet of Section 4 of WASM 1 through the Newton Commonwealth Golf Course to Gatehouse #1, rehabilitation of 11,450 linear feet of Sections 7 and 8 of WASM 2 between Grant Avenue and Cleveland Circle, and installation of 650 linear feet of 36-inch pipe from Shaft 7 to Section 47.
Design/CA/RI WASM 3 (6539)	Design, construction administration and resident inspection for construction phases CP2, CP3 and CP4.
Construction - Waltham WASM3 CP2 (6543)	Rehabilitation of the westerly portion of WASM 3 generally located between the Hultman Branch and the Watertown Branch.
Construction – Belmont WASM 3 CP3 (6544)	Rehabilitation of the middle portion of WASM 3 generally located between the Watertown Branch and the Belmont Pumping Station.
Construction - Arlington WASM 3 CP4 (6545)	Rehabilitation of the easterly portion of WASM 3 and a short segment of Section 51 generally located between the Belmont Pumping Station and the Shaft 9 line.
Construction - Arlington Section 28 CP1 (6546)	Rehabilitation of Section 28, the suction main to the Brattle Court Pumping Station, from the WASM 3 connection to the pumping station.
Construction - Auburndale WASMs 1, 2 & 4 (6175)	Cleaning and lining of 5,300 linear feet of 48-inch and 12,300 linear feet of 60-inch diameter mains of WASMs 1, 2 and 4 (Sections 2, 5, 13 and portions of 1) from Weston across the Charles River along Commonwealth Avenue to the Mass Pike in Newton, as well as replacement of existing line valves, air/vacuum valves and blow-off valves.
Construction - Newton WASMs 2 & 4 (6312)	Cleaning and cement lining of 21,200 linear feet of 60-inch pipe on WASM 4 (Sections 13 & 14) along Rowe, Webster, Elm and Washington Streets in Newton, and 5,800 linear feet of 60-inch pipe on WASM 2 (Section 2) along Commonwealth Avenue from Bullough Parkway to Grant Avenue as well as rehabilitation of Meters 104 and 105.
Construction - Allston WASM 4 & W. Ave Sewer (6313)	Replacement of the Nonantum Road PRV and sliplining of 1,600 linear feet of pipe from Brooks Street to North Beacon Street, sliplining with some limited pipe replacement and cement lining of 10,538 linear feet of 60-inch pipe mostly along Western Avenue, 1,008 linear feet of 42-inch pipe mostly along Memorial Drive, 808 linear feet of twin parallel 30-inch pipes within the Western Avenue Bridge, replacement of Master Meter 100 and rehabilitation of the South Charles River Valley Sewer to include installation of a cured-in-place liner in approximately 5,150 feet of sewer, as well as removal and disposal of sediment in the existing brick sewer, power washing, and rehabilitation of existing manholes and installation of new manholes.
Construction – WASM 3 PCCP SPL12 (7000)	Replacement of approximately 2,100 linear feet of 60-inch Prestressed Concrete Cylinder Pipe (PCCP) on WASM 3 (Section 12) in Arlington. Includes replacement of air release manhole, replacement of two blow-offs and addition of a mainline butterfly valve with chamber and separate air release manhole.
Design CA/RI WASM 3 PCCP SPL12 (7001)	Design, construction administration and resident inspection services for the replacement of the PCCP pipe portion of WASM 3 (construction contract 7000).

Sub-phase	Scope
Design CA/RI Section 36 Replacement (6540)	Design, construction administration and resident inspection services for the replacement of Section 36 (construction contract 7222).
Construction Section 36 (7222)	Replacement of approximately 5,200 linear feet of 1911 vintage 16-inch diameter cast-iron pipe from the Brattle Court pumping station to the Arlington Heights Standpipe.
Design CA/RI Section 28 (7083)	Design, construction administration, and resident inspection services for the rehabilitation of Section 28, suction main to the Brattle Court Pumping Station, from the WASM 3 connection to the pumping station (construction phase CP1, contract 6546).

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$125,612	$60,589	$65,023	$399	$18,155	$1,046	$8,438	$56,186



Project Status 5/08	48.5%	Status as % is approximation based on project budget and expenditures. Newton WASMs 1 & 2, Boston WASMs 1 & 2, Auburndale WASMs 1, 2 & 4, Newton WASMs 2 & 4, Allston WASM 4 & W. Ave Sewer, and WASM 3 PCCP SPL12 are complete. Section 28 Design CA/RI began in October 2006. Design CA/RI WASM 3 is expected to commence in July 2011.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**
$118,062	$125,612	$7,550	Feb-19	Mar-21	25 mos.	$18,482	$8,438	($10,044)

Explanation of Changes

- Project increase due to new subphases added for Section 36 Design and Construction. Work originally in NEHS-New Pipeline Project. Also, reconfigured construction projects and revised costs to include work that was originally going to be performed in the Temporary Water Supply Plan subphase. Inflation adjustments due to new ENR index also contributed to the budget increase.
- Spending changed due to reconfiguring, rescheduling, and resequencing construction projects. Also, schedule changed awaiting recommendations from the Long Term Redundancy Plan

CEB Impact

- None identified at this time.

S. 732 Walnut Street Pipeline Rehabilitation

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Extends current asset life*
☑ *Improves system operability and reliability*

To improve water quality and hydraulic capacity of a pipeline serving the City of Boston. Cleaning and cement mortar lining this cast iron main will enhance water quality, and enable this pipeline to meet maximum demand conditions.

Project History and Background

Through this project MWRA will rehabilitate the Walnut Street Pipeline. The work under contract 6586 includes the rehabilitation of approximately 5,900 linear feet of 48-inch cast iron mains installed in 1895. An additional length of 2,000l.f.was cleaned and lined via change order under Contract 5194 (Heath Hill). The pipeline is located in Walnut Street and Washington Street in Brookline and serves Boston Meter 5. Due to internal corrosion, the hydraulic carrying capacity has been reduced. The hydraulic grade line at Meter 5 is not adequate at maximum demand conditions. In addition, unlined cast iron mains may be a significant contributor to diminished water quality within the distribution system. Rehabilitation through cleaning and cement mortar lining will address this condition. The scope of work includes construction of a pressure reducing valve station and a new Meter 5 near the Boston City Line.

Scope

Sub-phase	Scope
Construction	Design and rehabilitation of approximately 5,900 linear feet of 48-inch cast iron mains located on Walnut Street and Washington Street in Brookline, construction of a pressure reducing valve station, and the relocation of Meter 5 serving Boston.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$2,514	$51	$2,463	$1,563	$1,614	$900	$900	$0

Project Status 5/08	74.3%	Status as % is approximation based on project budget and expenditures. Construction of Phase I began in August 2007.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$2,901	$2,514	($387)	Jan-09	Jan-09	-	$343	$900	$557

Explanation of Changes

- Budget decrease reflects contract award less than budget for Phase I construction.

CEB Impact

- None identified at this time.

S. 721 Southern Spine Distribution Mains

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Extends current asset life*
☑ *Improves system operability and reliability*

To increase carrying capacity and improve valve operability along the large surface mains that run parallel to the Dorchester Tunnel and provide service to the Southern High and Southern Extra High systems. Currently these mains have serious hydraulic deficiencies and many inoperable valves. Hydraulic performance improvements are needed to provide redundancy for the Dorchester Tunnel. Work will include rehabilitation of more than 12 miles of large diameter pipeline.

Project History and Background

The Southern Spine Distribution Mains comprise the surface piping which parallels the Dorchester Tunnel. The mains begin in the vicinity of Shaft 7B in Brookline and end at the Blue Hills Reservoir in Quincy. The mains serve the Southern High and Southern Extra High System communities of Boston, Brookline, Milton, Quincy, Norwood, and Canton.

Because of the poor conditions of the valves, MWRA operations staff must frequently close several valves in order to shut down a line. This practice often results in closing more of the system than is otherwise necessary. Several of these pipelines are currently functioning at approximately 50% of their original carrying capacity due to the build up of rust deposits and other matter along the pipeline walls. In their present condition, these mains could not provide adequate service to users if the Dorchester Tunnel was taken off-line.

Construction of the first two contracts for Section 22 South was completed by June 2005. The contract for Section 107 Phase 1 was awarded in June 2007. The design for Section 107 Phase 2 is 100% complete.

Scope

Sub-phase	Scope
Sections 21,43, 22 Design/CS/RI	Design, construction services, and resident inspection for five construction contracts in Phase 1, including rehab of 32,000 linear feet of 24- to 48-inch main, and installation of 17,000 linear feet of 36- to 48-inch main. Rehabilitation to consist of cleaning and cement mortar lining, and replacement of the main line valves, blow-off valves, and appurtenances.
Section 22 South Construction	Rehabilitation of approximately 10,000 linear feet of existing 48-inch Section 22 South, and installation of 1,700 linear feet of new pipe.
Adams Street Bridge	Relocation of a pipeline made necessary by the reconstruction of this bridge by the MBTA.
Southern High Ext Study	Study to determine the feasibility of expanding water services to additional communities in the Southern High Service Area. Cost of the study and public participation was fully funded by the Commonwealth of Massachusetts.
Section 22 North Facility Plan/EIR	Facility Plan/EIR for Section 22 North.
Section 22 North Design/ESDC	Design/ESDC for Section 22 North.
Section 22 North Construction	Rehabilitation of 17,300 linear feet of existing 48-inch Section 22 North.

Sub-phase	Scope
Section 107 Phase 1 Construction	Construction of 4,400 linear feet of new 48-inch water main from East Milton Square to Furnace Brook Parkway in Milton and Quincy.
Section 107 Phase 2 Construction	Replacement of existing Sections 21 and 43 with 11,000 linear feet of new 48-inch water main from Dorchester Lower Mills in Boston to East Milton Square.
Contract 1 A Construction	Rehabilitation of 4,400 linear feet of Section 22 South.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$71,061	$13,187	$57,874	$4,184	$14,174	$2,994	$25,292	$28,398

Project Status 5/08	24.2%	Status as % is approximation based on project budget and expenditures. Construction of Contracts 1 and 1A for Section 22 South is completed. Section 107 Phase 1 Construction began in June 2007.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$66,570	$71,061	$4,491	May-16	May-17	12 mos.	$24,666	$25,292	$626

Explanation of Changes

- Budget increase primarily due to revised cost estimate for Section 107 Phase 2 and inflation adjustments due to new ENR index.
- Schedule and spending revised to follow completion of Section 22 North Facilities Plan/EIR.

CEB Impact

- None identified at this time.

S. 727 Southern Extra High Redundancy & Storage

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Provides environmental benefits*
☑ *Extends current asset life*
☑ *Improves system operability and reliability*

Master Plan Project ☑ 2008 Priority Rating 2 (see Appendix 3)

To provide redundancy to Section 77 and 88 to the single spine mains serving Canton, Norwood, Stoughton and Dedham-Westwood by construction a redundant pipeline. Also, ,to increase distribution storage within the service area to improve system operation and reliability.

Project History and Background

This project will provide redundancy to Sections 77 and 88, which are currently single spine mains serving Canton, Norwood, Stoughton and Dedham-Westwood, through construction of a redundant pipeline. Approximately 50,000 lf of 36-inch main will be constructed. The project will also increase distribution storage within the service area to improve system operation and reliability.

MWRA's Southern Extra High pressure zone serves Canton, Dedham, Norwood, Stoughton, Westwood, portions of Brookline, Milton, and Newton, and the Roslindale and West Roxbury sections of Boston. Water is pumped to this pressure zone from the Dorchester tunnel through three pump stations.

The Southern Extra High pressure zone is currently deficient in distribution storage and lacking in redundant distribution pipelines. The average day water use of the Southern Extra High communities from MWRA's system is 11.6 million gallons per day (mgd); the maximum day use is 24 mgd. MWRA maintains two distribution storage tanks (Bellevue Tank 1 and Bellevue Tank 2) totaling 6.2 million gallons of storage for the entire Southern Extra High service area, which is significantly below the goal of one day of storage. Further highlighting the deficiency is the fact that the overflow elevation for the 2.5-million-gallon Bellevue Tank 1 is 25 feet lower than the overflow elevation for the newer 3.7-million-gallon Bellevue Tank 2, limiting its useful capacity.

The five communities in the southern portion of the service area (Canton, Norwood, Dedham, Westwood and Stoughton) are served by a single MWRA 36-inch diameter transmission main (Section 77), which is five miles long. Canton and Stoughton are served by a branch (Section 88) off of Section 77. Although several of these communities are partially supplied by MWRA, the loss of this single transmission main would result in a rapid loss of service in Norwood and Canton, and water restrictions for Stoughton and Dedham/Westwood.

In addition, the Southern Extra High service area has expanded during the past several years with the addition of the partially-supplied Town of Stoughton and the Dedham-Westwood Water District. This growth has been concentrated to the south while the Bellevue tanks are located at the northern end of the service area. Although several of these communities are partially supplied by MWRA, the Town of Norwood is fully supplied by this line and has no back-up source of supply. There have been several instances when the water supply to Norwood has been interrupted due to valve and/or pipe failures.

Scope

Sub-phase	Scope
Concept Plan	A study to assess storage, capacity and condition of existing distribution pipes, new pipeline routing options and tank sites will be identified.
University Ave Water Main	Initial phase to provide redundant pipeline on University Avenue in Norwood. Prohject broken out from the larger SEH redundancy and storage projects.

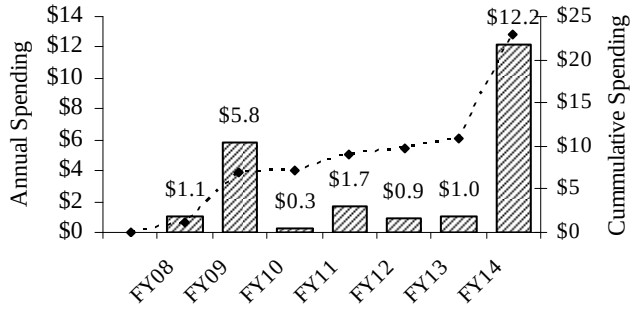
Sub-phase	Scope
Redundancy Pipeline/Storage Des/Con Ph 1 Des/Con	The first phase to provide redundancy to Sections 77 & 88 through design and construction of a redundant pipeline and additional storage with the location and volume to be determined by the Concept Study. The pipeline will be approximately 30,000 lf of 36-inch main.
Redundancy Pipeline/Storage Des/Con Ph 2	The second phase to provide redundancy to Sections 77 & 88 through design and construction of a redundant pipeline and additional storage.
Section 77/88 Des/Con	Rehab of Sections 77 & 88 after redundant pipeline is in place.
Des/CA/RI andConstruction Short-term Improvements	**This phase is subject to change pending completion of the Concept Plan.** The Concept Plan will identify short-term and long-term measures to reduce the risk and impact of pipeline failures. This phase will cover the design and construction of short-term measures identified in the conceptual plan.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$77,981	$60	$77,921	$1,087	$1,147	$5,772	$9,662	$67,172

SEH

Redundancy & Storage



Project Status 5/08	1.5%	Status as % is approximation based on project budget and expenditures. Conceptual Design began in February 2007.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$41,312	$77,981	$36,669	Jun-23	Jun-23	None	$22,065	$9,662	($12,403)

Explanation of Changes

- Project increase reflects updated cost estimates and reconfigured and repackaged subphases for SEH Redundancy and Storage projects. Inflation adjustments due to new ENR index also contributed to this increase.
- Redundancy and Storage phases were rescheduled due to the reconfiguration and repackaging noted above. Also, additional time is needed to complete the Concept Plan due to environmental notification and review.

CEB Impact

- See Blue Hills Covered Storage Project for general impacts for water storage tanks.

S. 719 Chestnut Hill Connecting Mains

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Extends current asset life*
☑ *Improves system operability and reliability*

To simplify the complex arrangement of old pipes near the Chestnut Hill pump stations for safety and operability. Also, create a connection between Shaft 7 of the City Tunnel and the Southern Distribution surface mains to provide redundancy along the Dorchester Tunnel. MWRA is restructuring the piping arrangement through a combination of constructing new pipelines, rehabilitating older pipelines, sliplining, abandoning aqueducts, replacing pressure regulating valves, replacing the emergency pumps at Chestnut Hill, and abandoning pipes and valves which are no longer needed for service.

Project History and Background

At Chestnut Hill the City Tunnel divides into two branches: the City Tunnel Extension going north to supply the Northern High System, Northern Intermediate High System and the Northern Extra High System, and the Dorchester Tunnel, which goes south to supply the Southern High System and the Southern Extra High System. There are two shafts in the Chestnut Hill area: Shaft 7 on the City Tunnel, located immediately west of the Chestnut Hill Reservoir, and Shaft 7B on the Dorchester Tunnel, located immediately east of the reservoir. At each of these shafts two newer pipes extend to connect to the older pipelines of the Boston Low Service System, the Northern Low Service System, and the Southern High Service System.

The Southern High System can only be supplied from Shaft 7B. If the Dorchester Tunnel were to be out of service, it would be necessary to activate the Sudbury Reservoir System, transport water from there via the Sudbury Aqueduct (currently on standby) to the Chestnut Hill Reservoir (currently on standby) and utilize the newly constructed emergency pump station at Chestnut Hill to pump water from the reservoir to the Southern High System. This water would not be of acceptable quality and its use would require a boil order.

The older pipes in the area were originally designed to be supplied from the Cochituate and Sudbury Aqueducts, the Chestnut Hill Reservoir, or the Chestnut Hill High Service and Low Service pump stations. None of these facilities are presently in normal use, and a new underground pump station has replaced the Chestnut Hill stations. The pipe network is not only old and inordinately complex, but it is not designed to take water from the two tunnel shafts that are the present sources of potable supply. Portions of this pipe network have been rehabilitated and integrated into the present operation of the system. Considerable lengths of pipe with minimal or stagnant flow, which are a source of discolored water, have been abandoned. Some new pipe was added to better connect the two tunnel shafts with the surface pipe network. The interconnections between the potable water system and standby facilities, which are considered non-potable, have been rebuilt to eliminate the possibility of cross-connections during normal operation.

The High and Low Service pump station buildings at Chestnut Hill housed facilities which served four functions: emergency pumping, surge relief for the Boston Low System, level control for the Chestnut Hill Reservoir, and remote hydraulic operation of large valves on and near the site of the High Service station. Construction of a new underground pump station provides more reliable emergency pumping capacity and has enabled MWRA to abandon the pump station buildings and return them to the Commonwealth. Surge relief was provided in a new Shaft 7B pressure reduction chamber that also interconnects restructured piping. Future design efforts will relocate the reservoir level control functions. Gate House No. 2 has also been refurbished to provide supply to the new pump station. New valves have been constructed to replace the old hydraulic valves.

Scope

Sub-phase	Scope
Design/CA/RI and Construction – Pump Station Potable Connection	Construction of potable suction and discharge piping to the emergency pump station, restructuring piping to permit surplusing of Chestnut Hill pumping station site, elimination of potential cross connections with non-potable suction and discharge lines, reconstruction of the Shaft 7B PRV Station, upgrade of the Shaft 9A PRV station, rehabilitation of valves at Waban Hill Reservoir, and abandonment of the Ward Street Pumping Station and associated piping. Construction to provide potable low service suction to the new pump station and to restructure piping to permit surplusing of the historic pumping stations site. Completion of upgrades of facilities that also may be used during the Walnut Hill Water Treatment Plant startup at Shaft 7B, Shaft 9, and Ward Street.
Preliminary Engineering	Provide preliminary design services for the rehabilitation and upgrade of facilities so that MWRA is able to operate the water system during normal conditions and specific emergency scenarios.
Design/CS/RI and Construction – Emergency Pump Relocation	Relocation of the emergency pumping function and other minor facilities from the existing High and Low Service pump station buildings to a new 90-mgd underground pump station constructed adjacent to the Low Service building. The relocation enables MWRA to surplus these historic buildings. The new pump station has the capacity to pump 90-mgd from the Sudbury Aqueduct/Chestnut Hill Reservoir to the Southern High Distribution System.
Boston Paving	Payment(s) to the City of Boston for paving work provided.
BECo Emergency Pump Connection	Payment to Boston Edison Company for installation of electrical service to meet special requirements. Provision of the services eliminated the need to install a standby generator.
Equipment Pre-Purchase	Valve pre-purchase to support potable connection construction so that the Chestnut Hill Pump Station site could be returned to the Commonwealth of Massachusetts as surplus property.
Demolition of Garages	Demolition of garages prior to transfer of property to the Commonwealth, at request of state Department of Capital Asset Management.
Final Design CA/RI (6995)	Design CA/RI services for final pipe connections work (Chapter 30 &149).
Chapter 30 Construction (6982)	Chapter 30 Construction final pipe connections.
Chapter 149 Construction (6302)	Chapter 149 Construction final pipe connections.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$25,042	$17,462	$7,580	$0	$1,724	$0	$6,489	$1,091

Project Status 5/08	69.7%	Status as % is approximation based on project budget and expenditures. Preliminary engineering for the final pipe connections reached substantial completion in April 2006. Final Design CA/RI is expected to begin in July 2009.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**
$24,551	$25,042	$491	Jul-12	Jul-13	12 mos.	$7,035	$6,489	($546)

Explanation of Changes

- Budget increased as a result of inflation adjustments due to new ENR index.
- Schedule shift due to coincide with the schedule of New Connecting Mains Shaft 7 South Segment contract.

CEB Impact

- None identified at this time.

S. 704 Rehabilitation of Other Pump Stations

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Extends current asset life*
☑ *Results in a net reduction in operating costs*
☑ *Improves system operability and reliability*

To rehabilitate five active pump stations (Brattle Court, Reservoir Road, Hyde Park, Belmont, and Spring Street) - each of which is more than 40 years old and is overdue for renewal for safety, reliability, and efficiency reasons.

Project History and Background

MWRA's waterworks distribution system includes ten active pump stations. Extensive rehabilitation of the James L. Gillis, Newton Street, Lexington Street, and Commonwealth Avenue pump stations is complete. The Dudley Road Pump Station will not be rehabilitated because the station will be abandoned.

The Brattle Court, Reservoir Road, Hyde Park, Belmont, and Spring Street stations are between 40 and 80 years old and are overdue for major rehabilitation. The Brattle Court Pump Station serves the towns of Arlington, Lexington, Waltham, and Winchester. The Reservoir Road Pump Station serves Brookline. The Hyde Park Pump Station serves Boston, Milton, Norwood, and Canton. The Belmont Pump Station serves Belmont, Arlington, and Watertown. The Spring Street Pump Station serves Lexington, Bedford, part of Waltham, Belmont, Arlington, and Winchester. Some equipment at each pump station is inoperable, and system demand patterns have shifted during the life of the stations, requiring adjustments to pumping capacity. In addition, station improvements have not kept pace with changes in building and safety codes.

MWRA has divided construction into two contracts. The first contract (Construction - Interim Automation), based on a fast-track design and completed in February 2001, involved installation of SCADA systems at each station. Under the second construction contract, MWRA will complete rehabilitation of the five pump stations. The second construction contract was awarded in October 2006.

Scope

Sub-phase	Scope
Preliminary Design	Planning and conceptual design including inspection and evaluation of the HVAC systems, buildings, pipes, valves, and other systems at the pump stations; determination of the need for improvements; and preparation of a conceptual design report.
Design 1/CS/RI	Design for rehabilitation of five pump stations, including installation of SCADA systems.
Construction II and C	Installation of instrumentation at five pump stations to enable remote operation and monitoring.
Rehab of 5 Pump Stations	Rehabilitation of Belmont, Brattle Court, Spring Street, Hyde Park, and Reservoir Road pump stations, including installation of new mechanical, electrical, instrumentation, and security systems, and building and site refurbishment, and SCADA installation.
Proprietary Equipment Purchases	Purchase of proprietary materials for SCADA system for Interim Instrumentation and Control.
Design 2 CS/RI	Final Design, construction services, and resident inspection for rehabilitation of five pump stations.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$28,599	$7,277	$21,322	$8,337	$11,939	$5,668	$12,985	$0

Project Status 5/08	60.5%	Status as % is approximation based on project budget and expenditures. Construction rehabilitation of 5 pump stations (Belmont, Brattle Court, Spring Street, Hyde Park, and Reservoir Road) NTP was issued in October 2006 and expected to be completed in FY10.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$27,328	$28,599	$1,271	May-10	May-10	None	$13,601	$12,985	($616)

Explanation of Changes

- Budget increased primarily due to expected amendment for additional scope of work and costs for time extension. Also, change orders including yard piping and boiler replacement contributed to this increase.

CEB Impact

- None identified at this time.

S. 722 Northern Intermediate High Redundancy and Covered Storage

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Extends current asset life*
☑ *Improves system operability and reliability*

Master Plan Project ☑ 2008 Priority Rating 1 (see Appendix 3)

The Northern Intermediate High System lacks both pipeline redundancy and sufficient storage. The intent of this project is to identify and take measures that reduce both the risk and impacts of a pipeline failure within the Northern Intermediate High System.

Project History and Background

This system serves Reading, Stoneham, Wakefield, Winchester and Woburn, with an average day demand of 9.7 million gallons. Wilmington is also considering application to MWRA for supplemental water. If Wilmington is included, the population served is approximately 150,000. The current six million gallon capacity of MWRA's Bear Hill Tank in Stoneham is both insufficient to meet MWRA's goal of one day of emergency storage for the service area and is not advantageously placed within the NIH system.

Section 89 is a three mile, four foot diameter PCCP transmission main with no redundancy other than the low capacity, century old Section 29 that parallels its route for a short distance. The 10,500-foot length of Section 89 northwest of Spot Pond is constructed of Class IV wire which is of significant concern given experience with catastrophic failures elsewhere in the country. Section 29 is 96 years old and measures 6,300 feet in length and 24 inches in diameter. Because of its age and the fact that it is unlined, tuberculation has reduced the pipeline carrying capacity to approximately 45% of the original design capacity (C-value: 58). In the event of a shut down in Section 89, Section 29 may not be able to meet the minimum hydraulic needs of the area and additional chlorination to maintain water quality may be required.

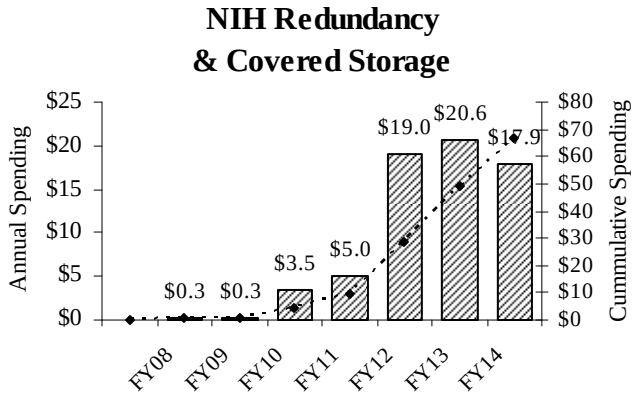
Scope

Sub-phase	Scope
Concept Plan	Develop a concept level plan to evaluate options to reduce the risk and the impacts of potential failures in Sections 29 and 89. Measures may include (but are not limited to) valve improvements, improved community interconnections, pipeline redundancy, targeted emergency response plans, additional storage or other improvements that can be implemented within the NIH system. Concept planning work will also include environmental review of the recommended plan.
Design CA/RI and Construction NIH Improvements	**This phase is subject to change pending completion of the Concept Plan.** The Concept Plan will identify short-term and long-term measures to reduce the risk and impact of pipeline failures. This phase will cover the design and construction of short-term measures identified in the conceptual plan.
Design and Construction Section 89/29 Redundancy	The Concept Plan has developed preliminary route alternatives in order to provide redundancy to Section 89. Final routes will be determined following consultations with local elected officials, consideration of permitting requirements, project impacts and the location of the recommended storage for the NIH system.
NIH Storage Design and Construction	The Concept Plan has identified several potential storage locations in the NIH system. The goal is to provide approximately 6MG of additional storage in the short-term with the potential identification of a future storage location should longer-term population and employment growth require additional storage.

Sub-phase	Scope
Section 89/29 Rehab Design and Construction	There must be a redundant pipeline prior to Section 89 being taken off line for repairs. At that point, the pipeline can be inspected and rehabilitated as necessary. The extent to which Section 29 will be rehabilitated will depend in part, upon the route of the redundant pipeline.
NIH Gillis Redundancy Design and Construction	Design and construction to provide redundancy for the Gillis Pump Station. The Concept Plan will identify potential locations for this facility as part of the long-term improvements for the NIH system.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$84,929	$326	$84,603	$334	$659	$316	$48,421	$35,849



Project Status 5/08	0.7%	Status as % is approximation based on project budget and expenditures. Concept planning NTP was February 2006 followed by design with a start date of January 2009.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$57,200	$84,929	$27,729	Jun-18	Dec-18	6 mos.	$36,712	$48,421	$11,709

Explanation of Changes

- Budget increase due revised cost estimates for Section 89/29 Redundancy, NIH Storage, Section 89/29 Rehabilitation. Also, inflation adjustments due to new ENR index for NIH Gillis Redundancy and NIH Improvements subphases.
- Schedule and spending shifts based on additional time needed for Concept plan for environmental review and re-sequencing of construction projects.

CEB Impact

- The proposed storage facilities will require periodic inspection, maintenance, and water quality testing.

S. 713 Spot Pond Supply Mains - Rehabilitation

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Extends current asset life*
☑ *Improves system operability and reliability*

To improve the condition, carrying capacity, and valve operability of the two long supply mains which extend north from Chestnut Hill to Spot Pond. These cast-iron mains, which are 100 years old, deliver water to the Northern Low Service System. Improvements involve a combination of replacement, cleaning and lining, and valve replacement depending on specific site conditions and needs. Improving these supply lines will reduce the need to take water from the City Tunnel to augment the Low Service System and improve the quality of water delivered to eight user communities.

Project History and Background

The East and West Spot Pond Supply Mains (SPSMs) serve the Northern Low Service Area, including portions of Brighton, East Boston, Charlestown, Chelsea, Malden, Medford, Somerville, and Everett. The lines are also designed to fully supply Cambridge during drought or emergency. The mains have historically supplied Spot Pond and subsequently the James L. Gillis Pump Station (formerly the Spot Pond Pump Station). With the closure of Spot Pond as a water supply source and the construction of the Spot Pond Suction Main (Section 99) as the primary supply to the Gillis Pump Station, the Spot Pond Supply Mains will serve as distribution mains to the eight communities and will provide emergency backup supply to the Gillis Pump Station. In the event Section 99 is out of service, the station would take suction directly from these mains, rather than from Spot Pond.

The East Spot Pond Supply Main consists of 61,000 linear feet of mostly 48-inch diameter pipeline which passes through Brookline, Boston, Cambridge, Somerville, Medford, Malden, Melrose, and Stoneham. The West Spot Pond Supply Main consists of 53,000 linear feet of 48-inch and 60-inch diameter pipeline that passes through Brookline, Boston, Cambridge, Somerville, Medford, and Stoneham. Portions of the SPSMs in Brookline, primarily on Beacon Street, are being rehabilitated under the Boston Low Service Pipe and Valve Rehabilitation project.

The carrying capacities of the 100-year old mains have been significantly reduced as a result of the build up of rust deposits (tubercules) and other matter along the pipeline walls, which also contributes to water quality deterioration in the Low Service System. The ability of the mains to withstand service pressures is drastically reduced in some areas due to exterior corrosion of pipes. In addition, inoperable or poorly operating valves along the line make isolation and re-routing of flow difficult to implement.

Section 67 is included in this project because it provides a connection between the East and the West Supply Mains from Section 11 at Porter Square in Cambridge to Section 4 at Union Square in Somerville. Section 67 consists of 6,900 linear feet of 48-inch diameter steel pipeline constructed in 1949. Rehabilitation of this main is needed because of the age of the pipe and the critical role of the main in providing flow to the East and West mains during shut downs for maintenance and construction.

Internal lining of these mains to restore capacity and improve structural integrity, will ensure adequate peak and emergency flow to user communities, alleviate water quality deterioration, and provide emergency back-up capacity for the Northern High System via the Gillis Pump Station. MWRA's planned reconfiguration of the water distribution system provides for the Spot Pond Supply Mains to be fed from the City Tunnel Extension only during periods of peak demand, thus conserving tunnel supply for High Service use. Supply to the Low Service System will be provided by Weston Aqueduct Supply Mains 1 and 2, which will be connected to the new Loring Road covered storage tanks in Weston that have been constructed as part of MWRA's MetroWest Water Supply Tunnel project. A portion of the supply will be from WASM 4, which connects to the East and West Spot Pond Supply Mains at Western Avenue and North Harvard Avenue and on Memorial Drive at Magazine Beach in Cambridge.

Completion of this project will facilitate consolidation of the Boston Low and Northern Low Service Areas into one service area and will improve pressures to the far reaches of the Northern High Service Area by reducing the demand burden on the City Tunnel Extension. The quality of water delivered to eight communities will improve as a result of the upgrade of 18 miles of deteriorated pipe.

Scope

Sub-phase	Scope
Preliminary Design and Design/CA/RI	Preliminary design, design, construction administration, and resident inspection of the rehabilitation or replacement of Sections 3, 4, 5, 6, 7, 9, 10, 11, 12, 67, and portions of Sections 2, 16W, and 57.
North (Medford/ Melrose) Construction-CP1	Cleaning and lining of 20,300 feet of 48-inch and 60-inch pipe in Medford, Malden, Melrose, and Stoneham (Sections 7 and 12). Replacement of valves and reconfiguration of blow-off valves to eliminate cross-connections with storm drains or sewers. Elimination of connection with Spot Pond (considered a cross connection with a non-potable water source), and configuration to allow emergency reconnection if needed.
Middle (Medford/ Somerville) Construction – CP2	Cleaning and lining of 24,100 feet of the East Spot Pond Main (48-inch pipe) in Somerville and Malden (Sections 4, 5, 6, and 7) including reinforcement at rail and MBTA crossings; cleaning and lining of 14,000 feet of the West Spot Pond Main (48-inch pipe) in Medford and Somerville; and some steel pipe replacement on the Mystic Valley Parkway (800 feet, 60-inch, Section 16W), and Middlesex Fells Parkway (700 feet, 48-inch, Section 5 on land). Cleaning and lining on Somerville Avenue (Section 67, 6,500 feet of 48-inch steel). Replacement of valves throughout the pipelines, including in Medford Square at the interconnections of Sections 12, 16W, and 57.
South (Cambridge/ Boston) CA/RI Construction – CP3	Cleaning and lining of 11,700 linear feet of the East Spot Pond Main in Charles River Crossing and Cambridge (48-inch, Sections 3 and 4) including valve replacement, and cleaning and lining of 16,800 linear feet of the West Spot Pond Main in Harvard St., Franklin St., No. Harvard Avenue, and Massachusetts Avenue (48-inch, Sections 9 and 11 11, Brighton and Cambridge).
Early Valve Replacement Contract	Installation of nine main line valves and associated blow-off valves, as well as permanent by-pass piping to meters and air valves. Also includes removal of pipe at three locations for materials strength testing.
Construction 4 – Trusses	Section 4 Bridge Trusses spanning the Fitchburg Main Line and the New Hampshire-Maine Line are in need of repair, painting and replacement, respectively.
Early Valve Equipment Purchase	Purchase Order for 12 valves that were installed from 1998-1999 as a precursor to the cleaning and lining contracts.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$62,568	$57,985	$4,583	$3,250	$37,146	$304	$304	$1,030

Project Status 5/08	96.6%	Status as % is approximation based on project budget and expenditures. Work in Contract 2, Middle, is complete. Contract 3 (South) was substantially complete in April 2008.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**
$62,536	$62,568	$32	Dec-18	Dec-18	-	$0	$304	$304

Explanation of Changes

- Budget increased due to change orders for increased quantities of epoxy cement and to furnish and install blow-off piping and additional joint seals. This increase was partially offset by a balancing credit change order for Middle construction and final easement costs.

CEB Impact

- None identified at this time.

S. 723 Northern Low Service Rehabilitation - Section 8

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Extends current asset life*
☑ *Improves system operability and reliability*

To improve the condition and reliability of an unlined pipeline serving a portion of the Northern Low System. This pipeline, Section 8, has reduced carrying capacity because of rust build-up, and has experienced leaks at above average rates. Improvements will consist primarily of replacement of a portion of Section 8 and cleaning, lining, and valve repairs along nearly 1.5 miles of water main. Rehabilitation of Sections 37 and 46 will improve the service to East Boston and will allow the shutdown of Section 8 for rehabilitation. The construction of Section 97A will provide needed redundancy to East Boston via the Northern High System.

Project History and Background

Section 8 was installed between 1897 and 1913 and serves Malden, Everett, Chelsea, and East Boston. The Section 8 pipeline is currently functioning at approximately 45% of its original capacity (C-value: 60) due to the build up of rust deposits and other matter along the pipeline walls. Excavations for the installation of new valves along portions of Section 8 have indicated possible severe external corrosion on the pipe wall, which could affect the structural stability of the pipeline.

Before rehabilitating Section 8, the distribution system supplying East Boston must be strengthened. The existing Sections 37 and 46, located in Chelsea, are older 36-inch cast iron mains. These two pipe sections connect between Section 57, previously rehabilitated, and the two Chelsea River crossings to East Boston at Sections 8 and 38. It is anticipated that these two pipelines will need cleaning and cement mortar lining. Section 97A, a new 16-inch pipeline will provide redundancy to East Boston via Northern High System. The pipeline will connect to existing Meter 99 in East Boston and to the Boston low-pressure system through a new pressure-reducing valve.

Scope

Sub-phase	Scope
Survey, Design CA/RI and Construction – Section 8	Cleaning and cement mortar lining of the pipeline interior, replacement of all defective and inoperable valves, and the addition of new valves for 7,500 linear feet of 48-inch pipe on Section 8 in Malden and Everett. Replacement work consists of replacing 9,722 feet of 42-inch pipeline with new 36-inch ductile iron main and replacement of blow-off connections from Second Street in Everett to the Mystic River Bridge in Chelsea.
Rehab Sections 37, 38, and 46 Chelsea, East Boston Construction	Rehabilitation of approximately 3,550 linear feet of 36-inch cast iron main (Section 37) and approximately 2,500 linear feet of 36-inch cast iron main (Section 46). Both sections are located in Chelsea and are critical to the supply of water to East Boston. Section 38, the 36-inch ductile iron pipeline under the Chelsea River, is assumed to not need rehabilitation.
Section 97A Construction	Installation of approximately 3,000 linear feet of 16-inch and 12-inch water main and a new pressure-reducing valve. This new work will be part of the Northern High System and add redundancy to East Boston, including Logan Airport.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$18,571	$28	$18,543	$31	$59	$1,602	$3,183	$15,328

Project Status 5/08	0.3%	Status as % is approximation based on project budget and expenditures. Section 97A construction is expected to begin in FY09.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$17,629	$18,571	$942	Jul-16	Jul-16	-	$1,354	$3,183	$1,829

Explanation of Changes

- Budget increase reflects updated inflation due to new ENR index for Section 8 Design and Construction. Also, revised cost for permits. Increases were partially offset by revised cost estimate for Section 97A Construction.
- Spending shifted due to additional time required to complete environmental investigation, resolve East Boston service issues, and obtain MBTA License Agreement for Section 97A contract.

CEB Impact

- None identified at this time.

S. 702 New Connecting Mains - Shaft 7 to WASM 3

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Extends current asset life*
☑ *Improves system operability and reliability*

To provide redundancy and improve the reliability of WASM 3; provide hydraulic looping and redundancy, enable Intermediate High Sections 59 and 60 to be taken off-line for rehabilitation, and improve water quality by reducing the length of unlined cast iron water mains in the MWRA system. Completion of this project will help provide the basis for a strong hydraulic network of piping among WASM 3, WASM 4, the City Tunnel, and the possible future Metropolitan Tunnel Loop. The future conversion of Sections 23 and 24 to the Intermediate High Service system to create a unified Intermediate High Service area connecting the Belmont and Commonwealth Avenue pump stations will also be possible. This project will involve installation of 18,100 linear feet of new pipeline, and rehabilitation of 56,770 linear feet of pipeline.

Project History and Background

WASM 3 is a 56- to 60-inch diameter lock-bar steel pipe installed in 1926 and 1927. It is connected to the MetroWest Tunnel and Hultman Branch at the west end and the City Tunnel Extension at its east end. It extends from Weston through Waltham, Belmont, Arlington and Somerville to Medford. Most of its flow comes from the MetroWest Tunnel Shaft W, with peak flow of 57 million gallons per day. A lesser amount enters the main from the City Tunnel Extension Shaft 9. Upon completion of the Hultman Aqueduct and its interconnection to the Weston Aqueduct Terminal Chamber in 1941, WASM 3 became part of the High Service system. There are no connecting mains along the length of this 11-mile pipeline, and no other means available to adequately supply the nine communities it serves. WASM 3 serves communities northwest of Boston and is the sole source of supply to the Northern Extra High Service Area (Bedford, Lexington, Waltham, Arlington and Winchester) and the Intermediate High Service Area (Belmont, Arlington and Watertown). It also supplies a portion of the Northern High Service Area (Waltham, Watertown, Belmont, Arlington, Medford, and Somerville), and is a means of supplying the Spot Pond Supply Mains and Reservoir. WASM 3 serves a population of about 250,000.

A break almost anywhere on this pipeline would result in severe service disruptions in Waltham, Watertown, Belmont, Arlington, Lexington, Bedford and Winchester. Virtually no water would reach Waltham if a break were to occur at the west end of the pipeline; water normally supplied through the Shaft W connection would be forced through the Shaft 9 connection, increasing flows and reducing hydraulic grade lines in WASM 3, the City Tunnel and City Tunnel Extension. The lack of redundancy also makes routine cleaning and lining of the 80-year old pipeline impossible. The need for maintenance is indicated by a significant number of leaks, particularly on the most vulnerable west end, which are the result of corrosion pitting through the pipe wall, as well as by the reduced carrying capacity of the line.

Completion of this project will facilitate conveyance of high service water from WASM 4 to WASM 3 and improve the capability to convey water from Shaft 9 of the City Tunnel Extension to WASM 3. This will be accomplished by rehabilitating existing mains between the City Tunnel Extension and WASM 3 and connecting these mains by constructing new pipelines, such that transmission loops will be formed between the City Tunnel, City Tunnel Extension and WASM 3. The rehabilitation of WASM 4 is also closely related to this project, because WASM 4 will be interconnected to the new connecting mains of the Shaft 7 to WASM 3 project. WASM 4, which can be operated on high or low service, runs parallel to the City Tunnel from Shaft 5 to Shaft 8, midway between the City Tunnel and WASM 3. Using WASM 4 as a supply means for the new connecting mains will result in cost savings by delaying or eliminating the need for a new pipeline south of WASM 4 to a Shaft 7 connection. This project has evolved from the Shaft 7 to WASM 3 Connecting Mains project to the WASM 3 and WASM 4 Connecting Mains project. The revised project route through Newton and Waltham is shorter and less expensive.

Portions of this project have been placed on hold until the Long Term Redundancy study is completed. Specifically, the proposed new 48-inch pipeline through Newton and Waltham and the rehabilitation of Sections 23, 24 and 47 will be delayed for approximately two years because that scope of work may change as a result of the recommendations from the Long Term Redundancy study.

Scope

Sub-phase	Scope
Watertown MOU	Payment to the City of Watertown to fund a portion of its Galen Street project to replace an existing 10-inch diameter pipeline with a new 12-inch diameter water main.
Routing Study (5163)	Identification of alternatives to determine the optimum approach for providing additional strong connections to WASM 3.
Design/CA/RI-DP1 (6383)	Design, construction administration and residential inspection services for a new 48-inch pipeline to interconnect WASM 3 with WASM 4 (CP-1).
Revised North Segment (CP1A) (6391)	Installation of 13,300 linear feet of new 48-inch connecting main from WASM 4 to WASM 3.
Design/CA/RI DP2/4 Meter 120 (6384)	Design, construction administration and residential inspection services for CP-2/4 Meter 120.
Design and Construction CP2 C&L Sections 59 & 60 (7086/6548)	Cleaning and lining of 16,400 linear feet of 20-inch diameter pipe on Sections 59 and 60 (Intermediate High) from Section 25 in Watertown to Meter 121 in Arlington.
South Segment CP3 (6392)	Cleaning and lining of 6,900 linear feet of 20-inch pipe (Section 24) from Meter 120 to WASM 4, 5,350 linear feet of 36-inch (Section 23) and 10,170 linear feet of 20-inch (Sections 24 and 47) pipe, and 2,950 linear feet of 20-inch pipe along Section 24 from WASM 4 to Meter 40.
NE Segment CP5 (6394)	Rehabilitation of 15,000 linear feet of 20 and 48-inch diameter pipe for Sections 18, 50, and 51 for the Northeast Segment plus Meter 32 replacement.
Replacement of Section 25 Design (6955) and Construction (6956)	Replacement of existing Section 25 (approximately 4,800 linear feet of existing 16" pipe) with a new pipeline.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$56,969	$4,719	$52,250	$776	$2,445	$2,239	$28,818	$22,657

Project Status 5/08	9.3%	Status as % is approximation based on project budget and expenditures. Watertown MOU and Routing Study are complete and design work is in progress. Northeast Segment CP-5 construction contract is scheduled to be awarded in the fall 2008. Construction, of the South Segment CP3 and CP1A are to be rescheduled following recommendations of the Long Term Redundancy Study.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$53,644	$56,969	$3,325	Sep-14	Sep-17	36 mos.	$39,888	$28,818	($11,070)

Explanation of Changes

- Budget increased due to inflation adjustment due to new ENR index on unawarded contracts. Also, revised cost estimate for South Segment (CP3).
- Spending shifted pending recommendations from the Long Term Redundancy Study.

CEB Impact

- None identified at this time.

S. 692 Northern High Service – Section 27 Improvements

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Extends current asset life*
☑ *Improves system operability and reliability*

To rehabilitate/replace a segment of 107-year old pipe in Lynn which suffers from poor hydraulic performance and frequent leakage. Rehabilitate/replacement of approximately 7,200 linear feet of pipeline will improve service to the communities north of Lynn.

Project History and Background

Section 27 is a 12–20 inch diameter cast iron main installed in 1898 that serves the communities north of Lynn. The main has become severely corroded. As a result of this deterioration, various major leaks have occurred since 1966. Because the main runs under major thoroughfares in Lynn, emerggency repair of leaks is disruptive and costly. Appropriate corrosion control methods will be employed on the pipeline to minimize corrosion potential in Section 27. During preliminary design, an evaluation determined MWRA should abandon an adjacent pipeline, Section 35.

Scope

Sub-phase	Scope
Construction Sections 27	Rehabilitation/replacement of 7,200 linear feet of pipeline to replace severely corroded pipe.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$2,983	$124	$2,859	$0	$0	$1	$17	$2,843

Project Status 5/08	4.1%	Status as % is approximation based on project budget and expenditures. Construction/Rehab of Section 27 scheduled to begin in Sept 2013.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$2,789	$2,983	$194	Mar-15	Mar-15	-	$16	$17	$1

Explanation of Changes

- Increase due to inflation adjustment due to new ENR index.

CEB Impact

- None identified at this time.

S. 693 Northern High Service - Revere and Malden Pipeline Improvements

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Extends current asset life*
☑ *Improves system operability and reliability*

To improve the delivery capabilities of major distribution lines serving the Northern High System. The existing pipelines are inadequate and suffer from extensive corrosion and leakage. Replacement, rehabilitation, and/or reinforcement will provide a strong and reliable means to convey water from the City Tunnel Extension to communities in the northern and eastern portions of the Northern High Service Area.

Project History and Background

The southeast corner of the Northern High Service Area has experienced pressure deficiencies because of undersized pipes and extensive pipeline corrosion. The corrosion problems have led to numerous leaks and the pressure deficiencies cause fire-fighting difficulties. These deficiencies particularly affect Malden, Revere, Lynn, Winthrop, Deer Island, East Boston, Saugus, Nahant, Peabody, Marblehead, and Swampscott. To correct these problems, MWRA is implementing a series of pipeline improvements.

This project includes installation of pipeline on Sections 97, 97A, 53A, and 68 in Revere and Section 53 in Malden; rehabilitation of Sections 53 and 55 in Revere; and installation of control valves to improve water pressure. All the work for this project, with the exception of the design and construction of Section 53, Revere Section 53A, Section 68 and the Shaft 9A-D Extension is complete. Completion of this construction will improve the pressure and flow of water conveyed to the Northern High Service Area.

A hydraulic study of the distribution system recommended that MWRA install a new pipeline in Revere, beginning at the Everett/Chelsea/Revere border and extending through Revere to the East Boston border. This new pipeline runs parallel with existing pipelines and carries a large portion of the flow formerly carried by the existing system, thereby increasing water pressure and flow to Revere, East Boston, Winthrop, and Deer Island, particularly during periods of high demand. Installation of new control valves was required to regulate water pressure and fill the Winthrop standpipe. The original control valves between Winthrop pipelines and MWRA transmission mains were inadequate. Fluctuations in pressure threatened to rupture the town's pipelines. More efficient valves were required to eliminate the danger. Flow tests performed on Sections 32 and 55 of the existing Revere and Winthrop pipeline revealed that these sections had severe flow problems. The pipeline was only able to carry a fraction of its designed capacity because of internal corrosion. Cleaning and lining the pipeline restored flow capacity.

Section 53 in Malden and Revere was an 18,900-feet long, 30-inch steel pipeline, exceeding 60 years of age. Workers dug four test pits to determine the condition of this pipeline and uncovered 18 holes in the pipe. Investigations into recent failures revealed severe corrosion through the pipe wall in several locations. Replacement of the Malden portion of Section 53 with a new 48-inch main has been completed. The Revere portion of Section 53 will be rehabilitated and/or replaced as necessary. In addition to feeding into the new 48-inch Saugus/Lynn pipeline, this pipeline will play an important role in the supply network for Deer Island. Section 53A, an old 24-inch pipeline, is used to connect Section 53 to Shaft 9A of the City Tunnel. It is undersized for this purpose and is a severe restriction. A new 3,000-foot, 60-inch diameter pipeline is needed to reinforce Section 53A. An 850-feet portion of Section 68 interconnects Section 53 with the new Saugus/Lynn pipeline. This section needs to be reinforced with 850 feet of 48-inch pipeline. The Shaft 9A-D Extension will provide a more reliable connector to the Section 99 pipeline that serves as the suction line to the Gillis Pump Station.

Construction of the Malden Section 53 and Revere Beach pipelines was substantially completed in September and October 1994 respectively.

Scope

Sub-phase	Scope
Design/CS/RI – Revere/Malden	Design, construction services, and resident inspection for Section 53 in Malden and Sections 97 and 97A in Revere.
Construction Revere Beach	Installation of 5,491 linear feet of 36-inch pipeline and 10,111 linear feet of 30-inch pipeline on Section 97, as well as 3,872 linear feet of 24-inch pipeline, and 1,350 linear feet of 20-inch pipeline on Section 97A in the vicinity of Revere Beach Parkway.
Construction Malden Section 53	Installation of 11,907 feet of 48-inch diameter pipeline in Malden on Section 53.
Construction Linden Square	Construction and construction administration of a 1,000 linear feet segment of Section 53 in the Linden Square area of Malden. The Massachusetts Highway Dept constructed this section as part of its roadway reconstruction project around Linden Square.
Construction Revere Section 53	Rehabilitation of 4,900 linear feet of 30-inch pipe in Revere on Section 53 and replacement of 1,500 linear feet under Route 1 in Revere.
Construction Road Restoration	Design, construction administration, and construction of the full road restoration to ensure a stable road surface without cracking on Eastern Avenue in Malden in compliance with the requirements of the Massachusetts Architectural Access Board. The City of Malden will do this work.
Construction Control Valves	Installation of control valves needed to regulate water pressure and fill the Winthrop standpipe.
Construction DI Pipeline Cleaning & Lining (C&L)	Design and cleaning and lining of the 2,000 linear feet, 8-inch diameter water supply main to Deer Island.
Construction – Winthrop C&L	Rehabilitation of 7,900 linear feet of 16-inch diameter pipe on Section 32 and 20-inch diameter pipe on Section 55 in Revere and Winthrop.
Construction 68 & 53A	Construction of 850 linear feet of new 48-inch pipe (Section 68) and 3,000 linear feet of new 60-inch pipe (Section 53A) in Malden.
Shaft 9A-D Extension Construction	Construction of approximately 2,000 linear feet of new pipeline in Malden connecting the Shaft 9A-D line to Section 99.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$33,038	$23,882	$9,156	$16	$44	$2,308	$3,701	$5,439

Project Status 5/08	72.3%	Status as % is approximation based on project budget and expenditures. Revere Beach, Malden Section 53 and Linden Square construction are complete. Revere Section 53 construction is now expected to commence in July 2008.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**
$32,161	$33,038	$877	Nov-15	Nov-15	None	$2,307	$3,701	$1,394

Explanation of Changes

- Budget increase due to revised cost estimate for Section 53.
- Spending increased in CAP period due to revised cost and forecast for Section 53.

CEB Impact

- None identified at this time.

S. 731 Lynnfield Pipeline

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Improves system operability and reliability*

To meet high demands in Lynnfield by installing approximately 4,450 linear feet 24-inch water main, 2,840 feet of 36-inch water main and 6,000 feet of 12-inch water main The Lynnfield Water District serves a portion of the Town of Lynnfield. The community meter is served by an 8-inch main, approximately 7,000 feet long. The main is undersized and its capacity is inadequate to meet high water demands. Rehabilitation of the main will not increase the capacity sufficiently.

Project History and Background

MWRA supplies Lynnfield Water District via Meter 169 located adjacent to Route 1 at the Saugus/Lynnfield town line. An eight-inch cast iron main, approximately 7,000 feet long, connects Meter 169 to Section 70 in Saugus. This main does not have the hydraulic capacity to serve the meter during high demand periods. This project includes construction of a supplemental main from Section 70 to the meter and construction of approximately 6,000 feet of distribution piping for the town of Saugus. The cost of this project will be shared by MWRA and the town of Saugus. An interim interconnection to the Saugus system was constructed in early FY08.

Scope

Sub-phase	Change/Explanation
Temporary Interconnect Construction Ph 1	Install approximately 150 feet of 24" main.
Design and Construction Ph 2	Construction of 4,450 linear feet of new 24-inch main, 2,840 feet of 36-inch water main and 6,000 feet of 12-inch water main.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$6,705	$0	$6,705	$446	$446	$260	$6,259	$0

Project Status 5/08	9.7%	Status as % is approximation based on project budget and expenditures. Temporary Interconnect Construction Phase I commenced in June 2007 and reached substantial completion in December 2007. Design commenced in October 2007.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$6,724	$6,705	($19)	Jul-11	Jun-12	11 mos.	$5,836	$6,259	$423

Explanation of Changes

- Schedule shift due to additional time needed to bid, award, and execute design contract and secure Saugus funding for the project.

CEB Impact

- None identified at this time.

S. 618 Northern High NW Trans Section 70-71

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Extends current asset life*
☑ *Results in a net reduction in operating costs*
☑ *Improves system operability and reliability*

Master Plan Project ☑ 2008 Priority Rating 2 (see Appendix 3)

To improve service reliability by completing a study to rehabilitate more than 10 miles of pipeline serving the northern high service area.

Project History and Background

The Northern High System Pipeline Sections 70, 71 and 79 are the primary distribution mains that supply water to seven north shore communities. These water mains are constructed of unlined steel and are over 55 years old. Rehabilitation of these pipelines will extend their useful life and postpone the need for more costly pipe replacement in the future. This project includes an initial planning study that will assess the existing pipe condition and develop a sequence of work that would ensure uninterrupted service to the north shore communities while pipeline segments are out of service for rehabilitation. Future phases for design and construction of the rehabilitation will be added to this project based on the results of the planning study.

Scope

Sub-phase	Scope
Planning	Planning phase for the rehabilitation of more than 10 miles of NHS Sections 70, 71, and 79.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$1,000	$0	$1,000	$0	$0	$0	$750	$250

Project Status 5/08	0.0%	Status as % is approximation based on project budget and expenditures. Planning is expected to begin in October 2011.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$1,000	$1,000	$0	Jun-12	Sep-13	15 mos.	$1,000	$750	($250)

Explanation of Changes

- Schedule shifted due to competing project priorities.

CEB Impact

- None identified at this time.

S.708 Northern Extra High Service - New Pipelines

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Extends current asset life*
☑ *Improves system operability and reliability*

To improve hydraulic service and reliability for major portions of the Northern Extra High System. Existing lines are undersized and frequently experience pressure problems. Improvements will include construction of two new pipe segments and rehabilitation of an existing main.

Project History and Background

Sections 34 and 45 provide service to the Northern Extra High (NEH) communities of Waltham, Lexington, Bedford, Belmont, Winchester and Arlington. The existing pipelines are not large enough to meet maximum day plus fire flow service goals. Construction of a new larger pipeline will improve reliability, pressure, and flows, which will result in better fire protection and reduced pumping costs. Section 34, which is an undersized 1,532 linear feet 12-inch diameter cast iron main installed in 1911, may be the source of water quality problems. The pipe is a key component of the NEH Service System and provides service between Brattle Court Pump Station and the community distribution systems. Section 45 is a 16-inch cast iron main 3,374 linear feet long that was installed in 1920. A portion of Section 45 was rehabilitated in an earlier phase of this project. The current phase includes rehabilitation of the remaining portion of the pipeline.

Scope

Sub-phase	Scope
Design/CA/RI and construction – Sections 45, 63, and 83.	Replacement of approximately 2,600 linear feet of Section 45 with 24-inch diameter pipe extending from the connection point at Meter 47 to Section 82 on Park Street at the Intersection of Paul Revere Road in Arlington; installation of about 2,100 linear feet of new 24-inch pipeline, parallel to a portion of Section 83, starting from Meter 182 and proceeding to the intersection of Waltham Street (in Lexington and part of Waltham) and Concord Ave (in Lexington). Rehabilitation of Section 63, consisting of about 3,400 linear feet of 20-inch pipeline connecting Section 63 to Meter 136.
Construction Sections 34 & 45	Replacement of 1,532 linear feet of 12-inch diameter cast-iron pipe (Section 34) with new 20-inch diameter pipe and rehabilitation of 3,374 linear feet of 16-inch diameter cast iron main (Section 45).

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$6,384	$3,632	$2,752	$0	$69	$2	$33	$2,719

Project Status 5/08	56.9%	Status as % is approximation based on project budget and expenditures. Construction of a portion of Section 45 was rehabilitated in September 2001. In-house design of Sections 34 and 45 followed by construction scheduled to start in FY14.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$8,919	$6,384	($2,535)	Nov-15	Nov-15	None	$34	$33	($1)

Explanation of Changes

- Budget decrease due to revised base cost estimate for Sections 34 and 45. Section 36 work budgeted under WASM project.

CEB Impact

- None identified at this time.

S. 725 Hydraulic Model Update

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Provides environmental benefits*
☑ *Extends current asset life*

To bring MWRA hydraulic and water quality modeling capabilities up to modern standards, and to integrate the water quality model with MWRA's s GIS, SCADA, and Telog systems. Completion of the project will also improve the use of the existing hydraulic model to manage system operations by making screen displays geographically accurate, standardizing model facility naming to coordinate with GIS, and allowing simulations to be conducted to predict changes to disinfection residual levels in the water as it moves through the MWRA system. The project builds on the foundation of the existing model and incorporates improvements already implemented in the GIS system.

Project History and Background

The MWRA Water System Model Study completed in 1991 by Camp, Dresser and McKee included the development of a computer based hydraulic model of the MWRA water system. Transmission and distribution system piping, pump stations, storage facilities, revenue meters, pressure reducing valves, and other system appurtenances were incorporated into the model. The model was developed using software written by Stoner Associates, Inc.

In working towards an updated model, staff have incorporated capital improvements to the waterworks system, updated community demand information using data from the telog data collection system, and updated the model operating environment. The operating system platform was changed from a VAX/VMS environment to a desktop PC Windows operating system to make the interface more user friendly and to make the model more accessible to staff. In addition to hardware and software improvements, current model data files need to be updated and enhanced. Some of these enhancements include improving geographic accuracy, adding the ability to separate the entire water system into smaller subset models (e.g., by pressure zone), implementing changes to the system water quality model, and efficiently updating the system by creating links to other databases. This project also includes development and implementation of field tests to collect system data used to calibrate the computer model and verify its accuracy.

Scope

Sub-phase	Scope
Hydraulic Model Update	Revisions and upgrades to the computer based model of MWRA's water system.
Model Enhancement Support Services	Purchase of software to support MWRA's water quality modeling requirements per discussions with American Waterworks Association Research Foundation and other large utilities performing similar work.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$686	$598	$88	$0	$1	$0	$88	$0

Project Status 5/08	87.2%	Status as % is approximation based on project budget and expenditures. Hydraulic Model Update complete with only model enhancements work remaining.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**
$686	$686	$0	Jun-07	Jun-07	None	$0	$88	$88

Explanation of Changes

- Remaining work rescheduled.

CEB Impact

- None identified at this time.

S. 735 Section 80 Rehabilitation

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Extends current asset life*

Master Plan Project☑ 2009 Priority Rating 3 (see Appendix 3)

Rehabilitation of approximately 16,197 feet of pipe along 129/95. Section 80 supplies water to Wellesley and Needham. Rehabilitation will improve water quality to these two MWRA communities.

Project History and Background

Section 80 is a steel main that runs from Shaft 5 of the City Tunnel in Newton to supply Wellesley and Needham. The main runs along portions of 128/95 and has been exposed to highly corrosive conditions and cathodic protection has not been maintained. Complaints from residents in Needham and Wellesley of a tar-like smell in the water indicate deterioration of the pipe liner. Testing indicated phenols levels 10 times allowable limits. Failure of Section 80 would create huge traffic challenges on this major metro-Boston highway.

Scope

Sub-phase	Scope
Section 80 Design CA/RI and Construction	Design and rehab of approximately 16,197 feet of pipeline in Section 80 along route 128/95.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$7,620	$0	$7,620	$0	$0	$0	$962	$6,658

Project Status 5/08	0.0%	Status as % is approximation based on project budget and expenditures.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$0	$7,620	$7,620	N/A	May-15	N/A	$0	$962	$962

Explanation of Changes

- Projected added during the FY09 CIP process.

CEB Impact

- None identified at this time.

S. 753 Central Monitoring System

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Improves system operability and reliability*
☑ *Extends current asset life*
☑ *Results in a net reduction in operating costs*

To provide a modern centralized system for monitoring, coordinating, and controlling critical waterworks functions. Many existing MWRA facilities are monitored and operated using obsolete methods and equipment, which can hinder emergency response capabilities and prevent coordinated system operation. Two operations control centers are already operational, and various field facilities have been equipped with telemetry and communications equipment as part of this project.

Project History and Background

MWRA has been converting to system-wide remote monitoring and control of essentially all hydraulic and hydroelectric operations. The original instrumentation used to measure operating parameters was incomplete, old, and in poor condition. In many cases necessary instrumentation did not exist. The system also lacked telemetry to provide centralized and immediate information on system performance, and the ability to remotely intervene when malfunctions occurred. Without telemetry, operating decisions had to be delayed until field personnel were dispatched to collect measurements. This was a cumbersome and undesirable mode of operation, particularly in emergency situations.

The lack of flow measurement within the water delivery system also impeded identification of sources of unmetered water. When fully implemented, the central monitoring system will generate instantaneous data on water flow and pressure in 18 subsystems beginning with the supply sources and ending at the delivery points to user communities. The data will assist operations staff in detecting and pinpointing leaks in the system. The response time for leak repair work can then be lessened, resulting in significant savings of water and reduction in potential MWRA liability for public safety and property damage.

The central monitoring project has grown from the initial automation of the Reservoir Road Pump Station to include eight other pump stations. Monitoring and control of water treatment facilities has expanded to include the Interim Corrosion Control Facility in Marlborough, the Cosgrove Disinfection Facility, the Norumbega Temporary Disinfection Facility and the Ware Disinfection Facility. In addition, water quality is monitored at seven locations from two Operations Control Centers. Real time SCADA monitoring of Telog data is being established with 150 sites currently active. Operation control centers (OCCs) at the MWRA Chelsea and Clinton facilities provide remote monitoring and control of all the SCADA facilities. Also, as part of its Integrated Water Supply Improvement Program, MWRA is building several new and upgraded facilities. These include the Nash Hill Covered Storage facility and the Loring Road Covered Storage facility, which are complete, and the Walnut Hill Water Treatment Plant, the MetroWest Water Supply Tunnel, , and the Norumbega Covered Storage facility, which are under construction. The existing system-wide backbone microwave communications network has been improved to connect these new facilities to the waterworks communications system.

Scope

Sub-phase	Scope
Study	Study to determine the implementation phases.
Design	Design of the replacement and rehabilitation of 34 existing master meter sites, 22 new master meter sites, 15 western revenue meter sites, 28 reservoir level instrumentation sites, ten pumping stations, eight pressure regulator control sites, four major throttle valve sites, six chemical feed sites, four hydroelectric sites, five weather stations, five sluice gate control sites, one stream gauging station, and other facilities.

Sub-phase	Scope
Communications Structures	Installation of two radio towers, five antennas, one satellite dish, and an equipment shelter.
CS/Start-Up Services	Construction and startup services for the metropolitan Operations Control Center, as well as metering and monitoring construction.
Equipment Pre-Purchase	Purchase of instrumentation equipment, mechanical equipment, and new master meters.
Construction 1 – Reservoir Road and Cosgrove Pilots	Purchase and installation of equipment to automate the Reservoir Road Pump Station and an aqueduct monitoring system for use by the Cosgrove Intake and Shaft 4 operators**.** MWRA staff installed the equipment.
SCADA Implementation	Purchase of Supervisory Control and Data Acquisition System (SCADA) equipment for monitoring and metering sites and pressure reducing valve sites. MWRA staff will install most of this equipment. Connections of SCADA equipment to local utilities.
Microwave Equipment	Purchase of services and equipment necessary to allow MWRA to convert from analog to digital communications to continue to utilize the Commonwealth's Interagency Microwave System.
Construction – Operations Center	Construction of a 5,000 square feet center including an environmentally controlled computer room, a printer room, a control room, office space, and sanitary facilities in Chestnut Hill.
System Wide Backbone C.P. Construction– Monitoring & Control Communications Network	Improvement of the existing Waterworks system wide backbone including upgrades of microwave antennas at MDC Hill and Bellevue water tank and provision of new microwave antennas at five facilities.
Study and Design –Waterworks Monitoring & Control Communications Network	Provision of microwave antennas and radio equipment at twelve facilities.
Microwave Communication for Waterworks Facilities	Furnish and install seventeen microwave antennas (dishes), three 3-legged, 90- to 100-foot towers, one unpowered 80-foot steel monopole, and two prefabricated concrete shelters to house radio equipment with associated racks, cabinets and wiring.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$16,092	$15,667	$425	$75	$884	$200	$350	$0

Project Status 5/08	97.4%	Status as % is approximation based on project budget and expenditures. All contracts are complete except for SCADA Implementation work, which is scheduled for completion in June 2009.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**
$16,092	$16,092	$0	Jun-09	Jun-09	-	$205	$350	$145

Explanation of Changes

- Spending changed due to revised forecast.

CEB Impact

No additional impacts identified at this time.

S. 763 Distribution Systems Facilities Mapping

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Improves system operability and reliability*

To produce a complete, up-to-date set of appropriate scale maps of all underground waterworks facilities, along with a comprehensive database inventory. Existing maps were outdated and unreliable, complicating emergency response, field repairs, and planning.

Project History and Background

In 1995 MWRA did not have an adequate, updated set of maps of all of its underground waterworks facilities. Existing maps did not consistently show current conditions and were often incompatible or contradictory with MWRA databases. Engineering, operations, and emergency response were all affected by this inadequacy. Outdated maps hampered engineering because maps needed to be re-created. Field operations crews could not predict with certainty the results of valve shut-offs during repair efforts. The planning process was impaired because management did not have authoritative, consolidated data to evaluate pipe condition, age, C-Values, materials, and soil conditions. Additionally, the lack of a comprehensive understanding of the relationships between MWRA and local community pipe systems could result in service delays. The former mapping system created the possibility of incorrect actions, and in critical instances could have resulted in exacerbated property damage.

Reliable engineering records do not exist for certain sections of the distribution system. The Records Development sub-phase will create record drawings and detail records for high priority areas.

Scope

Sub-phase	Scope
Planning/Design	Creation of a complete set of 200 to 400 scale maps of the distribution system with an associated verified inventory of size, material, age, and condition of pipes.
Data Purchase	Purchase of project related data from Boston Edison.
Records Development	Automation of MWRA record drawings.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$2,444	$1,036	$1,407	$0	$7	$0	$1,407	$0

Project Status 5/08	42.4%	Status as % is approximation based on project budget and expenditures. Records Development is the one outstanding sub-phase and has been delayed due to staffing constraints and competing project priorities. Expect NTP in FY10.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**
$2,348	$2,444	$96	Dec-09	Dec-11	24 mos.	$889	$1,407	$518

Explanation of Changes

- Project schedule moved out due to department project priorities.

CEB Impact

None identified at this time.

S. 765 Local Water Pipeline Assistance Program

Project Purpose and Benefit

☑ *Contributes to improved public health*
☑ *Provides environmental benefits.*

To provide loans to facilitate the rehabilitation or replacement of unlined water pipelines in MWRA communities.

Project History and Background

The Local Pipeline Assistance Program is a critical piece of MWRA's Integrated Water Supply Improvement Program. In November 1999, the Board of Directors approved an MWRA-administered program, supported for ten years through a Tax Exempt Commercial Paper (TECP) program, to make $25 million available annually in loans to MWRA communities for pipeline relining and replacement in proportion to each community's share of total unlined pipe miles. Communities are required to pay back principal for each loan during a ten-year time period beginning one year after the project funding is approved. To qualify for funding communities must demonstrate appropriate distribution system management practices. MWRA increased the initial total program budget to $256,723,500 to provide funds for additional water system communities: Stoughton ($4,480,000), Reading ($1,916,000), Lynnfield ($320,000) and Dedham/Westwood ($7,500).

Scope

Sub-phase	Scope
Community Loans	Loans for MWRA water communities to replace and rehabilitate local water pipelines allocated based on each community's share of total unlined pipe miles.
Community Repayments	Principal repayment over a ten-year period beginning one year after origination of the loans.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$0	$94,633	($94,633)	($3,539)	$45,549	$7,990	$29,430	($120,523)

Project Status 5/08	52.4%	Through May 2008, $139.1 million in loans was distributed to member communities.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$0	$0	$0	Jun-23	Jun-23	-	$16,715	$29,430	$12,715

Explanation of Changes

- Spending shift is a result of the timing of member community requests for financial assistance.

CEB Impact

- None.

S. 766 Waterworks Facility Asset Protection

Project Purpose and Benefits

☑ *Contributes to improved public health*
☑ *Extends current asset life*
☑ *Improves system operability and reliability*

To protect the investment of MWRA ratepayers by ensuring timely replacement of equipment and systems.

Project History and Background

This project was developed to ensure that MWRA maintains ongoing service while optimizing operations in its water facilities. This project in its current form addresses immediate critical facility and equipment issues. This project will eventually include five areas:

1. Equipment replacement (pumps, HVAC equipment, blowers, etc.).
2. Architectural projects (concrete corrosion, etc.).
3. Utilities projects (water, sewer, drainage, electrical wiring, heating system, etc.).
4. Support Projects (process control system upgrades, etc.).
5. Specialty Projects (instrumentation upgrades, fuel storage tanks, etc.).

While the current schedule indicates a completion date of 2017 for construction, the Waterworks Facility Asset Protection project will be ongoing throughout the useful life of the facilities.

Scope

Sub-phase	Scope
Meter Vault Manhole Retrofits	Retrofit approximately 195 meter manholes.
Design and Construction Walnut Hill Tank	Full structural analysis of the Walnut Hill Elevated Tank based on corrosion discovered. Rehab of the tank based on the structural analysis.
Waltham Pipe Bridge Replacement	Replacement of approximately 100 feet of 30-inch steel pipe over commuter rail tracks in Waltham including a bridge crossing.
Design and Construction Cosgrove Valve Seat Replacement	Replacement of isolation sluice gates at Cosgrove Intake to improve reliability for emergency shut down of Cosgrove facility and to isolate new sliding sleeve valves to facilitate preventive maintenance and any future corrective maintenance. Installation of vent structures in draft of new sliding sleeve valves to relieve vacuum conditions when valves are operating and to prevent damage to floor plates and to eliminate an unsafe and unsanitary condition.
Transformer at Cosgrove Intake Building	Replacement of a 45 year old main service transformer. This transformer supplies power to the Cosgrove Intake Building. If it were to fail, the building would be running on generator power for a significant period of time. The new transformer will be a dry type and replace present oil filled one.
Design of Cosgrove Turbine Isolation	Modification of means of downstream isolation of Cosgrove turbines to allow for preventive and corrective maintenance against new tailwater elevation which was increased to allow flow to John J. Carroll Water Treatment Plant.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$4,705	$221	$4,484	$24	$245	$150	$2,538	$1,922

Project Status 5/08	5.2%	Status as % is approximation based on project budget and expenditures. Waltham Pipe/Bridge Replacement project was substantially complete in September 2004. Expect Valve Seat Replacement Design to commence in July 2011.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$4,098	$4,705	$607	Jun-17	Jun-17	None	$1,906	$2,538	$632

Explanation of Changes

- Budget and spending increased primarily due to new subphase added for Transformer at Cosgrove Intake

CEB Impact

None identified at this time.

S. 933 Capital Maintenance Planning/Development

Project Purpose

To optimize the efficiency and effectiveness of MWRA maintenance practices by developing and implementing a strategic maintenance plan for MWRA assets.

Project History and Background

MWRA is responsible for rehabilitating, repairing, and maintaining the regional water and sewerage system infrastructure. Since its assumption of the ownership and operations of the water and sewer systems in 1985, MWRA has undertaken an ambitious program of capital improvements to the systems, with estimated expenditures of more than $7 billion for fiscal years 1986 through 2013.

Given the significant value and critical nature of these assets, system maintenance is of paramount importance. This project helps MWRA optimize maintenance practices by evaluating alternative approaches to equipment, infrastructure and facility maintenance, recommending a maintenance strategy, implementing a pilot program to test the recommended strategy, and developing a plan to implement the recommended strategy throughout MWRA.

In the FY01-03 CIP the Capital Maintenance Planning/Development project was part of the first phase of the Wastewater Facilities Asset Management Program (FAMP). This initial phase of FAMP consisted of evaluating maintenance strategies for equipment and systems at Deer Island, and led to the adoption of Reliability Centered Maintenance (RCM) as the maintenance strategy for Deer Island and subsequently the rest of MWRA. As a result of the decision to implement RCM throughout MWRA, the Capital Maintenance Planning/Development project was created. The remaining FAMP components, which address equipment system monitoring, Maximo improvements, and improved business practices at Deer Island, have been renamed Deer Island Treatment Plant Asset Protection.

Scope

Sub-phase	Scope
Inventory & Evaluation Phases 1 & 2	Development of a comprehensive, strategic maintenance plan for MWRA. (Completed by July 2005).
As-Needed Design	Contracts for professional design and/or technical assistance services for either wastewater or waterworks system improvement projects to supplement existing engineering resources for specialized and/or complex engineering issues. Subphases consist of As-Needed Design phases 1-8.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$7,688	$3,145	$4,543	$865	$1,836	$729	$3,679	$0

Project Status 5/08	48.1%	Status as % is approximation based on project budget and expenditures. All tasks in *Inventory & Evaluation Phases 1 & 2* are complete. Use of the first two As-Needed Design contracts started in FY2005. As-Needed Design contracts 3 & 4 began in August 2007. As-Needed Design 5& 6 are expected to begin in September 2008.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**	**FY08**	**FY09**	**Chge.**
$8,891	$7,688	($1,203)	Sep-13	Sep-12	(12 mos.)	$3,691	$3,679	($12)

Explanation of Changes

- Budget and spending reduced for CEB related work.

CEB Impact

- One of the final tasks under the *Inventory & Evaluation Phases 1 & 2* contract consisted of REI/ESDC services on the *Equipment Condition Monitoring* subphase, one of the projects under S.206, *Deer Island Treatment Plant Asset Protection*. Condition Monitoring provides DITP staff with real time, non-intrusive means of evaluating equipment performance (through vibration and temperature monitoring). Maintenance tasks are then performed when the trends indicate that a problem exists, saving staff time and reducing unnecessary maintenance. Total budgetary benefits are not quantified at this time.

S. 881 Equipment Purchase

Project Purpose

To provide critical equipment for improved maintenance and operations at MWRA facilities.

Project History and Background

This project includes the purchase of large vehicles, purchase and installation of security equipment at various MWRA facilities, and purchase of an Inductively Coupled Plasma-Mass Spectrometer (ICP-MS) for MWRA's Central Laboratory. The security equipment and installation component of the project includes the design and installation of security systems at MWRA facilities. MWRA is ranking facilities and locations with respect to the critical nature of service delivery, with an emphasis on the waterworks system. This ranking will frame the extent and scheduling of the security improvements for each specific site.

Scope - New subphase added to the FY09 CIP are noted in **Bold.**

Sub-phase	Scope
Security Equipment & Installation	Design and installation of security systems at various MWRA facilities and sites.
ICP-MS Lab Testing Equipment	Purchase of Inductively Coupled Plasma – Mass Spectrometer to replace a 14-year-old instrument and expand the laboratory's high sensitivity metals testing capacity.
Major Laboratory Instrumentation	Purchase major laboratory instrumentation, such as high resolution GC-MS or LC-MS to provide for lab testing of newly regulated contaminants.
Vehicles:	
TV Inspection Truck	Purchase of a replacement TV inspection vehicle (WRA36) in June 2001.
Backhoe (Excavator)	Purchase in June 2003 of excavator (WRA310) to support maintenance staff.
Vactor Truck	Purchase in June 2003 of vactor truck (WRA479) used to clean out and jet sewer lines at the site by Field Operations Department personnel.
Water Service Truck	Purchase in June 2004 of water service truck (WRA777) for Field Operations Department.
Bucket Machine	Purchase of bucket machine (will replace WRA272 & 273) to support Field Operations Department maintenance staff.
Excavator	Purchase of equipment (replace WRA532) to support maintenance staff in water pipeline unit of Field Operations Department.
Grove Crane	Purchase of crane (replaces WRA14 and 046) to support maintenance staff in Field Operations Department.
Landfill Loader	Purchase landfill loader (WRA124) to support Clinton Wastewater Treatment Plant staff in landfill operations.
Power Sweeper/ Catch Basin	Purchase of equipment (WRA210) in September 2004 to support maintenance staff at Chelsea in Field Operations Department. Will be used agency-wide.
Backhoe	Purchase in January 2005 of equipment (WRA817; replaced WRA 385) to support maintenance staff in Water Pipeline Unit of Field Operations Department.
Closed Circuit TV Inspection Truck	Purchase of TV Inspection Truck (WRA700) to support Wastewater Pipeline Unit of Field Operations Department.
Front-End Loader	Two phases to purchase front-end loaders to support maintenance staff primarily in the Water Pipeline Unit of the Field Operations Department and at Deer Island.
Crane	Purchase of crane (WRA185) to support the Water Pipeline Unit in the Field Operations Department.

Sub-phase	Scope
Ramp Truck	Purchase of Ramp Truck to replace WRA-396 to support Fleet Services.
Street Sweeper	Purchase of Street Sweeper to support MWRA facilities and community assistance.
Future Vehicle Purchases	Placeholder for the purchase of 16 new vehicles within the FY09-13 timeframe.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$11,977	$4,477	$7,500	$1,680	$5,399	$3,237	$5,820	$0

Project Status 5/08	50.6%	Status as % is approximation based on project budget and expenditures. Purchase and installation of security equipment is in process and will continue through FY11.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$8,904	$11,977	$3,073	Dec-08	Jun-11	30 mos.	$2,082	$5,820	$3,738

Explanation of Changes

- Budget and spending increase due to addition of Major Laboratory Instrumentation and Future Vehicle Purchases, Ramp Truck and Street Sweeper as new subphases.
- Spending increase due to reason above as well as extension of Security Equipment and Installation subphase.
- Schedule shift due to Security Equipment and Installation subphase being extended through FY11.

CEB Impact

None identified at this time.

S. 930 MWRA Chelsea Facility

Project Purpose

To improve MWRA operations by consolidating maintenance, operations, administrative, and equipment storage functions into a single facility. This will relieve current overcrowding and adverse traffic impacts on neighborhoods abutting existing facilities.

Project History and Background

When MWRA was created in 1986, 80 employees and 22 vehicles were transferred from MDC to MWRA to support maintenance of the metropolitan waterworks system and the northern sewerage system. Since then, MWRA has invested significantly in new facilities and improved maintenance and repair of the systems.

While maintenance programs were updated, the inadequacy of MWRA's maintenance support facilities became a serious constraint. In addition to being inefficiently located, virtually all of the maintenance and support facilities were already decades old when inherited from MDC, in disrepair, and too small to house necessary workforce and equipment. To accommodate the maintenance program, a number of temporary measures were taken to provide support facilities, including creation of temporary quarters in rented trailers, leasing of space, and reuse of space in "retired" buildings like the East Boston Pump Station.

MWRA also designed and constructed facilities to meet some specific maintenance program needs. These facilities included the South Maintenance Yard (1990) created at Fore River to serve the sewerage system maintenance needs south of Boston and the Transmission Maintenance Facility in Southborough (1993) to serve waterworks transmission system needs in central and western Massachusetts. In addition, the Deer Island Maintenance Building opened in 1995 to support the new plant.

The most pressing remaining need was for a maintenance facility to serve sewerage facilities north of Boston and waterworks facilities not efficiently served from Southborough. MWRA's new Chelsea facility consists of two buildings, a 124,000 square feet administration building and a 92,000 square feet maintenance building. There are nearly three acres for outside material and equipment storage, parking for more than 650 MWRA and employee vehicles, an on-site fueling station, and a radio communications tower and 400 square feet radio equipment building. Upon completion of the administration building in June 2001 MWRA relocated staff from the Charlestown Navy Yard and Linden Street. Relocation of staff to the Maintenance building from the Chestnut Hill Pump Station, the East Boston Steam Station, Glenwood Yard, Mystic Shops, Nay Street, Winchester Yard, FRSA, and Charlestown Pump Station began in December and was completed by the end of January 2002. In FY06, additional staff were relocated from the Charlestown Navy Yard enabling MWRA to complete the reorganization of its engineering function and reduce the amount of leased space needed in CNY. As of July 2008, a total of 567 staff now work out of the Chelsea Facility.

Scope

Sub-phase	Scope
Planning	Planning for the new MWRA Chelsea facility.
Conceptual Design	Conceptual and schematic architectural programming and design services for development of a Request for Proposals.
Negotiating Support	Real estate consultant to assist with lease negotiations.
Legal Services	Contract for a real estate attorney to assist with lease negotiations and review of lease documents.
Design Review	Architectural review of proposals and verification of specifications.
Fit out/Office Furnishing/ Equipment	Purchase of furnishings and equipment for the new facility.

Sub-phase	Scope
Information/ Telecommunication Consultant	Consultant to implement plan for information and telecommunications systems at the new facility.
Fit out – All other items	Purchase of equipment, furnishings, and specialized items for the Operations Control Center, Emergency Operations Center, water quality laboratory, maintenance shops, data center, warehouse, vehicle maintenance facilities, training rooms, library, TRAC sampling area, and muster room.
Existing Facility Button Up	Closeout of existing facilities and sites that were vacated by MWRA and declared surplus.
Moving Expense	Costs associated with moving staff to the Chelsea facility.
Moving Expense-CNY	Costs associated with moving staff from Building 36 to Buildings 39 and 34 in the Charlestown Navy Yard.
CNY Retrofit	Construction and materials to reconfigure Buildings 34 and 39 to accommodate staff vacating Building 36.
MIS Network and Minicomputer Architecture, Performance, and Implementation	Network, minicomputer, and server performance upgrades, and equipment to provide adequate speed and performance to the new data center. This equipment is designed to accommodate future technology requirements.
Communications Tower	Erection of a communications tower at Deer Island to link Deer Island and the Chelsea facility.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$9,887	$9,850	$37	$37	$1,335	$0	$0	$0

Project Status 5/08	100%	Status as % is approximation based on project budget and expenditures. This project is substantially complete. Expect remaining balances to be paid in FY08

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$10,227	$9,887	($340)	Jun-07	Jun-07	None	$0	$0	$0

Explanation of Changes

- Budget decreased based on revised cost estimate for fit-out all other.

CEB Impact

No additional impacts identified at this time.

S. 925 Technical Assistance

Project Purpose

To ensure ready access on an as needed basis, to professional and technical services not available or not cost-effectively provided by in-house staff.

Project History and Background

Efficient implementation of MWRA's Capital Improvement Program and other projects often requires specialized skills and technical assistance that are not available from in-house staff. This project ensures ready access to a variety of services through a series of task order contracts with pre-set limits. Task orders are used when immediate expertise on projects is required. When a task order is complete, the expense is transferred to the appropriate capital project or Current Expense Budget cost center.

Scope

Sub-phase	Scope
Technical Assistance	MWRA technical assistance contracts include the following: mechanical, materials testing, surveying, hazardous materials assessment, instrumentation control, and wetland/environmental.

Status MWRA uses technical assistance contracts in support of various CIP and CEB projects.

Expenditure Forecast (in $000s)

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$ 1,800	$0	$1,800	$0	$0	$600	$1,800	$0

Changes in Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$1,800	$1,800	$0	Jun-10	Jun-11	12 mos.	$1,200	$1,800	$600

Explanation of Changes

- Schedule and spending shift to reflect continuation of some contracts for an additional year.

CEB Impact

- When Technical Assistance contracts are used to support a project in the operating budget, the costs are charged to the CEB.

S. 931 Business Systems Plan

Project Purpose

To develop, improve, and procure management information systems (MIS) to adapt to the changing business needs associated with managing the waterworks and sewerage systems.

Project History and Background

During the process of developing the FY94-96 Capital Improvement Program, it became evident that MWRA needed to invest in the upgrade, enhancement, and expansion of its Management Information Systems (MIS) to adapt to the changing business needs of the waterworks and sewerage systems, and to respond to new regulatory requirements. To address these needs, MWRA initiated and implemented a business system planning effort to determine future MIS support requirements. Annual plan updates have assisted staff, external constituencies, and the Board of Directors in understanding the critical role of information systems in carrying out MWRA's environmental and economic mission.

The initial business systems plan focused primarily on FY95-97 (Phase 1) with the goal of getting greater use out of existing systems. Implementation of Phase I improvements was completed in June 1997.

Phase II (FY97-10) built on the progress made during Phase I and continued the development of economies of scale through optimization of existing assets, technology conversion promoting database integration, and infrastructure improvement. Except for improvements to the TRAC Information System (TRAC/IS), Phase II is complete. The TRAC I/S was competitively bid in FY07 and the project is expected to be completed in Q1 FY09.

Phase III (FY99-01) focused on implementing a newly, integrated financial, procurement and human resources/payroll system (Lawson) which replaces three separate and obsolete software products. This project was substantially completed in May 2000 and met schedule and budgetary targets. Implementation of a Treasury application (XRT) and integration with MAXIMO was completed by the close of FY01. The system reduces duplication of databases, streamlines several business processes, and improves staff ability to perform trend analysis.

Phase IV of the Business Systems Plan supported MWRA's effort in anticipation of the year 2000 to assess systems and applications and implement corrective actions to avoid systems failures. This phase was completed in February 2000, and MWRA did not experience any major system failures or disruptions. In addition, approximately 65% of Phase IV spending was for items that would have been purchased under normal circumstances and the items have a useful life well beyond 2000.

Phase V (FY01-09) supports MWRA's ongoing program of information system improvements. The focus is on development of a Waterworks Operations Management system similar to the one used to support Deer Island management, implementation of MAXIMO for the Field Operations Department (completed), and improvements to the Laboratory Information Management System (LIMS) to ensure MWRA keeps pace with changing business needs and technology standards. The LIMS contract was awarded in FY08 and the project is expected to be completed in FY09. In addition, Phase V includes replacement of obsolete minicomputers and improvements to GIS and TV Inspection systems based on benchmarking results (completed).

Phase VI (FY04-09) supports the replacement of obsolete PBXs at major sites, the re-licensing of Microsoft Office products, storage/server improvements for Computer Center operations, and the conversion of Lawson portfolio to a current supported operating system. Lawson hardware was procured in FY08; software procurement and implementation is scheduled for FY09.

A new MIS Plan, as part of the overall Authority's Master Plan, is under development. The major areas of focus are: replacing aging systems and the network architecture, improving disaster recovery, enhancing data integration, consolidating server/computing resources, and implementing applicable best practices. The goal is to continue to support efficient administrative, financial, operational, engineering and planning functions with cost-effective technologies. Key projects identified include: NET2020 project, storage/server improvements (SAN), Computer

Center and OCC infrastructure equipment replacements, records management software and telecommunications equipment replacement.

Scope – The table describes the original CIP phases and associated projects. New projects/subphases added to the FY09 CIP are noted in **Bold.**

Sub-phase	**Scope**
Phase I (FY95-97)	(Complete): Upgrade of BHP minicomputers; Unix-based minicomputer for GIS integration; implementation and enhancement of the Sewerage Analysis and Management System (SAMS) including high-end workstations to incorporate improved hydraulic modeling capabilities, condition information, mapping, and GIS data so that CSO Master Plan and Transport data requirements are met; PC replacements; storage and functionality improvements for TRAC (IS) and wastewater flow data; leasing of three replacement minicomputers for administration and finance systems to address capacity and performance issues; implementation of CADD software and related tools including the establishment of a document management system to index thousands of engineering documents maintained by the Records Management Center and technical information centers at CNY and Deer Island; and development of a network plan for Business Systems Plan updates to address industry changes, maintenance/replacement concerns, and functionality needs.
Phase II (FY97-10)	(Partially Completed): (Completed) Server consolidation; network scalability program, database integration program, PBX replacement, records management inventory program, maintenance management, and waterworks programming services are completed. (In Progress) TRAC I/S replacement and Storage Area Network (SAN) projects currently underway. The new TRAC I/S is expected to be in production by September FY09 (the CIP includes 3 years of maintenance through FY11) and the first SAN with corresponding server replacements in FY07 and enhanced through FY09. MWRA's first SAN will collapse storage for up to 32 minicomputers and servers into one pool and will be rolled out over a two-year period. The selection of servers is based on the amount of data, costs, and its mission-critical designation.
Phase III (FY99-01)	(Complete) Procurement of new integrated financial, procurement and human resources/payroll system. Purchase and installation of a back-up generator for Building 36 in the Charlestown Navy Yard and network project support.
Phase IV	(Complete): Year 2000 assessment and improvements.

Sub-phase	Scope
Phase V (FY01-09)	(Partially Completed): (Partially Completed) Waterworks Operations Management System (OMS) project: Establishment of a system to integrate SCADA, water quality, flow, and related data for management reporting and analysis (SCADA incorporation to Process Book is ongoing; data warehouse completion expected in FY09 once the new LIMS is in production). In FY06, a Harbor Outfall Monitoring Database project was identified and the system was completed in FY08. Geographical Information Management System (GIS): Conversion of GIS from UNIX to NT based on vendor software changes (complete). Also, completed recommendations from a TV Inspection Benchmarking Project by purchasing new software to improve data and operational efficiencies. New business requirements, including expansion of GeoXH handhelds to collect information on manhole inspections and its incorporation into GIS, are being handled under the CEB. (Open) GIS Projects and Enhancements Project: In FY01, the scope of this project was expanded to include Open-VMS minicomputers replacement project, which is the project to replace Deer Island VMS servers. In FY08 the Open VMS project was renamed GIS Projects and Enhancements Project and an RFB was published Q1 FY09. Laboratory Information Management System: Implementation of software improvements to stay current with industry standards and meet ongoing business needs. A competitive bid was awarded in FY08.

Sub-phase	Scope
Phase VI (FY04–09)	(Partially Completed) (Complete) Telecommunications: Replacement of the Deer Island PBX (completed in FY04). (Open): Lawson Minicomputer: The original plan was to purchase a backup UNIX minicomputer to be used for Lawson processing and, storage improvements for all MWRA's minicomputer and server resources (scheduled for FY08). However, in order to maintain vendor support for the Lawson System, new OS and server replacements, application environment and upgrades needed to be implemented in FY08/FY09. New servers were procured for Chelsea (production) and Deer Island (disaster recovery/test/development) in FY08. Application Environment upgrade was procured and installed in FY08 and the application software is scheduled for procurement and implementation in FY09. Disaster Recovery: In FY06, as part of the MWRA-wide Continuity of Operations Planning project, it was determined that a permanent disaster recovery computer center would be located at the Interim Corrosion Control Facility at the CWTP. A disaster recovery computer center was viewed as a higher priority than the originally budgeted server consolidation line item. The new center is expected to be opened with the goal of providing automatic fail-over capability for all mission-critical applications in the event of a Chelsea disaster and is contingent on CP-7 completion. Microsoft: Microsoft's current strategy is 2 years of final maintenance on a version once a newer version has been released; Office 2007 was released in 2007. The remaining CIP provides for approximately 350 Office new 2007 licenses (previous re-licensing programs yielded a credit). The outstanding licenses will be purchased under the CEB (estimated cost of $150,000 over 2 years in FY09 and FY10). Document Management: The replacement of InfoStar, the MWRA Document Management System, was originally part of this phase but it was eliminated in December 2004 and is requested for FY15. Project not funded during the FY09 Cycle but will be resubmitted in the future.
NET2020 (FY10–FY12)	(Open): The current MWRA network architecture was implemented in CY2000 in preparation for the facility and staffing consolidation that took place in Chelsea in 2001. The goal was to establish a computer network architecture that would support MWRA's evolving information technology requirements over a 10-year period through 2010. MWRA's architecture emphasizes manageability, stability, flexibility, and adaptability. MWRA major sites connected to Chelsea are: Advisory Board, Carroll Water Treatment Plant, Clinton, Cosgrove, Deer Island Treatment Plant and CSB, Nut Island, Pellet Plant, Quabbin Reservoir Lab, and Southborough. Due to costs and limited provider options, smaller sites gain access to the MWRA network through a variety of methods such as dial-up (modem over telephone lines) and virtual private network (VPN) over DSL lines or cable company connections. VPN will also be used to support planned projects of wireless connectivity for field staff using MAXIMO, Global Position Units, and for full systems access by the Emergency Services Unit during drills, security incidents, and disasters. The NET2020 project will address the new network architecture for the period 2010 to 2020 including replacing all network equipment (3 main switches, 105 premise switches, and numerous appliances) with newer products.

Sub-phase	Scope
SAN II (FY12) SAN III (FY15)	(Open): SANs provide modular scalability, high availability, increased fault tolerance, and centralized storage management. Historical data can also be archived to cheaper storage following industry best practices. The use of a SAN reduces footprint requirements. Also, energy needed to run and cool the SAN equipment is reduced by approximately 50%. The current inventory of major servers and minicomputers is 87 (this does not include site servers for file sharing and printing). The first SAN (Phase II) will collapse up to 32 servers/minicomputers' direct attached storage. SAN II will collapse up to an additional 32 servers/minicomputers' direct storage in FY12. In FY15, a SAN III has been planned to replace the original SAN with the then current technology.
Telecommunications (FY14–FY15)	(Open): Voice communication is done using private branch exchanges (PBXs) located at Charlestown, Chelsea, Southborough, Carroll Water Treatment Plant, Deer Island, Clinton, and Nut Island. Because the PBXs are networked, staff at these facilities can use four-digit dialing to call each other at no cost. Charlestown and Chelsea operator consoles are linked to permit Chelsea to be the primary call-intake facility. Likewise, Chelsea and Deer Island are uniquely linked to allow Chelsea to be the backup console. A full replacement of the equipment is not planned until FY14, prior to which, new technologies will be reviewed such as Voice over IP (telephone communications using the Internet) before the next 10-year architecture is established.
Computer Center & OCC Infrastructure (FY15–FY16)	(Open): The Chelsea facility hosts the Computer Center, Operations Control Center (OCC) and the primary Emergency Operations Center. Specialty fire suppression systems, UPS equipment, environmental control and alarming systems, console apparatus, etc. was purchased in 2000/01 with the facility opening. All of this equipment has a useful life of approximately 15 years and will require replacement beginning in FY15.
Laboratory Instrument Data Management	(Partially Complete): Implementation of software improvements to stay current with industry standards, meet ongoing business needs, and to re-establish vendor support. Included are a Chromatography Data Management Server and a more global instrument data management system. This solution could include a server-based approach to managing instrument data and interfacing with LIMS. Regulation requires laboratory testing and data archiving. A competitive bid was awarded in FY08 and the project is underway. Implementation is scheduled for FY09.
Corporate Server Infrastructure & Document Distribution	(New): The Corporate Server Infrastructure and Replacement Program is one of the major technology changes for the MIS Department along with PIMS and LIMS, and Lawson upgrades. Based on current Technology Standards, the average hardware system infrastructure has a useful life of 3-5 years. MIS is requesting $500K for FY09 and $500K for FY13 to prepare for upcoming technology changes in infrastructure and major applications server replacement in a 4-year cycle.
DITP/OMS	(Open): Establishment of a system to integrate SCADA, water quality, flow, and related data for management reporting and analysis (SCADA incorporation to Process Book is ongoing; data warehouse completion expected in FY09 once the new LIMS is in production).
GIS/TV Inspection	(Partially Completed): Conversion of GIS from UNIX to NT based on vendor software changes was completed. Also, completed recommendations from a TV Inspection Benchmarking Project by purchasing new software to improve data and operational efficiencies. New business requirements, including expansion of GeoXH handhelds to collect information on manhole inspections and its incorporation into GIS, are being handled under the CEB.
GIS Projects & Enhancements (Open VMS HW Replacement)	(Open): Project will consist of Hardware, Installations, Software, Customizations and Technical Support of Geographical Information Systems. Project will start in FY09 Q2.

Sub-phase	Scope
MIS Strategic Planning	(Open): SAN I (Rename MIS Strategic Planning) (SAN I was funded by PIMS). Project will consist of Consultant Services, Hardware, Storage, Technical Support, Strategic Projects and Disaster Recovery.
MIS Licensing	(Open): Funding for Microsoft Licensing Suite of products – Office Professional 2003. Remainder of funds will be used for MS VISTA and Office Professional 2007 Test Licenses.
Lawson Conversion	(Open): Original funding of $600,000. The remainder of funding came from Phase V projects, where bids were awarded at a lower than anticipated cost. The project includes funding for new OS, server replacements, and application environment (new servers were procured for Chelsea (production) and Deer Island (disaster recovery/test/development) in FY08). Application Environment upgrade (FY08) and the application software upgrade (FY09), and technical support and professional services.
Cyber Security	(Partially Completed): Funding for Development Contract executed in December 2007 for Internet Data Protection 24X7 Monitoring and Maintenance costs.
Original SAN	(Partially Completed): The original amount of $680,004 funded from Phase II project. Funding will be used for Hardware, Software and Technical Support.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$32,572	$19,830	$12,742	$3,102	$4,953	$2,718	$6,790	$2,850

Project Status 5/08	67.0%	Status as % is approximation based on project budget and expenditures. Phases V and VI are in process. The TRAC IS system and the LIMS replacement contracts were awarded in FY07.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$29,976	$32,572	$2,596	Jun-16	Jun-16	None	$4,519	$6,790	$2,271

Explanation of Changes

Budget and spending increases are due to:

- Laboratory Instrument Data Management, Corporate Server Infrastructure, and Document Distribution added as new projects.
- Change in scope of Phase V including Lawson Conversion, Cyber Security, Original SAN, and MIS Strategic Plan, Open VMS HW Replacement, DITP/OMS, GIS/TV Inspection, and MIS Licensing.
- Revised cost estimates for Phase VI.

CEB Impact

- The incremental software and/or hardware maintenance costs for the Phase II TRAC Replacement ($150,000 in FY11); Phase II SAN & CPUs for TRAC & LIMS ($90,000 in FY11); PH V LIMS Replacement (GIS & OMS) ($118,000 in FY10, $138,000 in FY11, $187,000 in FY14); PH VI Lawson, MS Licensing & John J. Carroll WTP ($62,000 in FY11); SAN II ($100,000 in FY15); NET2020 ($50,000 in FY14); and SAN III ($100,000 in FY19) and Telecommunications will have a $25,000 impact in FY19.

S. 932 Environmental Remediation

Project Purpose

To implement remedial programs necessary to protect the environment and to ensure compliance with the Clean State Initiative.

Project History and Background

Fuel tank replacements at Prison Point CSO, Cottage Farm CSO, and Chelsea Creek Headworks will enable MWRA to meet all current regulatory requirements and provide enhanced spill prevention and leak detection capabilities.

In accordance with the Massachusetts Contingency Plan, MWRA installed an oil recovery system to clean up oil contamination at Prison Point in conjunction with the tank replacement. Removed contaminated soil in conjunction with the tank replacement at the Chelsea Creek Headworks.

Many MWRA underground storage tanks (USTs) have been upgraded or replaced to meet current regulations. Two USTs at the Prison Point CSO were replaced in spring 1999, with remediation work remaining to be completed. Chelsea Creek Headworks and Cottage Farm UST replacement construction was completed in December 2002. The Commercial Point CSO and Hingham Pump Station UST Upgrades construction contract began in February 2003 and was completed in March 2003.

Scope

Sub-phase	Scope
Technical Assistance – Environmental Remediation	Design, construction oversight, and waste site clean-up services for Prison Point, Cottage Farm, and Chelsea Creek tank replacements.
Prison Point Tank Replacement – Construction	Removal and replacement of two underground fuel storage tanks at the Prison Point CSO facility. Operation of oil recovery system. Assessment, design and installation of system upgrades.
Cottage Farm Tank Replacement – Construction	Removal and replacement of two underground fuel storage tanks at the Cottage Farm CSO facility.
Cosgrove Power Station – Design/CS and Construction	Design and construction of stormwater collection and surface water discharge system.
Oakdale Power Station – Design and Construction	Design and construction of non-contact cooling water disposal system. Design includes resolution of MCP issues associated with ground water conditions.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$1,805	$1,440	$365	$33	$335	$52	$216	$116

Project Status 5/08	81.2%	Status as % is approximation based on project budget and expenditures. The Prison Point oil recovery system upgrade assessment is in progress.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$1,831	$1,805	($26)	Jan-13	Jan-13	None	$216	$216	$0

Explanation of Changes

- Oakdale Power Station budget reduced since work was completed.

CEB Impact

None identified at this time.

S. 934 MWRA Facilities Management and Planning

Project Purpose

To improve MWRA operations by consolidating projects and providing a central point of review and decision making for space planning decisions.

Project History and Background

This project consolidates existing MWRA projects (DI Maintenance Facilities and DI CSB Demolition) to provide a central point of review and decision making for space planning decisions. This project will cover work to rehabilitate or demolish the old Administration Building on Deer Island as the building has deteriorated and certain structures need to be upgraded to current standards if it is to remain occupied. Project also includes installation of the paint and sandblast booths, purchased from the Chelsea Facility developer, in the Chelsea Maintenance Building for a fully functional shop, and funds to construct a washdown area to sanitize tools, equipment, and parts before working on them in the shop area at Chelsea. Of the $6.8 million project budget, $2.4 million is a transfer of existing phases from DI for maintenance facilities. The remainder is for new work proposed to complete the work in Chelsea and for the development of a small annex near the Chelsea Facility that would house the washdown area and provide garage space for the weather-sensitive wastewater pipeline equipment and vehicles.

Scope

Sub-phase	Scope
Design & Engineering Services	Design and engineering services to support space plan.
Facilities Construction	Construction of modifications to MWRA facilities in accordance with space plan.
Facilities Fit-out	Purchase of furniture and other items to fit-out new and/or modified facilities.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$6,928	$0	$6,928	$0	$0	$500	$6,928	$0

Project Status 5/08	0%	Status as % is approximation based on project budget and expenditures. Planning for this project is in process.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$6,753	$6,928	$175	Dec-10	Dec-11	12 mos.	$5,833	$6,928	$1,095

Explanation of Changes

- Project cost, schedule and spending increase due to revised cost estimate and schedule for Facilities Construction.

CEB Impacts

None identified at this time.

S. 935 Alternative Energy Initiatives

Project Purpose

A comprehensive "green energy" initiative that is expected to bring solar, wind and hydroelectric power either alone or in combination to a number of MWRA facilities

Project History and Background

This project was originally included under Deer Island in previous budget cycles. Building upon its track record in sustainable resource use – most notably dramatic system-wide reductions in water demand, 100% beneficial reuse of biosolids, self-generation of approximately 25% of Deer's Island power needs, and maximizing revenue through hydropower – MWRA continues to work aggressively to use its resources efficiently, respond appropriately to climate change, and reduce the environmental impacts of its daily operations. Key initiatives now underway or planned for FY09 include: A comprehensive "green energy" initiative that is expected to bring solar, wind and hydroelectric power either alone or in combination to a number of MWRA facilities.

Scope

Sub-phase	Scope
Alternative Energy Initiatives	An Authority-wide infrastructure initiative to evaluate alternatives to producing energy that may offer cost savings such as wind turbines.

Expenditure Forecast (in $000s) and Project Status

Total Budget	Payments thru FY07	Remaining Balance	FY08 Projected	FY04-08	FY09	FY09-13	Beyond FY13
$7,000	$0	$7,000	$983	$983	$4,017	$6,017	$0

Project Status 5/08	8.3%	Status as % is approximation based on project budget and expenditures. Planning for this project is in process.

Changes to Project Scope, Budget, and Schedule

Project Cost			Scheduled Completion Date			FY09-13 Spending		
FY08	FY09	Chge.	FY08	FY09	Chge.	FY08	FY09	Chge.
$0	$7,000	$7,000	Dec-08	Dec-10	24 mos.	$0	$6,017	$6,017

Explanation of Changes

- Project cost and spending increase due to a reclassified from Deer Island Treatment Plant Asset Protection subphase to an individual project under the Business & Operations Support program.
- Schedule change due to consideration of other energy initiatives throughout the Authority.

CEB Impacts

- Deer Island energy reflects impacts of ($800,000) for avoided costs for: STG Modifications ($500K in FY13), Low Voltage Lighting Upgrades ($50K in FY12), and DI Wind ($250K in FY13).

APPENDIX 2

Fiscal Year 2008 – 2018 Expenditure Forecast Report with Planned NTP and SC dates

Understanding the Expenditure Forecasts

Capital expenditure forecasts, sometimes referred to as project cashflows, are presented in this section of the FY09 CIP document. Expenditure forecasts are accrual based, i.e., projected expenditures are estimated based on when services are expected to be rendered. Projects appear in this report in the same order they appear on-line, organized by capital program area. Grant and loan receipts for various projects and programs appear in the section following the expenditure forecasts.

The following presents a description of each column in the expenditure forecast tables:

Project and Subphase Names

The first column of the expenditure forecast identifies the organizational hierarchy of the CIP: capital program area (e.g., Wastewater System Improvements), program category (e.g., Interception and Pumping), project (e.g., Quincy Pump Facilities), phase (for BHP only), and sub-phases (e.g., Facilities Plan/EIR). Sub-phases represent awarded and unawarded contracts.

The Five Digit (Lawson) and Four Digit (PSI) Numbers

To the left of each project name is a string of nine numbers preceded by an S. These numbers are assigned by the Rates and Budget Department, and are the number reference for the sub-phase in MWRA's capital budgeting database, CAPSTAN.

Following the "S" is a five-digit number representing the MWRA Lawson Activity Management System sub-phase number. Project budgets and expenditures are tracked by this account number.

Following the five-digit sub-phase number is a four-digit number representing the contract reference number in MWRA's contract management system. This reference number is used to access contract information such as the award amount, change order activity, and processed invoices.

Project Participant

The project participant is the consultant, designer, or contractor who has been awarded the contract for the project phase. Non-awarded contracts are identified by "TBS" (to be selected).

Notice to Proceed and Substantial Completion

Project schedules are tracked by two key milestones: Notice to Proceed and Substantial Completion. These milestones indicate the expected start and end dates for contract activity.

Total Contract Amount

The Total Contract Amount represents the budget amount for the capital program, program category, project, or sub-phase. For unawarded contracts, the contract amount is based on a cost estimate. For awarded contracts, this amount includes the award amount plus any change orders, amendments, and purchase orders accounted for prior to completing the budget.

Projected Payments through FY08

Projected Payments through FY08 includes actual and accrued expenditures since the inception of the contract through the end of FY08.

Remaining Balance 6/30/08

Remaining Balance 6/30/08 is calculated by subtracting Projected Payments through FY08 from the Total Contract Amount. This amount is then spread in the columns to the right, from FY09 to Beyond FY18.

Expenditure Forecasts

The remaining columns in the spreadsheet contain projections for capital spending by sub-phase during FY09-18. Forecasts are presented annually for FY09-18.

MWRA CAPITAL IMPROVEMENT PROGRAM SUMMARY BY CATEGORY

CAPITAL IMPROVEMENT PROGRAM
EXPENDITURE FORECAST FY2009-2013
($000)

	Total Contract Amount	Projected Payments Thru FY08	Balance 6/30/08	QI FY09	QII FY09	QIII FY09	QIV FY09	FY09	FY10	FY11	FY12	FY13	5-Year Total FY09-13
Wastewater System Improvements	2,409,397	1,225,466	1,183,931	49,713	23,785	45,335	31,477	150,307	172,158	154,640	109,148	78,100	664,353
Waterworks System Improvements	2,378,617	1,602,573	776,044	12,451	19,865	18,215	17,332	67,863	71,589	64,144	82,833	99,369	385,798
Business & Operations Support	79,656	45,439	34,217	2,188	2,047	3,377	4,241	11,852	7,917	5,500	4,735	1,246	31,250
Total MWRA without Contingency	4,867,670	2,873,478	1,994,192	64,352	45,697	66,927	53,050	230,022	251,664	224,284	196,716	178,715	1,081,401
Contingency	113,339		113,339	4,978	3,441	3,488	3,677	15,585	13,814	11,970	12,085	11,395	64,849
Total MWRA with Contingency	4,981,009	2,873,478	2,107,531	69,330	49,138	70,415	56,727	245,607	265,478	236,254	208,801	190,110	1,146,250

TEN-YEAR CAPITAL IMPROVEMENT PROGRAM SUMMARY BY MAJOR CATEGORY

CAPITAL IMPROVEMENT PROGRAM
EXPENDITURE FORECAST FY2009-2018
($000)

			FY2009	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	10-Year Total FY09-18
Wastewater System Improvements			150,307	172,158	154,640	109,148	78,100	77,226	79,567	54,348	28,551	28,739	932,784
Waterworks System Improvements			67,863	71,589	64,144	82,833	99,369	96,068	82,954	88,563	47,199	19,859	720,441
Business & Operations Support			11,852	7,917	5,500	4,735	1,246	432	1,784	750	0	0	34,216
Total MWRA without Contingency			230,022	251,664	224,284	196,716	178,715	173,726	164,305	143,661	75,750	48,598	1,687,441
Contingency			15,585	13,814	11,970	12,085	11,395	13,164	12,520	11,288	6,951	4,566	113,339
Total MWRA with Contingency			245,607	265,478	236,254	208,801	190,110	186,890	176,825	154,949	82,701	53,164	1,800,780
Total FY04-08	194,016	167,689	152,347	177,721	206,624	898,398							
Total FY09-13 (see FY09-13 Table)			245,607	265,478	236,254	208,801	190,110	1,146,250					
Total FY09-18			245,607	265,478	236,254	208,801	190,110	186,890	176,825	154,949	82,701	53,164	1,800,780

Note: This report reflects Capital Improvement Program spending for the years FY09 through FY18. There is an additional $306.8M forecasted for FY19 through FY48 that is a component of the Total MWRA Contract Amount of $4.981B.

Massachusetts Water Resources Authority
Final FY09 Capital Expenditure Forecast
($000s)

Program / Project	Notice to Proceed	Substantial Completion	Total Contract Amount	Payments Through FY07	Remaining Balance 6/30/07	FY08	FY09	FY10	FY11	FY12	FY13	FY09-13	FY14	FY15	FY16	FY17	FY18	Beyond FY18
Total MWRA			**4,867,670**	**2,666,854**	**2,200,816**	**206,624**	**230,022**	**251,664**	**224,284**	**196,716**	**178,715**	**1,081,401**	**173,726**	**164,305**	**143,661**	**75,750**	**48,598**	**306,765**
S.1 Wastewater			**2,409,397**	**1,071,647**	**1,337,750**	**153,819**	**150,307**	**172,158**	**154,640**	**109,148**	**78,100**	**664,353**	**77,226**	**79,567**	**54,348**	**28,551**	**28,739**	**251,149**
S.10 Interception & Pumping			**702,644**	**465,702**	**236,942**	**24,155**	**10,815**	**8,766**	**20,467**	**28,837**	**27,589**	**96,474**	**25,602**	**24,563**	**13,765**	**10,803**	**5,339**	**36,239**
S.102 Quincy Pump Facilities			**25,908**	**25,908**	**0**	**completed project**												
S.104 Braintree-Weymouth Relief Facilities			**232,490**	**208,002**	**24,488**	**7,811**	**1,152**	**451**	**11,670**	**1,512**	**1,512**	**16,297**	**380**					
S.10045.5311 Facilities Planning Phase 1	Oct-81	Dec-90	331	331	0													
S.10046.5312 EIR Phase 1	Nov-84	Oct-90	514	514	0													
S.10057.5324 Final EIR/Fac.Plan	Apr-91	Aug-93	1,111	1,111	0													
S.10044.5332 Geotechnical - Land	Nov-91	Mar-92	8	8	0													
S.10001.5333 Geotechnical - Marine	Nov-91	Apr-92	443	443	0													
S.10047.5313 Design 1/CS/RI	Nov-94	Jun-06	18,991	18,872	118	10	108					108						
S.10251.6016 Sedimentation Testing	Sep-94	Apr-96	96	96	0													
S.10058.5331 Design 2/CS/RI	Apr-95	Jun-09	15,265	12,820	2,446	1,140	1,044	262				1,306						
S.10048.5314 Land Acquisition	Mar-97	Jun-09	13,967	3,621	10,346	83			10,263			10,263						
S.10049.5315 Tunnel Construction/Rescue	Jun-99	Jul-03	84,037	83,671	366	366												
S.10050.5316 Intermediate P.S. Construction	Dec-00	Apr-05	47,445	47,445	0													
S.10051.5303 No. Weymouth Relief Interceptor	Mar-01	Jun-02	4,705	4,705	0													
S.10052.5373 HDD Siphon Construction	Jul-03	May-07	16,357	16,357	0													
S.10054.5375 B-W Replacement Pump Station	Jan-05	Mar-08	17,740	11,933	5,807	5,807												
S.10060.5310 Rehab Sections 624 & 652	May-10	Jun-13	4,000		4,000				1,155	1,260	1,260	3,675	325					
S.10302.6368 Mill Cove Siphon Construction	Aug-97	Jun-98	2,749	2,749	0													
S.10055.5308 Design - Rehab	Sep-88	Dec-89	24	24	0													
S.10056.5309 Construction - Rehab	Jan-92	Dec-96	255	255	0													
S.10265.6074 Hazardous Waste	Jul-95	Apr-07	5	2	3	3												
S.10263.6072 Legal	Jul-95	Apr-08	731	452	279	279												
S.10264.6073 Public Relations	Jul-95	Apr-07	5		5	5												
S.10061.5951 Technical Assistance	Nov-84	Apr-07	144	144	0													

Massachusetts Water Resources Authority
Final FY09 Capital Expenditure Forecast
($000s)

Program / Project	Notice to Proceed	Substantial Completion	Total Contract Amount	Payments Through FY07	Remaining Balance 6/30/07	FY08	FY09	FY10	FY11	FY12	FY13	FY09-13	FY14	FY15	FY16	FY17	FY18	Beyond FY18
S.10278.6119 Design - Marine Pipeline	Feb-97	Aug-97	1,100	1,100	0													
S.10354.6631 Community Technical Assistance	Jul-99	Apr-07	1,111	1,111	0													
S.10375.6766 Geotechnical Consultant	Sep-00	Mar-03	56	56	0													
S.10378.6792 IPS/RPS Communication System	Dec-02	Apr-08	300	182	118	118												
S.10452.7193 Rehab of Section 624 Des	Jul-09	Jun-13	1,000		1,000			189	252	252	252	945	55					
S.105 New Neponset Valley Relief Sewer			**30,300**	**30,300**	**0**	**completed project**												
S.131 Upper Neponset Valley Sewer System			**55,779**	**44,830**	**10,949**	**9,800**	**1,138**	**10**				**1,148**						
S.10256.6031 Design/CS/RI	May-00	Apr-09	4,648	4,184	464	322	132	10				142						
S.10290.6191 Replace Sewer Sections 685-686	Mar-05	Apr-08	38,168	31,832	6,336	5,813	523					523						
S.10352.6629 Replacement Sewer Section 687	Oct-06	Apr-08	8,271	5,454	2,817	2,620	196					196						
S.10311.6450 Land Acquisition	Jun-00	Apr-08	1,670	1,494	176	134	42					42						
S.10266.6075 Legal	Jun-00	Apr-08	5		5	4	1					1						
S.10267.6076 Public Relations	Jun-00	Apr-08	5		5	4	1					1						
S.10268.6077 Hazardous Waste	Jun-00	Apr-08	5		5	4	1					1						
S.10393.6830 Boston Paving	Apr-05	Apr-08	660	560	100	76	24					24						
S.10439.7072 Resident Engineering/Inspection	Apr-05	Aug-08	2,347	1,306	1,041	823	218					218						
S.106 Wellesley Ext Replacement Sewer			**64,359**	**64,359**	**0**	**completed project**												
S.107 Framingham Extension Relief Sewer			**47,856**	**47,856**	**0**	**completed project**												
S.127 Cummingsville Replacement Sewer			**9,189**	**8,120**	**1,069**	**910**	**158**					**158**						
S.10217.5826 Facilities Plan/EIR	Jun-92	Jul-95	602	602	0													
S.10275.6092 Design/CS/RI	May-98	Sep-08	2,210	1,979	232	107	124					124						
S.10285.6186 Cummingsville Branch Sew Const	Apr-05	May-06	4,897	4,897	0													
S.10284.6185 Land Acquisition	Apr-00	Sep-07	102	42	60	30	30					30						
S.10334.6571 Public Participation	Jul-99	Sep-07	5		5	1	4					4						
S.10335.6572 Legal	Jul-99	Sep-07	15	15	0													
S.10403.6916 Siphon Modifications	Feb-07	Jul-08	1,358	585	772	772												

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S.147 Randolph Trunk Sewer Relief			**750**		**750**					**281**	**375**	**656**	**94**					
S.10461.7220 Study	Jul-11	Jun-13	750		750					281	375	656	94					
S.130 Siphon Structure Rehabilitation			**2,605**	**940**	**1,665**						**114**	**114**	**124**	**776**	**641**	**10**		
S.10253.6017 Planning	Jan-96	Nov-98	938	938	0													
S.10293.6224 Design/CS/RI	Jun-12	Sep-16	476		476						114	114	124	136	92	10		
S.10294.6225 Construction	Sep-14	Sep-15	1,189		1,189									640	549			
S.10280.6165 Land Acquisition	Jun-06	Dec-10	2	2	0													
S.132 Corrosion & Odor Control			**14,637**	**3,002**	**11,635**			**311**	**187**	**2,431**	**206**	**3,135**			**2,069**	**5,143**	**1,288**	
S.10279.6137 Planning/Study	Jan-97	Dec-98	587	587	0													
S.10327.6553 Design/CS/RI	Aug-02	Jun-05	1,788	1,788	0													
S.10323.6549 Land Acquisition			3	3	0													
S.10325.6551 Legal	Dec-00	Jul-08	2	2	0													
S.10373.6743 Interim Corrosion Control	Jul-00	Dec-01	622	622	0													
S.10405.6918 FES Tunnel Rehab	Dec-15	Jun-17	6,800		6,800										1,432	4,293	1,075	
S.10406.6919 FES/FERS Biofilters Design	Jul-09	Apr-13	995		995			311	187	457	40	995						
S.10453.7196 FES Tunnel Rehab Des	Jul-15	Jun-17	1,700		1,700										637	850	213	
S.10456.7215 FES/FERS Biofilters Const.	Apr-11	Apr-12	2,140		2,140					1,974	166	2,140						
S.136 West Roxbury Tunnel			**88,880**	**8,880**	**80,000**		**1,204**	**2,064**	**2,064**	**12,018**	**19,128**	**36,478**	**19,128**	**19,128**	**4,918**	**348**		
S.10299.6230 Inspection	Jul-98	Sep-99	344	344	0													
S.10333.6570 Design/CS/RI	Apr-00	Jun-03	1,412	1,412	0													
S.10332.6569 Construction	Jun-01	Jun-02	6,674	6,674	0													
S.10330.6567 Legal	Apr-00	Mar-10	2	2	0													
S.10331.6568 Land Acquisition	Apr-00	Mar-10	440	440	0													
S.10366.6709 Technical Assistance	Nov-99	Mar-10	8	8	0													
S.10400.6897 Tunnel Design	Sep-08	May-16	16,000		16,000		1,204	2,064	2,064	2,064	2,064	9,460	2,064	2,064	2,064	348		
S.10401.6898 Tunnel Construction	Sep-11	May-15	64,000		64,000					9,954	17,064	27,018	17,064	17,064	2,854			

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S.137 Wastewater Central Monitoring			**21,164**	**10,104**	**11,060**	**3,777**	**5,818**	**1,464**				**7,282**						
S.10301.6232 Planning	Jan-98	Jul-99	563	563	0													
S.10319.6532 Design and Integration Services	Jun-02	Nov-08	6,519	3,780	2,739	1,266	1,052	421				1,473						
S.10320.6533 Construction 1 (CP1)	Mar-06	Apr-07	7,677	5,722	1,955	1,955												
S.10321.6534 Construction 2 (CP2)	Feb-08	May-07	4,818		4,818	500	3,984	334				4,318						
S.10357.6657 Construction 3 (CP3)	Nov-08	Aug-09	1,179		1,179		590	589				1,179						
S.10322.6535 Technical Assistance	Sep-02	Oct-09	2		2	2												
S.10398.6861 Equipment Prepurchase	Apr-05	Oct-09	406	39	367	54	192	120				312						
S.139 South System Relief Project			**4,946**	**3,441**	**1,505**	**5**		**240**	**720**	**540**		**1,500**						
S.10309.6419 CS/RI-Archdale	Nov-98	Aug-99	6	6	0													
S.10310.6420 Construction-Archdale	May-99	Aug-99	211	211	0													
S.10318.6519 Sec 70&71 HLS Eval.	Sep-98	Oct-99	215	215	0													
S.10349.6611 Sec 70 & 71 HLS Construction	Jun-99	Oct-99	417	417	0													
S.10345.6595 Design Outfall 023	Jun-99	Sep-99	1	1	0													
S.10346.6596 Cleaning Outfall 023	Apr-00	Nov-00	1,098	1,098	0													
S.10347.6605 Land Acquisition/Easements	Apr-99	Apr-05	5	5	0													
S.10350.6616 Milton Financial Assistance	Oct-99	Jun-00	1,488	1,488	0													
S.10362.6680 Legal/Permits	Jul-99	Jun-07	5		5	5												
S.10386.6801 Outfall 023 Str Impovements	Jan-10	Dec-11	1,500		1,500			240	720	540		1,500						
S.141 Wastewater Process Optimization			**2,319**	**930**	**1,389**		**34**	**68**	**241**	**1,020**	**25**	**1,388**						
S.10367.6733 Planning	Aug-01	Aug-04	930	930	0													
S.10413.6931 Somerville Sewer-Design	Oct-08	Aug-11	200		200		34	68	68	29		199						
S.10414.6932 Somerville Sewer-Construction	Mar-11	Aug-11	1,039		1,039				173	866		1,039						
S.10415.6933 Siphon- Planning	Nov-11	Jun-12	150		150					125	25	150						

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S.142 Wastewater Meter Sys-Equip Replace			**26,578**	**5,025**	**21,553**	**151**	**102**				**100**	**202**	**58**	**308**	**2,502**	**1,667**	**1,667**	**14,999**
S.10371.6739 Planning/Study	Jan-13	May-13	100		100						100	100						
S.10379.6793 Equipment Purchase/Installation	Nov-03	Jun-08	5,278	5,025	253	151	102					102						
S.10410.6928 Design	Jul-13	Jan-16	200		200								58	77	66			
S.10411.6929 Construction	Jan-15	Jan-16	1,000		1,000									231	769			
S.10451.7191 Wastewater Metering Asset Protection	Jul-15		20,000		20,000										1,667	1,667	1,667	14,999
S.143 Regional I/I Management Planning			**169**	**169**	**0**	**completed project**												
S.145 I&P Facility Asset Protection			**69,715**	**3,836**	**65,879**	**1,701**	**1,209**	**4,158**	**5,585**	**11,035**	**6,129**	**28,116**	**5,818**	**3,101**	**1,968**	**1,968**	**1,968**	**21,240**
S.1400 Interceptors			**13,304**	**2,661**	**10,643**	**1,638**	**332**	**777**	**386**	**1,493**	**2,541**	**5,529**	**2,604**	**872**				
S.10383.6798 Rehab of Section 93A Lexington	Jul-03	Apr-04	1,566	1,566	0													
S.10392.6829 Technical Assistance	Jul-02	Nov-08	40	14	27	7	20					20						
S.10394.6842 Sections 80&83	Apr-07	Sep-07	395		395	395												
S.10395.6843 Section 160	Jun-07	Nov-08	1,602		1,602	1,145	458					458						
S.10396.6857 Survey	Nov-04	May-05	11	11	0													
S.10397.6858 Permits	May-03	Nov-08	7	7	0													
S.10418.6936 Interceptor Renewal No. 2	Jul-12	Jul-14	5,429		5,429	0					1,953	1,953	2,604	872				
S.10423.6987 93 A Force Main Replacement	May-06	Jan-07	462	473	(11)	(11)												
S.10424.7004 Mill Brook Valley Sewer Sec 79&92	Jun-04	Mar-05	542	542	0													
S.10440.7073 Land/Easements			150	48	102	102												
S.10447.7163 Interceptor AP-Interc Renewal Des #1	Sep-08	Jul-12	200		200		29	50	50	50	19	198						
S.10448.7164 Interceptor AP-Interc Renew #1 Const	Jul-11	Jul-12	1,600		1,600					1,107	493	1,600						
S.10457.7216 Interceptor Renewal #7 Study	Jul-08	Jun-09	300		300		225	75				300						
S.10458.7217 Interceptor Renewal #7 Constr	Jul-09	Jun-12	1,000		1,000			252	336	336	76	1,000						
S.10464.7248 Melrose Sewer	Apr-09	Sep-09	600		600		200	400				600						
S.10465.7258 Melrose Sewer Repayment	Apr-09	Sep-09	(600)		(600)		(600)					-600						

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S.1410 Facilities			**56,411**	**1,175**	**55,236**	**64**	**877**	**3,380**	**5,198**	**9,541**	**3,588**	**22,584**	**3,214**	**2,229**	**1,968**	**1,968**	**1,968**	**21,240**
S.10380.6795 Prison Point HVAC Upgrades	Nov-09	Feb-11	1,106		1,106			345	761			1,106						
S.10381.6796 Remote Headworks Heating Sys Upgrade	May-05	May-06	1,206	1,175	31	31												
S.10382.6797 Alewife Brook Pump & Screen Repl	Sep-10	Jan-12	3,127		3,127				1,288	1,839		3,127						
S.10387.6802 Hdwks Screens/Grit Construction	Feb-11	Feb-12	5,000		5,000				770	4,230		5,000						
S.10399.6886 Remote Headworks Concept Plan	May-08	Aug-09	699		699		620	79				699						
S.10419.6937 Alewife Brook Pump Screen Repl Des/CA	Mar-09	Jan-13	544		544		50	144	144	144	62	544						
S.10420.6938 Des-Prison Pt HVAC Upgrades	Jan-08	Feb-12	254		254	33	56	56	56	52		220						
S.10427.7033 Hingham PS Isolation Gate Const	Jun-09	Dec-09	350		350			350				350						
S.10431.7037 Caruso PS Replace Generator	Jul-13	Sep-13	250		250								250					
S.10433.7039 P/P & C/F Washdown Sys Pipe Des	Jul-09	Mar-11	150		150			63	87			150						
S.10434.7040 P/P & C/F Washdown Sys Pipe Const	Mar-11	Sep-11	500		500				71	429		500						
S.10438.7044 Caruso PS Shaft Replac Const	Jul-08	Dec-09	425		425		100	325				425						
S.10444.7144 Nut Island Headworks Fire Alarm/Wire	Jan-09	Dec-09	200		200		51	149				200						
S.10445.7161 Headdworks Upgrades Construction	Feb-12	Dec-28	28,000		28,000					276	1,656	1,932	1,656	1,656	1,656	1,656	1,656	17,788
S.10446.7162 PS/CSO Condition Assessment	Jul-11	Jun-14	3,000		3,000					747	996	1,743	996	261				
S.10455.7206 Headworks Upgrades Design	Feb-10	Dec-28	6,000		6,000			52	312	312	312	988	312	312	312	312	312	3,452
S.10459.7218 NI Fire Pump Bldg Study	Jul-09	Jun-10	300		300			225	75			300						
S.10460.7219 NI Mech & Elec Replacements	Jun-09	Jun-12	3,800		3,800			1,030	1,236	1,236	298	3,800						
S.10462.7231 Headworks Screens/Grit Des/CA	Aug-09	Feb-13	1,000		1,000			184	276	276	264	1,000						
S.10463.7237 Headworks Effluent Shaft Study	Jul-09	Jun-10	500		500			378	122			500						
S.146 D.I. Cross Harbor Tunnel			**5,000**		**5,000**									**1,250**	**1,667**	**1,667**	**416**	
S.10454.7199 Tunnel Shaft Repairs Plan/Des/Const	Jul-14	Jun-17	5,000		5,000									1,250	1,667	1,667	416	

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S.25 Treatment			**482,920**	**43,636**	**439,284**	**7,773**	**27,960**	**54,801**	**66,715**	**42,366**	**21,866**	**213,708**	**18,444**	**14,253**	**15,107**	**11,825**	**21,033**	**137,142**
S.200 DI Plant Optimization			**71,455**	**32,187**	**39,268**	**2,206**	**1,214**	**1,860**	**1,500**	**1,808**	**2,416**	**8,798**	**4,753**	**2,313**	**2,000**	**2,000**	**2,000**	**15,200**
S.19156.6235 Construction-Plumbing	Apr-96	Apr-98	110	110	0													
S.19170.6369 Supplementary Mod Pkg #1	Jun-99	Mar-00	488	213	275	275												
S.19154.6233 As-Needed Des. Phase 1	Jul-98	May-03	1,122	1,122	0													
S.18212.6364 Ancil Mods-Des 1	Jun-99	May-07	2,055	2,055	0													
S.19189.6590 Ancil Mods Des 2-1 (REI)	Aug-01	Jun-03	584	584	0													
S.19190.6591 Ancil Mods - Des 3-1	Feb-01	Nov-05	941	941	0													
S.19191.6592 Ancil Mods - Prelim Des 4	Jul-09	May-10	360		360			360				360						
S.19220.6721 As Needed Des Phase 6-1	Jan-09	Dec-11	2,250		2,250		375	750	750	375		2,250						
S.19183.6499 Ancil Mods-Con 1	Jul-04	Mar-06	9,973	9,888	85	85												
S.19186.6536 Ancil Mods Constr 2-1	Aug-01	Jun-03	2,866	2,860	6	6												
S.19232.6744 Ancil Mods Constr 2-2	May-05	Oct-07	5,387	4,764	624	624												
S.19187.6537 Ancil Mods-Constr 3-1	Nov-03	Nov-04	3,387	3,387	0													
S.19188.6538 Ancil Mods-Con 4	Jan-13	Jul-14	4,468		4,468						745	745	2,979	745				
S.19221.6722 As-Needed Des Phase 6-2	Jan-09	Dec-11	2,250		2,250		375	750	750	375		2,250						
S.19206.6673 Digester Storage Tank - Repair	Aug-97	Oct-97	275	550	(275)	(275)												
S.19211.6698 As Needed Des Phase 4-1	Mar-05	Sep-07	1,124	1,093	31	31												
S.19212.6699 As Needed Des Phase 4-2	Mar-05	Sep-08	1,230	949	281	205	76					76						
S.19215.6702 As-needed Design Phase 2-1	Oct-00	Jan-03	760	760	0													
S.19234.6753 As-needed design Phase 2-2	Oct-00	Jan-03	695	695	0													
S.19214.6701 As-needed Des. Phase 3-1	Apr-03	May-05	796	796	0													
S.19240.6768 Ancil Mods Des2-2 (REI/ESDC)	Jun-04	Oct-07	577	510	67	67												
S.19257.6874 As-needed Design Phase 3-2	Mar-03	Mar-05	625	625	0													
S.19286.6201 BHP Site Completion	Oct-98	Dec-04	285	285	0													
S.19303.7088 Ancils Mods Final Des 4	May-11	Jul-14	821		821					308	171	479	274	68				
S.19305.7090 As-needed Des Phase 5-1	Aug-07	Dec-08	847		847	639	208					208						
S.19306.7091 As-needed Des Phase 5-2	Aug-07	Dec-08	729		729	549	180					180						
S.19311.7121 DI As needed Tech Design	Jan-12	Dec-25	26,450		26,450					750	1,500	2,250	1,500	1,500	2,000	2,000	2,000	15,200

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S.206 DI Treatment Plant Asset Protection			**402,574**	**11,421**	**391,150**	**4,294**	**26,306**	**52,137**	**64,281**	**39,631**	**18,362**	**200,717**	**12,960**	**11,690**	**12,857**	**9,575**	**18,783**	**120,275**
S.1800 Equipment Replacement			**102,466**	**4,700**	**97,766**	**23**	**3,117**	**10,801**	**13,536**	**7,690**	**2,028**	**37,172**	**5,809**	**8,920**	**8,540**	**5,100**	**5,000**	**27,200**
S.19182.6478 Equip Replacement Projection	Oct-00	Jun-19	25,000		25,000								5,000	5,000	5,000	5,000	5,000	
S.19193.6594 Equipment Condition Monitoring	May-04	Jan-05	1,777	1,777	0													
S.19231.6742 Drive Chain Replacement	Oct-01	Jul-03	264	264	0													
S.19238.6765 CTG Modifications	Mar-01	May-02	482	482	0													
S.19176.6422 Pump Packing Replacement	Sep-03	Jun-08	750	732	18	18												
S.19177.6423 Demineralizer Construction	Jul-00	Dec-00	51	51	0													
S.19264.6881 Grit Air Handler Replacement	Jun-08	Jul-09	1,830		1,830		1,267	563				1,830						
S.19265.6882 CEMS Equip. Replacement	Nov-05	Mar-06	97	92	5	5												
S.19273.6904 Fire Alarm Syst Repl -Des	Mar-10	May-13	1,108		1,108			111	443	254	277	1,085	23					
S.19287.7005 Digester Chiller Replacement	Sep-05	May-06	635	635	0													
S.19288.7006 Dystor Tank Membrane Replacement	Sep-04	Oct-05	640	640	0													
S.19289.7051 Fire Alarm Syst Repl Const	May-11	May-13	3,502		3,502					1,605	1,751	3,356	146					
S.19290.7052 Grit Blower Replac Construction	Nov-10	Nov-11	372		372				155	217		372						
S.19291.7053 Thick Prim Sldg Pump Repl Des	Sep-09	Jun-12	575		575			288	123	164		575						
S.19292.7054 TPS Pump Replac Construction	Jul-10	Apr-12	2,280	27	2,253				1,039	1,214		2,253						
S.19293.7055 Digester Mod 1&2 Pipe Replc.	Mar-09	Aug-10	8,000		8,000		444	5,333	2,222			7,999						
S.19294.7056 LOCAT Scrubber Replac Const	Aug-10	Aug-11	4,433		4,433				2,955	1,478		4,433						
S.19295.7057 Centrifuge Backdrive Replac	Sep-09	Sep-11	2,398		2,398			699	1,199	500		2,398						
S.19309.7111 HVAC equipment replacement Des/ESDC	Oct-08	Mar-12	1,603		1,603		467	426	370	339		1,602						
S.19310.7110 HVAC equipment replacement constr	Jan-10	Jan-12	5,118		5,118			640	2,559	1,919		5,118						
S.19313.7123 DI Digester Sludge Pump Repl Const	Dec-08	Dec-09	3,624		3,624		675	1,349				2,024						1,600
S.19325.7135 DI Dystor Membrane Replacements	Jul-14	Oct-14	3,000		3,000									1,000				2,000
S.19327.7137 DI Centrifuge Replacements Des	Jul-13	Oct-15	4,160		4,160								473	307	260			3,120
S.19328.7138 DI Centrifuge Replacements Constr	Oct-14	Oct-15	16,640		16,640									2,080	2,080			12,480
S.19329.7139 DI Cryogenics Plant-Equip Repl Des	Jul-13	May-16	1,600		1,600								167	89	133	11		1,200
S.19330.7140 DI Cryogenics Plant-Equip Repl Constr	Nov-14	May-16	6,400		6,400									444	1,067	89		4,800
S.19335.7169 South Systm PS Lube System Repl	Jan-09	Jan-11	2,112		2,112		264	1,056	792			2,112						
S.19336.7170 E/W Odor Ctrl Air Handler Repl	Feb-10	Feb-11	4,015		4,015			336	1,679			2,015						2,000

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S.1810 Architectural			**6,070**	**729**	**5,341**			**230**	**1,640**	**150**	**1,485**	**3,505**	**836**					**1,000**
S.19222.6723 Eastern Seawall Design - 1	Jan-11	Nov-13	449		449				75	150	137	362	87					
S.19223.6724 Eastern Seawall Construction - 1	May-12	Nov-13	1,926		1,926						1,177	1,177	749					
S.19226.6727 Study/Concept Des-Concrete Rpr	May-10	Mar-11	300		300				300			300						
S.19204.6668 Expansion Joint Repair-Design	Apr-99	Oct-04	149	149	0													
S.19205.6669 Expansion Joint Repair- Constr 1	Aug-02	Nov-03	305	305	0													
S.19218.6705 Expansion Joint Repair- Constr 3	May-12	Nov-12	171		171						171	171						
S.19217.6704 Expansion Joint Repair- Constr 2	Jun-09	Nov-09	230		230			230				230						
S.19244.6812 Secondary Clarifier Access	Sep-01	Jul-02	275	275	0													
S.19334.7168 Barge Berth and Fac. Replacement	Jul-10	Jun-27	2,265		2,265				1,265			1,265						1,000
S.1820 Utilities			**228,693**	**5,406**	**223,287**	**2,514**	**13,137**	**25,003**	**33,428**	**23,591**	**13,150**	**108,309**	**5,040**	**2,770**	**4,317**	**4,475**	**11,283**	**84,575**
S.19243.6811 Outfall Modification-Inspection	Dec-01	Jul-02	174	174	0													
S.19239.6767 Elec Equip Upgrade Constr 2	Apr-05	Feb-07	1,913	2,046	(133)	(133)												
S.19236.6763 Busduct Replacement (2+22)	Jan-01	Oct-01	196	196	0													
S.19245.6813 Transformer Replacement	Jul-08	Jun-13	2,538	38	2,500		500	500	500	500	500	2,500						
S.19227.6728 DIGAS Flare#4 Des	Dec-09	Sep-12	250		250			52	73	83	42	250						
S.19228.6729 DI Digesters Flare #4	Apr-11	Sep-12	625		625					417	208	625						
S.19252.6851 Chemical pipe Replacement-Des	Sep-10	Jan-13	447		447				149	130	168	447						
S.19253.6852 Chemical pipe Replac - Constr	Jan-12	Jan-13	1,489		1,489					372	1,117	1,489						
S.19254.6853 Sodium Hypo Pipe Repl-Des	Jul-10	Aug-11	1,142		1,142				791	351		1,142						
S.19255.6854 Sodium Hypo Pipe Repl- Constr	Jul-10	Jul-11	3,052		3,052				2,289	763		3,052						
S.19256.6855 Elect Equip Upgrade Const 3	Feb-08	Feb-11	14,639	94	14,545	312	4,895	4,900	4,437			14,232						
S.19258.6875 WTF VFD Replace Constr	Jan-12	Jul-13	2,719		2,719					453	1,812	2,265	453					
S.19259.6876 Heat Loop Pipe Repl Constr 1	Mar-05	Dec-05	615	615	0													
S.19260.6877 Misc. VFD Replacements	May-05	May-10	2,625	596	2,029	307	800	922				1,722						
S.19266.6883 Heat Loop Pipe Replac Constr 2	Dec-06	Feb-08	1,488	739	750	750												
S.19267.6884 PICS Replacement Const	Jul-13	Jul-14	1,811		1,811								1,358	453				
S.19269.6900 Switchgear Relay Replac-REI	Sep-08	Dec-10	990		990		318	424	248			990						
S.19270.6901 Elect Equip Upgrade Const 4	Jul-10	Jan-12	4,644		4,644				2,322	2,322		4,644						

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S.19271.6902 NMPS VFD Repl Des/ESDC	Dec-07	Jul-12	1,403		1,403	251	602	164	171	171	43	1,151						
S.19272.6903 NMPS VFD Replace Constr	Aug-09	Jul-12	29,029		29,029			6,635	9,953	9,953	2,488	29,029						
S.19275.6964 Low Voltage Lighting Repl	Dec-09	May-11	750		750			208	500	42		750						
S.19278.6967 STG System Modifications-Des	Oct-08	May-12	750		750		175	200	172	188	16	751						
S.19279.6968 Electr Equip Upgrade 3-REI	Feb-08	Feb-11	1,207		1,207	67	402	402	335			1,139						
S.19280.6969 Fuel Transfer Pipe Repl Des	Oct-08	Jan-12	750		750		239	183	188	141		751						
S.19281.6970 Fuel Transfer Pipe Repl Const	Jan-10	Jan-12	2,427		2,427			303	1,214	910		2,427						
S.19282.6971 NMPS Motor Ctrl Ctr Des	Jun-10	Oct-13	913		913				418	152	228	798	114					
S.19283.6972 NMPS Motor Ctrl Ctr Constr	Oct-11	Oct-13	6,086		6,086					1,521	3,043	4,564	1,521					
S.19284.6973 STG System Mods-Constr	May-10	May-12	2,500		2,500				1,146	1,250	104	2,500						
S.19296.7058 DITP Switchgear Replac Design	Jul-09	Nov-11	1,051		1,051			438	350	263		1,051						
S.19297.7059 DITP Switchgear Repl Constr	Nov-10	Nov-11	3,043		3,043				1,521	1,521		3,042						
S.19298.7060 Power Consult Recs Design	Jan-06	Dec-11	2,500	908	1,592	960	295	221	115			631						
S.19299.7061 Power System Improv Constr	Aug-08	Jan-11	8,965		8,965		1,887	4,483	2,595			8,965						
S.19300.7062 NMPS VFD Repl-REI	Jul-09	Sep-12	1,564		1,564			371	494	494	206	1,565						
S.19301.7063 Heat Loop pipe Repl- Const 3	Aug-08	Dec-10	10,724		10,724		2,958	4,438	3,328			10,724						
S.19307.7094 TPP Fuel & Steam Mods- REI	Dec-08	Feb-11	345		345		66	159	119			344						
S.19314.7124 DI Elec Equip Upgrade Ph.5	Jan-12	Jan-14	20,662		20,662					527	2,108	2,635	527	500	500	500	500	15,500
S.19316.7126 Future SSPS VFD Replacements Des	Jul-15	Nov-18	4,800		4,800										500	225	300	3,775
S.19317.7127 Future SSPS VFD Replacements Constr	Nov-16	Nov-18	19,200		19,200											1,000	2,400	15,800
S.19318.7128 Future NMPS VFD Replacements Des	Jul-17	Nov-20	4,420		4,420													4,420
S.19319.7129 Future NMPS VFD Replacements Constr	Nov-18	Nov-20	17,680		17,680													17,680
S.19320.7130 Future Misc. VFD Replacements Des	Jul-25	Jun-29	1,333		1,333													1,333
S.19321.7131 Future Misc. VFD Replacements Constr	Nov-11	Nov-16	5,334		5,334					1,067	1,067	2,134	1,067	1,067	1,067			
S.19322.7132 DI Switchgear Replacement Design	Jul-15	Apr-20	4,500		4,500										1,250	1,000	750	1,500
S.19323.7133 DI Switchgear Replacement Constr	Apr-17	Apr-20	16,000		16,000												5,333	10,667
S.19324.7134 DI PICS Replacement Construction	Jul-23	Jul-24	5,400		5,400													5,400
S.19326.7136 DI CTG Rebuilds	Jul-14	Jul-16	6,000		6,000									750	1,000	250		4,000
S.19338.7172 DI PICS Dist. Proc. Units Replac	Jul-16	Jul-18	8,000		8,000											1,500	2,000	4,500

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S.1830 Support			**402**	**125**	**277**	**45**	**26**	**125**	**28**	**54**		**233**						
S.19162.6241 DISC Application	Jun-96	Dec-09	250	125	125			125				125						
S.19241.6791 Document Format Conversion	May-07	May-12	152		152	45	26		28	54		108						
S.1840 Specialties			**64,943**	**461**	**64,482**	**1,712**	**10,024**	**15,977**	**15,648**	**8,147**	**1,699**	**51,495**	**1,274**				**2,500**	**7,500**
S.19237.6764 Hypochlorite tanks 1&3 Reline	May-07	Nov-07	1,698	265	1,433	1,433												
S.19250.6849 Hypochlorite Tanks 2&4 Reline	Apr-08	Dec-08	2,232		2,232	279	1,953					1,953						
S.19268.6899 Prim & Sec Clarifier Rehab Constr	Sep-08	Sep-11	42,929		42,929		7,155	14,310	14,310	7,155		42,930						
S.19274.6963 Gravity Thickner Rehab Des	Aug-10	Dec-13	978		978				338	211	244	793	183					
S.19276.6965 Prim & Sec Clarifier Rehab Des	Sep-08	Sep-12	3,000		3,000		583	1,000	1,000	417		3,000						
S.19277.6966 Gravity Thickener Imp Constr	Dec-08	Dec-09	3,910		3,910		333	667		364	1,455	2,819	1,091					
S.19304.7089 Sodium Hypo Tk Lnr Removal	May-06	Sep-06	196	196	0													
S.19332.7142 Future Sodium Hypo Tank Rehab	Jul-17	Jul-19	10,000		10,000												2,500	7,500
S.210 Clinton Wastewater Treatment Plant			**482**		**482**	**369**	**114**					**114**						
S.19302.7075 Clinton Soda Ash Replacement	Nov-07	Sep-08	252		252	139	114					114						
S.19308.7095 Clinton Perm Standby Generator	Feb-07	Nov-07	230		230	230												
S.211 Laboratory Services			**8,409**	**28**	**8,381**	**904**	**326**	**804**	**934**	**927**	**1,088**	**4,079**	**731**	**250**	**250**	**250**	**250**	**1,667**
S.19152.6197 Metals Lab Fume Hood Repl Const	Nov-09	Aug-10	613		613			340	272			612						
S.19249.6848 Metals Lab Fume Hood Repl	Nov-08	Aug-10	531		531		199	214	118			531						
S.19251.6850 Metals Lab Modification Constr	May-07	Sep-08	976	28	948	904	44					44						
S.19261.6878 Lab Sample Area Mod-Des	Oct-10	Dec-12	119		119				42	38	40	120						
S.19262.6879 Lab Sample Area Mod-Const	Dec-11	Dec-12	477		477					159	318	477						
S.19331.7141 Laboratory As needed Tech Des	Jan-09	Jan-11	4,000		4,000		83	250	250	250	250	1,083	250	250	250	250	250	1,667
S.19337.7171 Central Lab Fume Hood Replacement	Jul-10	Jul-14	1,693		1,693				252	480	480	1,212	481					

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S.12 Residuals			**212,381**	**63,811**	**148,570**		**857**	**926**	**1,361**	**2,093**	**1,333**	**6,570**	**7,223**	**17,833**	**21,750**	**9,320**	**5,084**	**80,791**
S.261 Residuals			**63,811**	**63,811**	**0**	**completed project**												
S.271 Residuals Asset Protection			**148,570**		**148,570**		**857**	**926**	**1,361**	**2,093**	**1,333**	**6,570**	**7,223**	**17,833**	**21,750**	**9,320**	**5,084**	**80,791**
S.26069.7143 Residual Plant Facil Plan/EIR	Jul-09	Jun-10	870		870			725	145			870						
S.26070.7145 Residuals Pellet Plant Upgrade Design	Jan-11	Dec-18	4,000		4,000				667	2,000	1,333	4,000						
S.26071.7146 Residuals Pellet Plant Upgrade Constr	Jul-13	Jul-18	10,000		10,000								1,667	2,000	2,000	2,000	2,000	333
S.26072.7147 Condition Assessment/ReliabilityStudy	Aug-08	May-09	1,000		1,000		857	143				1,000						
S.26074.7149 Six Rotary Dryer Replacements Constr	Jul-13	Jul-16	57,000		57,000								5,556	6,667	6,667	1,111		37,000
S.26076.7151 Six Air Scrubber Replacements Constr	Jul-15	Jul-17	8,000		8,000										1,250	1,500	250	5,000
S.26078.7153 Plant MCC Replacements Const	Jul-16	Jul-18	4,500		4,500											625	750	3,125
S.26079.7173 FRSA Pier Rehab Des	Dec-09	Dec-10	140		140			58	82			140						
S.26080.7174 FRSA Pier Rehab Const.	Jun-11	Jun-12	560		560				467	93		560						
S.26082.7176 Rehab Rail System Const.	Jul-16	Jul-18	3,000		3,000											417	500	2,083
S.26084.7178 Replace 9 Pellet Storage Silos Const.	Jul-15	Jul-17	6,000		6,000										833	1,000	167	4,000
S.26086.7180 Sludge Conveyor Replacement Const.	Jul-14	Jul-15	3,000		3,000									833	167			2,000
S.26088.7182 Sludge Storage Tank Rehab	Jul-15	Jul-16	3,000		3,000										833	167		2,000
S.26090.7184 Upgrade Pumping System Const.	Jul-14	Jul-16	6,000		6,000									833	1,000	167		4,000
S.26092.7186 Replace 12 Centrifuges Const.	Jul-14	Jul-16	34,000		34,000									7,500	9,000	1,500		16,000
S.26094.7188 Utility Upgrades Const.	Jul-16	Jul-18	6,000		6,000											833	1,000	4,167
S.26096.7190 Odor Control System Upgrade Const.	Jul-17	Jul-18	1,500		1,500												417	1,083
S.13 CSO			**924,577**	**411,710**	**512,867**	**116,652**	**113,016**	**109,311**	**67,660**	**35,510**	**26,189**	**351,686**	**19,359**	**16,802**	**7,933**	**101**	**77**	**259**
S.3520 MWRA Managed			**449,582**	**181,996**	**267,586**	**92,660**	**74,858**	**61,695**	**29,928**	**5,882**	**1,623**	**173,986**	**932**	**6**				
S.339 North Dorchester Bay			**234,299**	**55,520**	**178,779**	**88,759**	**41,334**	**22,211**	**20,639**	**5,512**	**323**	**90,019**						
S.32660.6220 Design ESDC/Tunnel	Sep-04	Apr-11	24,619	20,915	3,703	1,369	1,339	671	324			2,334						
S.32661.6244 Tunnel Construction (Ch30)	Aug-06	Dec-09	148,888	29,661	119,227	83,590	34,978	659				35,637						
S.32662.6245 Dewater/Odor Control Constr	Mar-09	Mar-11	41,961		41,961		1,678	18,338	18,338	3,607		41,961						
S.32726.6993 Tunnel & Facilities CM Services	Oct-05	Apr-12	11,244	1,171	10,073	2,048	2,557	1,943	1,377	1,825	323	8,025						

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S.32732.7012 Pleasure Bay Construction	Sep-05	May-06	3,195	3,195	0													
S.32733.7013 Design ESDC/Facilities	Nov-06	May-12	3,570	578	2,992	1,352	360	600	600	80		1,640						
S.32744.7103 Tunnel Rescue/Emergency Response	Mar-07	Dec-09	822		822	400	422					422						
S.354 Hydraulic Relief Projects			**2,295**	**2,295**	**0**													
S.32692.6250 Design/CS/RI	Aug-97	Aug-01	558	558	0													
S.32669.6252 Construction	Jul-99	Aug-00	1,737	1,737	0													
S.347 East Boston Branch Sewer Relief			**88,423**	**9,618**	**78,805**	**1,013**	**30,838**	**38,550**	**8,405**			**77,793**						
S.32673.6256 Design	Mar-00	Sep-06	3,463	3,463	0													
S.32674.6257 East Boston Branch Relief Sewer	Jun-08	Jun-10	61,905		61,905		24,762	29,713	7,430			61,905						
S.32716.6790 Boston Paving	Jun-08	Jun-10	348		348				348			348						
S.32719.6840 East Boston Branch Sewer Rehab	Apr-03	May-04	5,222	5,222	0													
S.32720.6841 Sections 38 & 207 Replacement	Dec-08	Mar-10	10,100		10,100		3,721	6,379				10,100						
S.32742.7087 Design 2 CS	Jun-06	Jun-11	2,996	933	2,064	1,013	600	351	100			1,051						
S.32743.7097 Resident Inspection Services	Jun-08	Jun-10	4,389		4,389		1,755	2,107	527			4,389						
S.348 BOS019 Storage Conduit			**14,345**	**14,222**	**123**	**83**	**40**					**40**						
S.32675.6258 Design	Jul-02	Nov-04	2,045	2,020	25	25												
S.32677.6260 BOS019 Storage Conduit Constr	Mar-05	Mar-07	10,873	10,892	(19)	(19)												
S.32728.7008 Construction Management Services	Apr-05	Sep-08	1,427	1,310	117	77	40					40						
S.349 Chelsea Trunk Sewer			**29,778**	**29,778**	**0**													
S.32659.6198 Design/CS/RI	Jun-97	Aug-03	3,651	3,651	0													
S.32679.6262 Chelsea Trunk Relief	Sep-99	Aug-00	3,577	3,577	0													
S.32680.6263 Chelsea Branch Sewer	Dec-99	Jul-01	19,141	19,141	0													
S.32689.6370 Rehab/Chelsea Brnch/Revere Ext	Aug-01	Jun-02	3,125	3,125	0													
S.32690.6371 Modify Chelsea Screen House	Aug-00	Dec-00	284	284	0													

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S.350 Union Park Detention Treatment Fac			**49,737**	**47,713**	**2,024**	**2,022**												
S.32681.6264 Design	Dec-99	Dec-07	8,124	8,237	(113)	(113)												
S.32682.6265 Construction	Mar-03	Apr-07	46,832	44,754	2,077	2,077												
S.32718.6826 Construction - Park	Apr-03	Jun-07	528	333	195	195												
S.32721.6909 BWSC Construction ...	Mar-03	Apr-07	(5,747)	(5,611)	(137)	(137)												
S.353 Upgrade Existing CSO Facilities			**22,385**	**22,385**	**0**													
S.32647.6123 Design	Jun-96	Oct-02	6,499	6,499	0													
S.32685.6268 Cottage Farm CSO Facility	Mar-98	Jan-00	4,377	4,377	0													
S.32686.6269 Prision Point CSO Facility	May-99	Feb-01	3,339	3,339	0													
S.32693.6496 Comm/Fox Point, Som. Marginal	Nov-99	Aug-01	8,029	8,029	0													
S.32687.6270 Non-Treated Floatable (Beacon)	Mar-99	Dec-99	124	124	0													
S.32717.6803 Cottage Farm Programing	Dec-00	Dec-01	17	17	0													
S.355 MWR003 Gate & Siphon			**2,718**		**2,718**				**120**	**360**	**1,300**	**1,780**	**932**	**6**				
S.32722.6952 Design	Feb-11	Nov-14	906		906				120	360	300	780	120	6				
S.32723.6953 Construction	Sep-12	Nov-13	1,812		1,812						1,000	1,000	812					
S.357 Charles River CSO Controls			**5,602**	**465**	**5,137**	**783**	**2,646**	**934**	**764**	**10**		**4,354**						
S.32729.7009 CF Brookline Conn Inflow Controls Des	Sep-06	Jun-10	1,260	465	795	483	238	50	24			312						
S.32730.7010 Interceptor Optimization Eng/Des	Jan-08	Jan-12	1,166		1,166	300	536	180	140	10		866						
S.32731.7011 Existing Gate Controls System	Jan-10	Jan-11	1,200		1,200			600	600			1,200						
S.32740.7080 CF Brookline Conn Controls Constr	Jun-08	Jun-09	1,976		1,976		1,872	104				1,976						
S.3521 Community Managed			**424,803**	**187,528**	**237,275**	**20,927**	**35,920**	**46,524**	**36,709**	**29,586**	**24,524**	**173,263**	**18,385**	**16,754**	**7,891**	**59**		
S.340 S. Dorch Bay Sew Separ (Fox Pt.)			**53,782**	**52,230**	**1,552**	**1,533**	**21**					**21**						
S.32651.6155 Design	Jun-96	Aug-09	11,172	11,119	54	35	19					19						
S.32664.6247 Construction	Apr-99	Nov-06	42,610	41,111	1,500	1,498	2					2						

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S.341 S. Dorch Bay Sew Separ (Comm. Pt.)			**63,133**	**53,418**	**9,715**	**2,248**	**2,431**	**2,518**	**2,518**			**7,467**						
S.32650.6154 Design	Jun-96	Aug-09	14,484	13,246	1,238	875	363					363						
S.32665.6248 Construction	Apr-99	Nov-07	48,649	40,172	8,477	1,373	2,068	2,518	2,518			7,104						
S.344 Stony Brook Sewer Separation			**45,322**	**44,089**	**1,233**	**963**	**270**					**270**						
S.32667.6395 Design/CS/RI	Jul-98	Sep-08	10,007	9,693	314	99	215					215						
S.32668.6251 Construction	Jul-00	Sep-06	35,315	34,396	919	864	55					55						
S.342 Neponset River Sewer Separation			**2,681**	**2,445**	**236**			**236**				**236**						
S.32652.6156 Design/CS/RI	Apr-96	Dec-03	480	470	10			10				10						
S.32653.6160 Construction	Aug-96	Oct-02	2,201	1,975	226			226				226						
S.343 Constitution Beach Sewer Separation			**3,769**	**3,769**	**0**													
S.32649.6153 Design/CS/RI	Oct-96	Dec-02	673	673	0													
S.32666.6249 Construction	May-98	Apr-02	3,096	3,096	0													
S.346 Cambridge CAM002-004 Sew.Separation			**56,151**	**18,451**	**37,700**		**1,936**	**9,624**	**7,410**	**7,200**	**8,116**	**34,286**	**2,341**	**1,073**				
S.32654.6161 Design/CS/RI	Jan-97	Jun-15	19,503	8,683	10,820		669	2,154	2,967	1,994	1,309	9,093	1,201	526				
S.32672.6255 Construction	Jul-98	Dec-14	36,648	9,768	26,880		1,267	7,470	4,443	5,206	6,807	25,193	1,140	547				
S.351 BWSC Floatables Controls			**933**	**933**	**0**													
S.32657.6168 Design	Dec-98	Dec-02	555	555	0													
S.32683.6266 Construction	Aug-00	Mar-02	378	378	0													
S.352 Cambridge Floatables Controls			**3,377**	**922**	**2,455**		**324**	**1,242**	**889**			**2,455**						
S.32655.6162 Design	Jan-97	Nov-10	796	377	419		197	129	93			419						
S.32684.6267 Construction	Oct-02	Nov-10	2,581	545	2,036		127	1,113	796			2,036						
S.356 Fort Point Channel Sewer Separation			**11,239**	**7,663**	**3,576**	**628**	**1,118**	**900**	**930**			**2,948**						
S.32725.6992 Construction	Mar-05	Mar-07	9,172	6,572	2,600	358	712	700	830			2,242						
S.32724.6991 Design	May-04	Mar-08	2,067	1,091	976	270	406	200	100			706						

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S.358 Morrissey Boulevard Drain			**36,863**	**1,984**	**34,879**	**12,693**	**20,392**	**1,795**				**22,187**						
S.32713.6696 Construction	Dec-06	Jun-09	31,017	750	30,267	10,944	18,016	1,308				19,324						
S.32735.7015 Design	Jun-05	Dec-09	5,846	1,234	4,612	1,749	2,376	487				2,863						
S.359 Reserved Channel Sewer Separation			**113,835**	**902**	**112,933**	**1,815**	**4,313**	**16,839**	**16,988**	**16,895**	**16,408**	**71,443**	**16,044**	**15,681**	**7,891**	**59**		
S.32734.7014 Design	Jul-06	Jun-16	18,824	902	17,922	1,815	1,938	2,587	2,736	2,643	2,156	12,060	1,792	1,429	767	59		
S.32727.6994 Construction	May-09	Dec-15	95,011		95,011		2,375	14,252	14,252	14,252	14,252	59,383	14,252	14,252	7,124			
S.360 Brookline Sewer Separation			**23,482**	**540**	**22,942**	**732**	**2,708**	**8,513**	**5,513**	**5,477**		**22,211**						
S.32736.7076 Design CS/RI	Nov-06	Jan-13	3,018	540	2,478	732	525	408	408	406		1,747						
S.32737.7077 Construction	Nov-08	Jun-12	20,464		20,464		2,183	8,105	5,105	5,071		20,464						
S.361 Bulfinch Triangle Sewer Separation			**10,236**	**182**	**10,054**	**315**	**2,407**	**4,857**	**2,461**	**14**		**9,739**						
S.32738.7078 Design CS/RI	Aug-06	Jun-11	1,201	182	1,019	315	149	339	202	14		704						
S.32739.7079 Construction	Aug-08	Dec-14	9,035		9,035		2,258	4,518	2,259			9,035						
S.324 CSO Support			**50,192**	**42,186**	**8,006**	**3,065**	**2,238**	**1,092**	**1,023**	**42**	**42**	**4,437**	**42**	**42**	**42**	**42**	**77**	**259**
S.32400.5790 Technical Assistance	Feb-94	Dec-95	228	228	0													
S.32407.5970 Tech. Assistance-Geotech			61	61	0													
S.32401.5791 Planning/EIR	Mar-88	Sep-90	10,769	10,769	0													
S.32403.5716 Master Planning	Mar-92	Sep-04	22,007	21,877	130		130					130						
S.32645.6036 Watershed Planning	Dec-94	Apr-01	877	877	0													
S.32409.5795 Modeling	May-92	Mar-95	300	300	0													
S.32411.5767 SOP Program	Jan-94	May-01	1,957	1,957	0													
S.32691.6372 System Assessment	May-97	Jun-20	476	27	449		21	21	21	21	21	105	21	21	21	21	41	219
S.32648.6150 Technical Review	Jul-96	Jun-20	794	529	265		21	21	21	21	21	105	21	21	21	21	36	40
S.32658.6169 Land/Easement	Jul-96	Jun-12	12,723	5,561	7,162	3,065	2,066	1,050	981			4,097						

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S.14 Other			**86,875**	**86,788**	**87**	**5,239**	**(2,341)**	**(1,646)**	**(1,563)**	**342**	**1,123**	**-4,085**	**6,598**	**6,116**	**(4,207)**	**(3,498)**	**(2,794)**	**(3,282)**
S.128 I/I Local Financial Assistance			**86,594**	**86,507**	**87**	**5,239**	**(2,341)**	**(1,646)**	**(1,563)**	**342**	**1,123**	**-4,085**	**6,598**	**6,116**	**(4,207)**	**(3,498)**	**(2,794)**	**(3,282)**
S.10273.6084 Grants - Phase II	May-93	May-06	15,938	10,129	5,809	9												
S.10274.6085 Loans - Phase II	May-93	May-06	47,664	30,386	17,278	0												
S.10282.6170 Repayment - Phase II	May-94	May-11	(47,664)	(28,246)	(19,418)	(1,020)	(476)	(400)	(285)			(1,161)						
S.10368.6736 Grants - Phase IV	Nov-99	May-13	34,650	16,154	18,496	1,053	383	360	180	180	122	1,225						
S.10369.6737 Loans - Phase IV	Nov-99	May-13	42,350	19,744	22,606	1,287	468	440	220	220	149	1,497						
S.10370.6738 Repayment - Phase IV	Nov-00	May-18	(42,350)	(7,671)	(34,679)	(5,710)	(4,710)	(3,935)	(2,776)	(1,634)	(527)	(13,582)	(299)	(206)	(178)	(74)	(30)	
S.10348.6609 Public Participation	Feb-99	Jun-02	6	6	0													
S.10407.6925 Grants-Phase V	Aug-04	Jun-13	18,000	7,648	10,352	4,183	1,575	1,350	1,350	1,350	544	6,169						
S.10408.6926 Loans-Phase V	Aug-04	Jun-13	22,000	9,348	12,652	5,112	1,925	1,650	1,650	1,650	665	7,540						
S.10409.6927 Repayments-Phase V	Aug-05	Jun-18	(22,000)	(1,322)	(20,678)	(1,870)	(2,892)	(3,277)	(3,237)	(2,985)	(2,397)	(14,788)	(1,508)	(1,123)	(793)	(463)	(133)	
S.10441.7107 Grants-Phase VI	Nov-06	Jun-15	18,000	1,372	16,628	1,140	900	1,350	1,125	1,350	1,800	6,525	4,500	4,464				
S.10442.7108 Loans - Phase VI	Nov-06	Jun-15	22,000	1,676	20,324	1,393	1,100	1,650	1,375	1,650	2,200	7,975	5,500	5,456				
S.10443.7109 Repayments-Phase VI	Nov-07	Jun-20	(22,000)		(22,000)	(335)	(614)	(834)	(1,164)	(1,439)	(1,434)	(5,485)	(1,595)	(2,475)	(3,236)	(2,961)	(2,631)	(3,282)
S.138 Sewerage System Mapping Upgrade			**281**	**281**	**0**	**completed project**												

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S.2 Waterworks System Improvements			**2,378,617**	**1,556,467**	**822,150**	**46,106**	**67,863**	**71,589**	**64,144**	**82,833**	**99,369**	**385,798**	**96,068**	**82,954**	**88,563**	**47,199**	**19,859**	**55,616**
S.16 Drinking Water Quality Improvements			**641,095**	**496,771**	**144,324**	**11,844**	**16,534**	**18,444**	**7,694**	**16,041**	**15,614**	**74,327**	**15,157**	**5,005**	**16,733**	**16,728**	**4,533**	
S.542 John J. Carroll Water Treatment Plant			**431,085**	**373,791**	**57,294**	**(878)**	**5,173**	**6,949**	**4,538**	**12,006**	**14,844**	**43,510**	**14,054**	**609**				
S.53293.5023 Study 1	Jan-88	Feb-89	444	444	0													
S.53294.5024 Study 2	Jul-90	Mar-94	2,368	2,368	0													
S.53375.6182 AWWARF Study	Dec-96	Sep-03	650	650	0													
S.53376.6206 Emerg Dis Res Water Mgmt Study	Nov-98	Sep-02	1,454	1,454	0													
S.53367.6118 Crypto. Inactivation Study	Feb-97	May-00	150	150	0													
S.53390.6365 Cosgrove Disinfection Ph II	Apr-98	May-99	2,169	2,169	0													
S.53391.6397 Cosgrove Disinfection Ph I	Jul-97	Oct-97	150	150	0													
S.53393.6406 Immediate Disinf. MECO	Jul-97	Jul-97	10	10	0													
S.53392.6401 Distribution Water Consultant	Jul-97	Jun-98	3	3	0													
S.53304.5157 Permit Fees	Jul-93	Mar-14	79	48	31		6	8	8	4	5	31						
S.53300.5997 Technical Assistance	Jan-88	Jun-00	72	72	0													
S.53296.5042 EIR/Conceptual Design	Nov-93	Jul-95	5,808	5,808	0													
S.53301.5017 Design/CS/RI - Wachusett WTP	Oct-96	Sep-06	46,606	48,481	(1,875)	(1,875)												
S.53377.6207 WHCP1 Wachusett Cosgrove Intakes	Jun-00	Jun-03	15,391	15,391	0													
S.53412.5522 WHCP2 Interim Rehab. Wach. Aque.	Dec-00	Oct-02	23,400	23,400	0													
S.53413.6488 WHCP3 Sitework & Storage Tanks	Mar-99	Nov-02	67,368	67,368	0													
S.53414.6489 WHCP4 Treatment Facility	Dec-00	Jul-05	145,871	145,871	0													
S.53416.6491 WHCP6 Late Sitework	Jul-04	Jan-06	4,088	4,128	(40)	(40)												
S.53426.6650 WHCP7 Existing Facilities Mods	Dec-09	Dec-11	5,000		5,000			800	2,400	1,800		5,000						
S.53371.6134 Design Management Support	Apr-97	Apr-00	1,730	1,730	0													
S.53378.6208 Construction Management/RI	Aug-98	Sep-06	31,438	31,438	0													
S.53406.6479 Cosgrove Disinf.-Fac. Underwater Imps.	Jan-98	Jun-98	217	217	0													
S.53410.6485 Community Chlorine Analyzers	Apr-98	Jun-98	49	49	0													
S.53418.6494 OCIP	Mar-99	Dec-07	5,107	5,107	0													
S.53419.6495 Professional Services	Sep-98	Oct-05	2,857	2,752	105		25	25	25	25	5	105						
S.53420.6497 Marlboro MOA	Sep-98	Jun-05	5,859	5,859	0													

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S.53421.6520 WHWTP- MECO	Sep-98	Mar-05	128	128	0													
S.53425.6613 Site Security Services	May-99	Mar-05	1,264	1,264	0													
S.53427.6670 CSX Crossing	Aug-01	Dec-01	65	65	0													
S.53428.6671 Wachusetts Algae Design CS/RI	Sep-11	Dec-14	450		450					128	129	257	128	65				
S.53432.6691 Public Health Research	Jul-00	Jun-07	1,703	1,703	0													
S.53435.6756 Security Equipment	Jun-00	Jun-00	571	571	0													
S.53437.6773 WHCP8 Cosgrove Screens Con	Aug-03	Aug-04	3,238	3,238	0													
S.53443.6815 AWWARF-Evaluation Ozone & UV	Jul-01	Jan-04	302	302	0													
S.53445.6827 Fitout/Construction	Oct-03	Dec-11	1,500	606	894	174	160	125	250	186		721						
S.53448.6889 Wachusetts Algae ...	Feb-13	Dec-14	1,800		1,800						257	257	1,029	514				
S.53449.6922 JJCWTP UV Validation	Mar-09	Oct-09	2,000		2,000		444	1,556				2,000						
S.53450.6923 WH Ultra Violet Dis Des ESDC/RI	May-08	Feb-15	4,394		4,394		807	880	513	570	856	3,626	738	30				
S.53451.6924 WH Ultra Violet Disinfect Cons	Aug-11	Feb-14	34,000		34,000					8,774	13,161	21,935	12,065					
S.53452.6939 As needed Tech Assistance #1	Jan-06	Jun-08	750	324	426	211	215					215						
S.53453.6951 Des WH CP7 Existing Fac Mods	Jul-05	Oct-12	1,876	114	1,762	100	550	400	400	200	112	1,662						
S.53455.6989 As needed Tech Assistance ...	Jan-06	Jun-08	750	297	453	368	85					85						
S.53456.7084 Ancillary Mods Constr 1	Jul-06	Jun-08	160	62	98	98												
S.53457.7085 Ancillary Mods Const 2	Sep-08	Jun-13	6,670		6,670		2,361	2,635	942	319	319	6,576	94					
S.53458.7192 Ancil Mods Design 3	Mar-08	Mar-10	563		563	43	260	260				520						
S.53459.7208 Ancillary Mods Design 4	Mar-08	Mar-10	563		563	43	260	260				520						
S.543 Quabbin Water Treatment Plant			**17,730**	**10,144**	**7,586**		**418**	**719**	**2,993**	**3,356**	**100**	**7,586**						
S.53363.6043 Quabbin WTP Des/CA/RI	May-95	Aug-01	3,823	3,823	0													
S.53382.6212 Construction	Nov-98	Sep-00	5,071	5,071	0													
S.53381.6211 Utilities	Aug-98	Jan-12	13	13	0													
S.53380.6210 Permit Fees	Jan-98	Jan-12	10	7	3			2	1			3						
S.53433.6706 Ware Fire Dept. MOA	Oct-99	Jul-00	25	25	0													
S.53434.6711 W Q Analysis Equipment	Jan-01	Jun-06	49	49	0													
S.53439.6775 Quabbin UVWTP: Des/CA/RI	Sep-08	Dec-12	2,380		2,380		418	717	717	428	100	2,380						
S.53440.6776 Quabbin UVWTP: Construction	Sep-10	Dec-11	5,203		5,203				2,275	2,928		5,203						

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S.53442.6804 Quabbin UVWTP:Study/Pilot	May-02	Dec-05	1,156	1,156	0													
S.544 Norumbega Covered Storage			**106,685**	**105,963**	**722**	**537**	**185**					**185**						
S.53297.5041 Conceptual Design/EIR	Sep-92	Oct-99	2,873	2,873	0													
S.53364.6057 Owners Representative	Apr-98	Dec-05	4,585	4,585	0													
S.53383.6213 Design/Build	Nov-99	Aug-05	96,154	95,467	687	537	150					150						
S.53372.6145 Land	Mar-97	Dec-97	3,000	3,000	0													
S.53365.6115 Appraisal	Nov-95	Dec-97	17	17	0													
S.53403.6466 Permits	Jun-99	Dec-09	5	2	3		3					3						
S.53424.6606 Professional Services	Sep-98	Jun-08	51	19	32		32					32						
S.545 Blue Hills Covered Storage			**40,739**	**6,640**	**34,099**	**12,185**	**10,758**	**10,776**	**163**	**184**	**10**	**21,891**	**10**	**10**	**5**			
S.68025.6139 EIR/Preliminary Design/OR	May-97	Jun-10	2,557	1,875	683	294	188	186	15			389						
S.53386.6216 Design Build	Jan-07	Apr-10	37,766	4,742	33,025	11,885	10,560	10,580				21,140						
S.53385.6215 Tech Support/Permit Comp	Apr-02	Dec-15	104	23	81	6	10	10	10	10	10	50	10	10	5			
S.53460.7213 Roadway Resurfacing	Apr-10	Oct-11	51		51				34	17		51						
S.53461.7214 Roadway Resurfacing	Jan-11	Oct-11	261		261				104	157		261						
S.550 Low Service Storage Near Spot Pond			**44,856**	**233**	**44,623**					**495**	**660**	**1,155**	**1,093**	**4,386**	**16,728**	**16,728**	**4,533**	
S.53400.6455 Env Rev	Apr-02	Feb-03	233	233	0													
S.53401.6456 Env Rev Concept Design	Jul-11	Jun-13	1,330		1,330					495	660	1,155	175					
S.53402.6457 Design/Build	Jan-15	Dec-17	38,725		38,725									3,225	15,900	15,900	3,700	
S.53447.6868 Easement/Land Acquisition	Jul-13	Jan-15	630		630								297	333				
S.53462.7233 Owners's Representative	Jul-13	Apr-18	3,938		3,938								621	828	828	828	833	
S.17 Transmission			**989,551**	**659,736**	**329,815**	**15,877**	**19,076**	**18,271**	**23,743**	**29,126**	**25,922**	**116,138**	**36,714**	**43,087**	**40,000**	**10,000**	**10,000**	**58,000**
S.604 MetroWest Tunnel			**700,101**	**633,558**	**66,543**	**230**	**8,970**	**11,473**	**11,775**	**15,089**	**15,084**	**62,391**	**3,835**	**87**				
S.59794.5043 Study	Jun-84	Oct-89	415	415	0													
S.59796.5048 Construction-Sudbury Pipe Bridge	Nov-91	Jun-92	296	296	0													
S.59795.5044 Design/EIR - Tunnel/ESDC	Apr-92	Mar-07	37,981	37,935	46	(1)	47					47						
S.59798.6054 West Tunnel Segment - CP1	Apr-97	Apr-03	147,787	147,787	0													

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S.60013.6055 Midd.Tunnel Segment - CP2	Jun-96	Apr-03	245,809	245,809	0													
S.60015.6059 Shaft 5A - CP3	Aug-97	Aug-98	5,872	5,872	0													
S.60040.6374 East Tunnel Segment-CP3A	Nov-98	Sep-02	55,976	55,976	0													
S.60014.6056 MHD Salt Sheds - CP5	Sep-96	Jun-97	1,314	1,314	0													
S.60031.6205 CP6B Upper Hultman Rehab	Apr-11	Apr-13	7,889		7,889				304	3,638	3,638	7,580	309					
S.60030.6204 Testing & Disinfection-CP7	Jan-03	Oct-03	3,612	3,612	0													
S.60029.6203 Loring Road Storage Tanks CP-8	Sep-97	Nov-00	41,368	41,368	0													
S.59799.5284 Const. Mgmt/Resident Inspect	May-95	Apr-04	39,428	39,428	0													
S.59806.5141 Hultman Study	Apr-95	Mar-05	1,864	1,864	0													
S.60022.6128 Hultman Leak Repair	Aug-96	May-97	307	307	0													
S.60026.6140 Hultman Repair Band	Aug-96	Dec-96	28	28	0													
S.60042.6430 Hultman Investigation and Repair	Jun-99	Nov-00	1,604	1,604	0													
S.60043.6492 Hultman Repair Bands 98-99	Apr-99	Jun-99	116	116	0													
S.59805.5139 Land Acquisition	Oct-95	Jul-13	6,259	6,259	0													
S.59804.5976 Technical Assistance	Jun-84	Jun-98	131	131	0													
S.60012.6037 DEP Permit Fees	Oct-94	Jun-11	50	46	4	1	3					3						
S.60020.6117 Prof. Services	Nov-95	Dec-03	731	731	0													
S.60023.6129 Framingham MOU	May-96	Dec-03	2,444	2,444	0													
S.60039.6367 Weston MOA	Apr-96	Oct-04	1,006	1,006	0													
S.60038.6366 Southboro MOA	May-97	Jun-03	255	255	0													
S.60053.6762 Wayland MOA	Jun-00	Dec-02	35	35	0													
S.60017.6063 Local Sup Cont Des/CA/RI	May-96	Oct-99	859	859	0													
S.60024.6130 Loc. Support Cont. Constr	Jun-97	Dec-03	4,308	4,285	23	5	16	2				18						
S.60025.6131 Loc. Sup Cont. Legal/Easement	Apr-97	Jun-02	9	9	0													
S.60018.6067 Community Technical Assistance	Jun-95	Apr-99	297	297	0													
S.60021.6122 OCIP	Jun-96	May-06	26,023	26,261	(238)	(238)												
S.60054.6777 Equipment Prepurchase	Jun-05	Mar-06	198	198	0													
S.60058.6856 Hultman Rehab CP9	Nov-05	Dec-06	3,257	3,345	(88)	(88)												
S.60059.6872 Interim Disinfection	Jan-03	Oct-05	1,245	1,245	0													
S.60066.6911 Hultman Interconnect/Fin Des/CA Insp	Sep-05	Apr-13	8,323	2,421	5,902	531	829	891	891	891	891	4,393	891	87				

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S.60073.6975 CP6A Lower Hultman Rehab	Jul-08	Jul-13	52,700		52,700		7,905	10,540	10,540	10,540	10,540	50,065	2,635					
S.60085.7105 CP6 Easements	Jan-08	Apr-13	175		175	20	40	40	40	20	15	155						
S.60086.7106 CP6A Demolition	Jul-08	Nov-08	130		130		130					130						
S.601 Sluice Gate Rehabilitation			**9,158**	**9,158**	**0**	**completed project**												
S.615 Chicopee Valley Aqued. Redundancy			**8,913**	**6,725**	**2,188**	**2,095**	**93**					**93**						
S.60045.6527 Pipeline Redundancy Des/CA/RI	Apr-00	Dec-08	1,927	1,570	357	267	90					90						
S.60046.6528 Pipeline Redundancy Construction	Oct-05	Apr-08	6,739	5,053	1,686	1,683	3					3						
S.60065.6908 Construction Easements	Apr-03	Oct-07	147	40	107	107												
S.60074.7002 Permits	May-04	Oct-06	50	12	38	38												
S.60084.7100 MWRA/SHFD NO.1 Take -off	Oct-06	Dec-06	50	50	0													
S.597 Winsor Dam Hydroelectric/Pipeline Replace			**15,080**	**38**	**15,042**		**656**	**1,041**	**5,385**	**5,285**	**2,654**	**15,021**	**21**					
S.60032.6276 Preliminary Permit Study & Licensing	Nov-97		38	38	0													
S.60033.6277 Detail Design for Hydro	Jul-09	Feb-11	376		376			171	205			376						
S.60044.6526 Construction for Hydro	Aug-10	Feb-11	1,471		1,471				1,471			1,471						
S.60077.7017 Quabbin Release Pipeline Design	Jul-09	Jan-13	500		500			104	140	140	116	500						
S.60087.7114 Shaft 12 Sluice Gates/Winsor Pipe Des	Jan-09	Oct-13	2,360		2,360		139	555	555	555	535	2,339	21					
S.60088.7115 Winsor Power Station Pipe Constr Ph1	Aug-10	Oct-12	4,310		4,310				1,277	1,916	1,117	4,310						
S.60096.7198 Shaft 12 Sluice Gate Construction	May-10	Oct-12	3,797		3,797				1,392	1,519	886	3,797						
S.60101.7212 Winsor Power St. Chapman Valve Repair	Oct-08	Aug-09	528		528		317	211				528						
S.60105.7234 Purchase of Sleeve Valves	May-08	Mar-09	200		200		200					200						
S.60106.7235 Quabbin Release Pipeline Const	Jan-11	Jan-12	1,500		1,500				345	1,155		1,500						
S.616 Quabbin Transmission System			**7,778**	**4,181**	**3,597**	**479**	**49**	**225**	**593**	**1,473**	**774**	**3,114**	**6**					
S.75491.6690 Phase 1 Oakdale Valves Const.	Oct-05	Jun-06	1,811	1,811	0													
S.60055.6828 Facilities Inspection	Oct-05	Oct-07	1,046	768	279	271	8					8						
S.75496.6831 Ph 1 Oakdale Valves Study/Des	Apr-04	Jun-07	1,307	1,068	240	203	37					37						
S.60075.7007 Equipment Pre-purchase	Feb-05	Jun-08	543	534	9	5	4					4						
S.60103.7229 Oakdale Phase 1A Elec Des	Jul-09	Oct-13	921		921			225	300	300	90	915	6					

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S.60104.7230 Oakdale Phase 1A Elec Constr	Jan-11	Oct-12	2,150		2,150				293	1,173	684	2,150						
S.617 Sudbury / Weston Aqueduct Repairs			**3,237**	**635**	**2,602**	**159**		**100**	**2,342**			**2,442**						
S.75486.6617 Haz Material Sudbury Aqueduct	Apr-99	May-05	279	265	13	13												
S.60056.6838 Sudbury Aqueduct Inspection	Aug-05	Oct-06	516	370	146	146												
S.60070.6947 Weston Aqueduct Inspection	Apr-10	Dec-10	150		150				150			150						
S.60076.7016 Sudbury Short-Term Repairs	Apr-10	Dec-10	2,292		2,292			100	2,192			2,292						
S.620 Wachusetts Res Spill Impr/Winsor Dam Repairs			**15,489**	**1,325**	**14,164**	**6,914**	**5,491**	**1,759**				**7,250**						
S.60078.7018 Equipment Pre-purchase	Jul-06	Aug-09	537	278	259	259												
S.60079.7019 Design	Jan-06	May-10	2,292	988	1,304	954	250	100				350						
S.60080.7020 Construction	May-07	Nov-08	5,395		5,395	4,014	1,381					1,381						
S.60097.7207 Technical Assistance	Mar-07	Jul-08	117	59	58	58												
S.60098.7209 Cosgrove and Shaft A PCB Removal	Oct-07	Oct-08	1,999		1,999	837	1,162					1,162						
S.60099.7210 Wachusett Dam PCB Removal	Nov-07	Nov-08	2,180		2,180	792	1,388					1,388						
S.60102.7221 PH2 PCB Material Remediation	Nov-08	Nov-09	2,969		2,969		1,310	1,659				2,969						
S.621 Watershed Land			**19,000**	**4,116**	**14,884**	**6,000**	**3,000**	**2,000**	**2,000**	**1,884**		**8,884**						
S.60081.7069 Land Acquisition	Apr-06	Jun-12	19,000	4,116	14,884	6,000	3,000	2,000	2,000	1,884		8,884						
S.623 Dam Projects			**7,295**		**7,295**			**273**	**365**	**2,395**	**3,410**	**6,443**	**852**					
S.60094.7194 Immediate Repair Dams	Aug-11	Jun-13	5,836		5,836					2,030	3,045	5,075	761					
S.60100.7211 Immediate Repair Dams-Design	Jul-09	Jun-13	1,459		1,459			273	365	365	365	1,368	91					
S.625 Long Term Redundancy			**203,500**		**203,500**		**817**	**1,400**	**1,283**	**3,000**	**4,000**	**10,500**	**32,000**	**43,000**	**40,000**	**10,000**	**10,000**	**58,000**
S.60035.6273 Water Transmission Redun Plan	Sep-08	Feb-11	3,500		3,500		817	1,400	1,283			3,500						
S.60090.7156 Wachusett Aq Pressurization Des	Jul-11	Jun-16	20,000		20,000					3,000	4,000	7,000	5,000	4,000	4,000			
S.60091.7157 Wachusett Aq Pressurization Cons	Jul-13	Jun-16	80,000		80,000								25,000	29,000	26,000			
S.60092.7159 Long Term Redundancy Des	Jul-13	Jun-23	20,000		20,000								2,000	2,000	2,000	2,000	2,000	10,000
S.60093.7160 Long Term Redundancy Construction	Jul-14	Dec-23	80,000		80,000									8,000	8,000	8,000	8,000	48,000

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S.18 Distribution And Pumping			**717,241**	**280,914**	**436,327**	**21,825**	**23,913**	**28,109**	**28,493**	**33,709**	**47,385**	**161,609**	**64,634**	**53,216**	**48,176**	**35,148**	**17,800**	**33,929**
S.677 Valve Replacement			**19,667**	**7,336**	**12,331**	**1,225**	**502**	**401**	**1,132**	**1,864**	**1,407**	**5,306**	**1,936**	**1,423**	**1,936**	**489**	**16**	
S.67559.5126 Construction 1	Nov-95	Nov-96	718	718	0													
S.68012.6105 Construction 2	Nov-97	Jul-99	1,357	1,357	0													
S.68039.6278 Construction 3	Feb-00	Aug-01	1,338	1,338	0													
S.68079.6345 Construction 4	May-02	Oct-03	1,540	1,540	0													
S.68080.6346 Construction 5	Mar-04	Jul-05	1,389	1,389	0													
S.68126.6435 Construction 6	May-07	Jul-08	1,613	89	1,524	1,224	300					300						
S.68127.6436 Construction 7	Oct-10	May-12	2,435		2,435				732	1,464	239	2,435						
S.68300.7195 Construction 8	Oct-12	May-14	2,559		2,559						768	768	1,536	255				
S.68307.7236 Construction 9	Oct-14	May-16	2,559		2,559									768	1,536	255		
S.68005.6088 Equip. Purchase	Oct-95	Jun-18	4,036	787	3,249		200	400	400	400	400	1,800	400	400	400	234	16	
S.67560.5124 Technical Assistance	Oct-95	May-10	112	111	0													
S.68239.6859 Permits	Jan-02	May-10	5	1	4	1	2	1				3						
S.68240.6860 Easements	Jan-02	May-10	6	6	0													
S.712 Cathodic Protection Of Distr.Mains			**1,617**	**141**	**1,476**								**492**	**492**	**492**			
S.68002.6058 Planning Phase I	Apr-95	Dec-97	108	108	0													
S.68129.6438 Test Station Installation 2	May-13	May-14	492		492								492					
S.68130.6439 Test Station Installation 3	May-14	May-15	492		492									492				
S.68131.6440 Test Station Installation 4	May-15	May-16	492		492										492			
S.68216.6751 Technical Assistance	Jan-00	May-09	33	33	0													
S.678 Boston Low Serv.-Pipe & Valve Rehab			**23,691**	**23,691**	**0**	**completed project**												
S.730 Weston Aqueduct Supply Mains (WASMs)			**125,612**	**60,589**	**65,023**	**399**	**1,046**	**2,145**	**1,595**	**2,588**	**1,064**	**8,438**	**1,009**	**6,152**	**7,866**	**7,949**	**7,993**	**25,218**
S.68027.6142 Design/CA/RI-PhA/W1&2	Jun-97	Jul-06	5,374	5,075	300	100	200					200						
S.67865.5147 Design/CA/RI - W4	Mar-95	Sep-07	5,879	5,871	8	8												
S.68041.6280 Newton WASM 1&2	Mar-00	Jun-02	9,219	9,219	0													
S.68042.6281 Boston WASM 1&2	Feb-03	Jun-05	7,039	7,039	0													

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S.68166.6539 Design/CA/RI WASM3	Jul-11	Mar-22	10,066		10,066					719	959	1,678	959	959	959	959	959	3,593
S.68170.6543 Waltham WASM 3-CP2	Jul-14	Sep-16	15,429		15,429									5,143	6,857	3,429		
S.68171.6544 Belmont WASM 3 - CP3	Oct-16	Dec-18	15,801		15,801											3,511	7,023	5,267
S.68172.6545 Arlington WASM 3 - CP4	Jan-19	Mar-21	16,358		16,358													16,358
S.68173.6546 Section 28, Arlington-CP1	Jan-09	Jan-10	2,251		2,251		519	1,732				2,251						
S.68031.6175 Auburndale WASM 1,2&4	Jun-97	Nov-98	4,001	4,001	0													
S.68069.6312 Newton WASM 2&4	Apr-98	Mar-01	8,282	8,282	0													
S.68070.6313 Allston WASM 4 & W. Ave. Sewer	Feb-02	Dec-04	17,331	17,331	0													
S.68032.6176 Construction Meter 103	Oct-96	Jul-98	61	61	0													
S.59774.5034 Construction Newton Water Mains	Apr-95	Oct-96	669	669	0													
S.59776.5975 Technical Assistance	Mar-95	Oct-18	186	186	0													
S.68030.6174 Appraisal/Easement	Mar-95	Oct-18	753	292	461		50	50	50	50	50	250	50	50	50	50	11	
S.68245.6870 Survey	Dec-01	Oct-18	210	89	121		30	30	30	31		121						
S.68272.7000 Section PCCP W-12 ...	Oct-04	Sep-05	2,114	2,114	0													
S.68273.7001 WASM3 SPL12 PCCP Des	May-04	Aug-06	266	266	0													
S.68285.7083 Design/CA/RI Section 28	Oct-06	Jan-11	908	94	814	291	172	153	133	65		523						
S.68167.6540 Design/CA/RI Section 36	Jan-09	Dec-12	599		599		75	180	150	139	55	599						
S.68301.7222 Section 36 Replacement Constr	Sep-10	Dec-11	2,816		2,816				1,232	1,584		2,816						
S.720 Warren Cottage Line Rehab			**1,205**	**1,205**	**0**	**completed project**												
S.732 Walnut St. & Fisher Hill Pipeline Rehab.			**2,514**	**51**	**2,463**	**1,563**	**900**					**900**						
S.68189.6586 Construction Phs. 1	Aug-07	Jan-09	2,453		2,453	1,558	895					895						
S.68220.6779 Technical Assistance	Jan-04	Nov-08	21	21	0													
S.68221.6780 Survey	May-04	Aug-08	35	30	5	5												
S.68270.6998 Permits	Jul-04	Nov-08	5		5		5					5						
S.683 Heath Hill Road Pipe Replacement			**19,353**	**19,190**	**163**	**163**	**Completed project. Although there is a remaining balance as of 6/30/07, no additional spending is anticipated beyond FY08.**											

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S.721 Southern Spine Distribution Mains			**71,060**	**13,187**	**57,873**	**4,185**	**2,994**	**9,403**	**10,278**	**1,963**	**654**	**25,292**	**2,625**	**7,458**	**9,981**	**6,750**	**1,479**	**105**
S.68083.6290 Sec 21,43,22 Design	Sep-00	Mar-12	7,776	4,685	3,091	515	648	648	648	632		2,576						
S.68084.6291 Sec 21,43,22 Easements	Mar-02	May-09	188	72	117	24	84	9				93						
S.68085.6292 Section 22 South Construction	Jul-03	Jun-05	4,993	4,993	0													
S.68089.6296 Sec 20 & 58 Design	Feb-13	May-18	2,337		2,337						72	72	432	432	432	432	432	105
S.68090.6297 Sec 20 & 58 Easements	Sep-11	Sep-15	51		51					7	12	19	12	12	8			
S.68091.6298 Sec 20 & 58 Construction	Sep-15	May-17	10,999		10,999										3,668	6,288	1,043	
S.68122.6396 Adams Street Bridge	Jul-98	Dec-99	154	154	0													
S.68193.6601 Southern High Public Part	Oct-98	May-99	15	15	0													
S.68194.6602 Southern High Ext Study	Sep-98	May-99	242	242	0													
S.68228.6787 Boston Paving	Jul-03	May-17	284	3	281	8	30	30	30	30	30	150	30	30	30	30	4	
S.68235.6844 Section 22 North Construction	Jan-14	Jan-16	13,423		13,423								1,611	6,444	5,368			
S.68236.6845 Section 107 Ph 1 Constr	Jun-07	Dec-08	5,866		5,866	3,637	2,229					2,229						
S.68237.6846 Legal			5	1	4	1	3					3						
S.68238.6847 Technical Assistance			28	28	0													
S.68247.6885 Contract 1A Construction	Nov-03	Jun-05	2,859	2,859	0													
S.68290.7099 Section 107 Ph2 Construction	May-09	Apr-11	18,205		18,205			8,338	9,096	771		18,205						
S.68291.7104 Milton Pressure Reg Valve	Jun-06	Nov-06	135	135	0													
S.68298.7120 Section 22 North Design/ESDC	Jul-11	Jan-16	2,500		2,500					405	540	945	540	540	475			
S.68299.7155 Southern Spine Sect 22 N Fac Plan/EIR	Jul-09	Jun-11	1,000		1,000			378	504	118		1,000						
S.714 South. Extra High Sects 41,42 & 74			**3,657**	**3,657**	**0**	**completed project**												
S.727 SEH Redundancy & Storage			**77,981**	**60**	**77,921**	**1,088**	**5,772**	**290**	**1,712**	**856**	**1,031**	**9,661**	**12,208**	**20,288**	**17,906**	**9,377**	**1,302**	**6,091**
S.53397.6452 Concept Plan/Prelim Des/Env Rev	Feb-07	Feb-09	840	60	780	402	284	94				378						
S.53398.6453 SEH Pipe/Storage Final Des/CA/RI Ph 1	Apr-10	Jun-16	4,634		4,634			51	856	856	806	2,569	806	806	453			
S.53399.6454 SEH Pipe/Storage Construction Ph 1	Jul-13	Jun-15	20,004		20,004								10,000	10,004				
S.68135.6444 SEH Pipe/Storage FinalDes/CA/RI Ph 2	Apr-13	Dec-18	7,484		7,484						225	225	1,402	1,402	1,302	1,302	1,302	549
S.68308.7245 SEH Pipe/Storage Construction PH2	Jan-15	Dec-17	32,300		32,300									8,075	16,150	8,075		
S.68136.6445 University Ave Water Main	Mar-08	Nov-08	6,172		6,172	685	5,487					5,487						
S.68292.7112 Design Sect 77/88 Rehab	Jul-18	Jun-23	1,058		1,058													1,058

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S.68293.7113 Section 77/88 Rehab	Sep-20	Jun-23	4,234		4,234													4,234
S.68302.7223 Des CA/RI Short Term Impr	Jul-09	Dec-10	200		200			94	106			200						
S.68303.7224 Construction Short Term Impr	Apr-10	Dec-10	750		750				750			750						
S.68305.7226 Easements	Aug-08	Dec-12	300		300			50				50						250
S.68306.7227 Permits	Aug-08	Dec-12	5		5	1	1	1				2		1	1			
S.719 Chestnut Hill Connecting Mains			**25,043**	**17,463**	**7,580**			**325**	**434**	**2,456**	**3,274**	**6,489**	**1,086**	**5**				
S.68026.6141 Des/CA/RI PS Potable Connection	Mar-00	Dec-04	1,360	1,360	0													
S.68051.6301 Preliminary Engineering	Jan-05	Apr-06	432	432	0													
S.68157.6503 Design/CA/RI - Emer. Pump Relocation	May-98	May-01	1,121	1,121	0													
S.68052.6302 Construction- Chp 149	Jul-11	Jul-13	3,681		3,681					1,325	1,767	3,092	589					
S.68155.6501 Const - Emer. Pump Relocation	Feb-99	Mar-01	6,502	6,502	0													
S.68053.6303 Easements	Apr-03	Dec-07	81	81	0													
S.68180.6558 Boston Paving	Jul-99	Dec-07	133	133	0													
S.68182.6560 Legal	Jul-99	Jun-08	1	1	0													
S.68199.6623 BECO Emergency Pump Construction	Sep-99	Jun-00	431	431	0													
S.68203.6651 Const.- Pump Station Potable Connection	Apr-02	Dec-03	7,132	7,132	0													
S.68230.6814 Equipment pre-purchase	Apr-01	Oct-01	154	154	0													
S.68231.6820 Demolition of Garages	Feb-02	May-02	72	72	0													
S.68244.6869 Utilities	Jun-02	Aug-02	44	44	0													
S.68267.6982 Construction-Chp 30	Jul-11	Jul-13	2,382		2,382					858	1,143	2,001	381					
S.68268.6995 Final Design CA/RI	Jul-09	Jul-14	1,517		1,517			325	434	273	364	1,396	116	5				
S.704 Rehab of Other Pumping Stations			**28,598**	**7,277**	**21,321**	**8,337**	**5,668**	**5,659**	**1,520**	**137**		**12,984**						
S.67885.5153 Preliminary Design	Aug-94	Mar-96	351	351	0													
S.68017.6110 Design/CS/RI	May-97	Nov-04	2,546	2,546	0													
S.68072.6304 Construction II&C	Jan-00	Feb-01	639	639	0													
S.68102.6375 Rehab of 5 Pump Stations	Oct-06	May-10	20,167	2,076	18,092	7,418	4,920	4,920	833			10,673						
S.68178.6556 Public Participation	Jul-99	Jan-10	5		5		3	1	1			5						
S.68179.6557 Legal	Jul-99	Jan-10	5		5		1	2	2			5						
S.68204.6676 Proprietary Equipment Purchases	Jun-99	Jan-10	285	158	127	15	60	52				112						

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S.68266.6980 Design 2 CS/RI	Dec-04	May-11	4,600	1,507	3,093	904	684	684	684	137		2,189						
S.722 NIH Redundancy & Covered Storage			**84,931**	**326**	**84,605**	**334**	**316**	**3,516**	**5,005**	**18,969**	**20,615**	**48,421**	**17,858**	**1,505**	**2,544**	**6,209**	**5,425**	**2,310**
S.68093.6306 Easements	Jan-10	Oct-10	300		300			225	75			300						
S.68252.6906 Section 89/29 Redundancy Design	Jul-09	Jun-15	7,057		7,057			1,960	1,176	1,164	1,164	5,464	1,064	529				
S.53454.6954 Concept Plan	Feb-06	Feb-09	969	326	643	334	310					310						
S.68276.7026 NIH Improvements Const	Mar-10	Mar-12	5,600		5,600			224	2,688	2,688		5,600						
S.68277.7045 Design CA/RI NIH Improvements	Jul-09	Jun-13	1,192		1,192			387	386	336	83	1,192						
S.68278.7047 Permits	Jan-09	Dec-18	5		5		2	1	1	1		5						
S.68279.7048 Technical Assistance	Jan-09	Dec-18	18		18		4	2	2	2	2	12	2	2	2			
S.68282.7066 Sec 89&29 Redundancy Constr	Jul-11	Jun-14	35,079		35,079					8,770	11,693	20,463	14,616					
S.68283.7067 NIH Storage Fin Des/CS/RI	Jul-09	Jun-14	2,864		2,864			717	677	716	616	2,726	100	38				
S.68284.7068 NIH Storage Construction	Jul-11	Jun-13	14,113		14,113					5,292	7,057	12,349	1,764					
S.68294.7116 Section 89/29 Rehab Design	Jan-14	Dec-17	1,192		1,192								109	327	259	284	213	
S.68295.7117 Section 89/29 Rehab Construction	Jan-16	Dec-17	5,958		5,958										953	2,859	2,146	
S.68296.7118 NIH Gillis Redundancy Design	Jan-14	Dec-18	2,117		2,117								203	609	415	320	320	250
S.68297.7119 NIH Gillis Redundancy Construction	Jan-16	Dec-18	8,467		8,467										915	2,746	2,746	2,060
S.689 James L. Gillis Pump Station Rehab.			**33,430**	**33,416**	**14**	**14**	**Completed project. Although there is a remaining balance as of 6/30/07, no additional spending is anticipated beyond FY08.**											
S.713 Spot Pond Supply Mains - Rehab			**62,567**	**57,984**	**4,583**	**3,249**	**303**					**303**				**300**	**600**	**130**
S.68038.6223 Prelim Design & Design/CA/RI	Sep-98	Oct-08	10,874	10,496	379	310	68					68						
S.68059.6316 Easements/Paving CP1	May-00	Mar-02	143	143	0													
S.68106.6379 Easements CP2	May-02	Jun-06	50	50	0													
S.68107.6380 Easements CP3	Apr-04	Nov-07	80	80	0													
S.68151.6476 Easements CP4	Sep-06	May-09	1	1	0													
S.68060.6317 North (Medford/Melrose)	May-00	Jan-02	6,597	6,597	0													
S.68108.6381 Middle (Medford/Somerville)	Jun-02	Jul-06	22,177	22,177	0													
S.68109.6382 South (Cambridge/Boston)	Oct-04	Apr-08	17,778	15,241	2,537	2,410	127					127						
S.68150.6475 Early Valve Replacement Contract	Sep-98	Jan-00	2,387	2,387	0													
S.68209.6697 Construction 4-Trusses	Apr-17	Dec-18	1,030		1,030											300	600	130

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S.68153.6483 Early Valve Equip. Purchase	May-98	Nov-01	161	161	0													
S.68274.7003 CA/RI CP3	Sep-04	Apr-08	1,289	651	638	529	108					108						
S.723 Nor Low Service Rehab Secs. 8			**18,571**	**28**	**18,543**	**31**	**1,602**	**581**			**1,000**	**3,183**	**3,600**	**5,400**	**4,200**	**2,129**		
S.68094.6321 Sec 8 Survey	Jun-06	May-09	80		80	10	70					70						
S.68095.6322 Sec 8 Construction	Jul-14	Jul-16	10,940		10,940									5,000	4,000	1,940		
S.68262.6962 Rehab Sects 37,46 Chel/EB Con	May-13	May-14	3,200		3,200						350	350	2,850					
S.68263.6977 Permits	Jul-05	Aug-11	230	1	229	4	225					225						
S.68264.6979 Technical Assistance	Jul-05	Aug-11	44	27	17	17												
S.68275.7021 Section 97A Construction	Jul-08	Jul-09	1,888		1,888		1,307	581				1,888						
S.68287.7092 Design CA/RI Sec 8	Jul-12	Jul-16	2,189		2,189						650	650	750	400	200	189		
S.702 New Connecting Mains - Shaft 7 to ...			**56,970**	**4,719**	**52,251**	**775**	**2,239**	**4,009**	**3,090**	**2,487**	**16,993**	**28,818**	**15,714**	**2,405**	**1,533**	**1,945**	**985**	**75**
S.68035.6199 Watertown MOU	Jun-94	Sep-97	167	167	0													
S.67846.5163 Routing Study	Aug-94	Nov-96	397	397	0													
S.68110.6383 Design/CA/RI DP1	Sep-98	Mar-15	4,810	3,115	1,696	453			375	275	275	925	275	42				
S.68118.6391 Revised N. Segment (CP1A) New 48"	Mar-12	Mar-14	28,332		28,332					1,134	13,599	14,733	13,599					
S.68114.6387 Easements CP1 A&B	Jan-11	Sep-11	800	17	783				500	283		783						
S.68111.6384 Des/CA/RI DP2/4 Meter 120	Aug-02	Mar-11	2,943	1,023	1,920	292	750	500	377			1,627						
S.68174.6548 Constr CP2 C&L Sec 59&60	Nov-15	Sep-17	3,488		3,488										758	1,820	910	
S.68175.6547 Easements CP2	May-11	Nov-12	49		49				15	15	19	49						
S.68119.6392 South Segment (CP3)	Mar-12	Jan-15	6,133		6,133					750	3,000	3,750	1,700	683				
S.68115.6388 Easements CP3	Mar-07	Aug-09	74		74	15	50	9				59						
S.68121.6394 Northeast Segment (CP5)	Oct-08	Feb-11	6,723		6,723		1,400	3,500	1,823			6,723						
S.68117.6390 Easements CP5	Dec-06	Jun-09	54		54	15	39					39						
S.68255.6955 Repl of Sect 25-Design CA/RI	Jul-12	Nov-16	400		400					30	100	130	90	80	75	25		
S.68256.6956 Repl of Sect 25-Construction	Jul-14	Nov-15	2,100		2,100									1,500	600			
S.68286.7086 Design CA/RI Sec 59&60	Nov-13	Sep-18	500		500								50	100	100	100	75	75
S.706 NHS - Con. Mains from Sec. 91			**2,360**	**2,360**	**0**	**completed project**												

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S.692 NHS - Section 27 Improvements			**2,983**	**124**	**2,859**		**1**	**1**	**1**	**7**	**6**	**16**	**1,059**	**1,784**				
S.67769.6333 Construction Sect 27	Sep-13	Mar-15	2,859	27	2,832								1,053	1,779				
S.68192.6589 Easements	Apr-12	Mar-15	23		23					6	6	12	6	5				
S.68211.6712 Technical Assistance	Oct-99	Mar-12	64	60	5		1	1	1	1		4						
S.68229.6809 Surveying	Jun-01	Dec-01	37	37	0													
S.693 NHS - Revere & Malden Pipeline Impr			**33,036**	**23,880**	**9,156**	**16**	**2,308**	**1,379**	**5**	**5**	**5**	**3,702**	**3,242**	**2,098**	**100**			
S.67780.5185 Design/CS/RI-Revere/Malden	May-88	Sep-94	1,786	1,786	0													
S.67781.5186 Constr-Revere Beach	Aug-92	Oct-94	6,314	6,314	0													
S.67782.5176 Constr-Malden Sect 53	Apr-92	Sep-94	10,026	10,026	0													
S.68020.6113 Landscaping Malden Section 53	Apr-96	Jun-96	20	20	0													
S.67792.5238 Construction - Linden Square	Apr-91	Nov-91	1,849	1,849	0													
S.67793.5239 Construction Admin.-Linden Squar	Apr-91	Nov-91	125	125	0													
S.67784.5177 Const-Revere Sect 53	Jul-08	Sep-09	3,652		3,652		2,283	1,369				3,652						
S.68078.6334 Easements Revere 53	Sep-02	Jul-09	27		27	2	20	5				25						
S.67996.6033 Des/CA/RI-Rd Restoration	Nov-94	Dec-95	77	77	0													
S.67997.6034 Construction Road Restoration	Jul-95	Jun-96	1,714	1,714	0													
S.68033.6183 Sidewalk Restoration	Sep-96	Oct-96	54	54	0													
S.67785.5191 Constr-Control Valves	Jun-88	Aug-89	949	949	0													
S.67786.5179 Const.-DI Pipeline C&L	Jun-90	Sep-90	158	158	0													
S.67787.5178 Constr-Win C&L	Jun-90	Aug-90	575	575	0													
S.67790.6335 Constr 68 & 53A	Jul-13	Nov-14	4,229		4,229								2,537	1,692				
S.67791.5986 Technical Assistance	Jul-06	Nov-15	246	233	13	13												
S.68258.6958 Shaft 9A-D Ext Construction	Apr-14	Nov-15	1,200		1,200								700	400	100			
S.68265.6978 Survey	Jul-06	Nov-15	30		30	1	4	4	4	4	4	20	4	5				
S.68280.7049 Permits	Apr-05	Nov-15	5		5		1	1	1	1	1	5	1	1				

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S.731 Lynnfield Pipeline			**6,705**		**6,705**	**446**	**260**	**310**	**3,710**	**1,650**	**329**	**6,259**						
S.68187.6584 Construction (Phase 2)	Jun-10	Jun-12	5,250		5,250				3,500	1,500	250	5,250						
S.68196.6619 Easem/Legal/License/Permits	Jul-07	Jul-11	200		200	20	60	60	60			180						
S.68251.6905 Design CA/RI	Nov-07	Jun-13	966		966	137	200	250	150	150	79	829						
S.68289.7096 Temporary Interconnect Constr(Ph 1)	Jun-07	Dec-07	289		289	289												
S.708 Nor Extra High Serv - New Pipelines			**6,384**	**3,632**	**2,752**		**2**	**2**	**11**	**11**	**11**	**37**	**626**	**1,010**	**1,085**			
S.67970.5242 Design/CA/RI	Sep-94	Jun-01	588	588	0													
S.67972.6340 Construction	Aug-99	Sep-01	3,032	3,032	0													
S.68162.6522 Construction-Sections 34,45	Jan-14	Nov-15	2,691		2,691								615	1,000	1,076			
S.68176.6554 Public Participation	Jul-99	Nov-15	5		5		1	1	1	1	1	5	1					
S.68177.6555 Legal	Jul-99	Nov-15	5		5		1	1	1	1	1	5	1	1	1			
S.68210.6707 Technical Assistance	Nov-10	Nov-15	54	8	46				8	8	8	24	8	8	8			
S.68215.6749 PLC Equipment Purchases	Dec-99	Dec-00	4	4	0													
S.68281.7050 Permits	Nov-10	Nov-15	5		5				1	1	1	3	1	1				
S.725 Hydraulic Model Update			**686**	**598**	**88**			**88**				**88**						
S.68101.6342 Hydraulic Model Update	Jun-99	Dec-02	563	563	0													
S.68165.6531 Model Enhancement Support Services	Jul-00	Jun-07	123	35	88			88				88						
S.735 Section 80 Rehabilitation			**7,620**		**7,620**					**466**	**496**	**962**	**2,929**	**3,196**	**533**			
S.68250.6892 Section 80 Design CS/RI	Jan-11	May-15	1,524		1,524					466	496	962	247	270	45			
S.68249.6891 Section 80 Construction	May-13	May-15	6,096		6,096								2,682	2,926	488			
S.618 Northern High NW Trans Sect 70-71			**1,000**		**1,000**					**250**	**500**	**750**	**250**					
S.60063.6895 Planning	Oct-11	Sep-13	1,000		1,000					250	500	750	250					

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S.19 Other			**30,730**	**119,046**	**(88,316)**	**(3,440)**	**8,340**	**6,765**	**4,214**	**3,957**	**10,448**	**33,724**	**(20,437)**	**(18,354)**	**(16,346)**	**(14,677)**	**(12,474)**	**(36,313)**
S.753 Central Monitoring System			**16,093**	**15,668**	**425**	**75**	**200**	**150**				**350**						
S.75300.5025 Study	Mar-84	Sep-86	190	190	0													
S.75301.5026 Design	Oct-87	Jan-92	2,651	2,651	0													
S.75304.5160 Communications Structures	Nov-92	May-93	161	161	0													
S.75305.5173 CS/Start Up Services	Jul-92	Aug-98	352	352	0													
S.75302.5027 Equipment Prepurchase	Oct-87	Dec-93	2,162	2,162	0													
S.75306.5171 Construction 1	Nov-97	Nov-98	209	209	0													
S.75303.5028 SCADA Implementation	Aug-96	Jun-09	2,201	1,776	425	75	200	150				350						
S.75474.6125 Microwave Equipment	Mar-96	Dec-01	782	782	0													
S.75308.5849 Operations Center Construction	Sep-92	Jun-94	1,499	1,499	0													
S.75309.5987 Technical Assistance	Jul-92	Dec-97	386	386	0													
S.75488.6653 Microwave Comm System-Wide Backbone	Sep-01	Jun-02	1,694	1,694	0													
S.75489.6654 Study & Design Monitoring & Control	Dec-99	Sep-04	1,808	1,808	0													
S.75494.6816 Microwave Comm for Waterworks Facil	Sep-02	Jul-04	1,957	1,957	0													
S.75495.6825 Ludlow Communications	Sep-01	Oct-01	41	41	0													
S.763 Distribution Systems Facs. Mapping			**2,443**	**1,036**	**1,407**			**455**	**544**	**408**		**1,407**						
S.75458.5162 Planning Design	Feb-95	Dec-98	936	936	0													
S.75476.6152 Data Purchase	Nov-95	Aug-96	100	100	0													
S.75484.6525 Records Development	Jul-09	Dec-11	1,407		1,407			455	544	408		1,407						
S.764 Local Water Infrastr Rehab Ast Progr			**7,488**	**7,488**	**0**	**completed project**												
S.765 Local Water Pipeline Imp. Loan Program			**0**	**94,633**	**(94,633)**	**(3,539)**	**7,990**	**5,790**	**3,590**	**2,888**	**9,171**	**29,429**	**(20,683)**	**(18,819)**	**(16,881)**	**(15,212)**	**(12,615)**	**(36,313)**
S.75485.6608 Community Loans	Aug-00	Jun-13	256,724	130,578	126,146	9,519	22,000	22,000	22,000	22,000	28,627	116,627						
S.75493.6759 Community Repayment	Aug-01	Jun-23	(256,724)	(35,945)	(220,778)	(13,058)	(14,010)	(16,210)	(18,410)	(19,112)	(19,456)	(87,198)	(20,683)	(18,819)	(16,881)	(15,212)	(12,615)	(36,313)

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S.766 Waterworks Facility Asset Protection			**4,706**	**221**	**4,485**	**24**	**150**	**370**	**80**	**661**	**1,277**	**2,538**	**246**	**465**	**535**	**535**	**141**	
S.75490.6689 Meter Vault Manhole Retrofits	Sep-14	Jun-17	1,573		1,573									362	535	535	141	
S.75497.6832 Design-Walnut Hill Tank	Jan-10	Dec-13	300		300			20	80	80	80	260	40					
S.75498.6833 Construction-Walnut Hill Tank	Jul-11	Dec-12	1,000		1,000					500	500	1,000						
S.75501.6910 Waltham Pipe/Bridge Repl	Mar-04	Sep-04	238	221	16	16												
S.75502.6920 Permits/Legal Fees	Mar-04	Mar-12	15		15	8				6	1	7						
S.75506.7023 Design Cosgrove Turbine Isolation	Jul-12	Dec-14	480		480						171	171	206	103				
S.75509.7064 Cosgrove Valve Seat Repl	Jul-12	Dec-12	500		500						500	500						
S.75510.7065 Des Cosgrove Valve Seat Repl	Jul-11	Dec-12	100		100					75	25	100						
S.75511.7228 Transformer at Cosgrove Intake Bldg	May-09	Aug-09	500		500		150	350				500						

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S.3 Business & Operations Support			**79,656**	**38,740**	**40,916**	**6,699**	**11,852**	**7,917**	**5,500**	**4,735**	**1,246**	**31,250**	**432**	**1,784**	**750**			
S.933 Capital Maintenance Planning/Development			**7,688**	**3,144**	**4,544**	**864**	**729**	**778**	**864**	**864**	**444**	**3,679**						
S.19175.6421 Inventory & Evaluation-1&2	Apr-00	Jul-05	2,579	2,579	0													
S.92387.6976 As-needed Design Contract 1	Mar-05	Sep-07	314	272	42	42												
S.92393.6988 As Needed Design Contract 2	Mar-05	Sep-07	318	293	24	24												
S.92402.7101 As-Needed Des Contract 3	Aug-07	Aug-09	650		650	450	152	48				200						
S.92403.7102 As-Needed Des Contract 4	Aug-07	Aug-09	515		515	348	157	10				167						
S.92399.7070 As-Needed Des Contract 5	Sep-08	Sep-10	750		750		210	360	180			750						
S.92413.7242 As-Needed Des Contract 6	Sep-08	Sep-10	750		750		210	360	180			750						
S.92414.7243 As-Needed Des Contract 7	Sep-10	Sep-12	906		906				252	432	222	906						
S.92415.7244 As-Needed Des Contract 8	Sep-10	Sep-12	906		906				252	432	222	906						
S.881 Equipment Purchase			**11,977**	**4,477**	**7,500**	**1,680**	**3,237**	**1,451**	**320**	**565**	**247**	**5,820**						
S.92367.6732 TV Inspection Truck	Jul-00	Mar-01	175	175	0													
S.92374.6760 Security Equip & Installation	Jan-01	Jun-11	6,112	2,682	3,430	527	2,662	141	100			2,903						
S.92379.6808 ICP-MS Lab Testing Equip	Oct-08	Dec-08	150		150	150												
S.92381.6866 Back Hoe	Apr-03	Jun-04	130	130	0													
S.92382.6867 Vactor Truck	Apr-03	Jun-03	220	220	0													
S.92383.6907 Water Service Truck	Apr-04	Jun-04	114	114	0													
S.92384.6944 Bucket Machine	Oct-04	Dec-04	137	137	0													
S.92385.6945 Excavator	Apr-07	Jun-07	233	233	0													
S.92386.6946 Grove Crane	May-05	Aug-05	311	311	0													
S.92388.6981 Land Fill Loader	May-05	Aug-05	113	113	0													
S.92392.6986 PowerSweeper/Catch Basin ...	Apr-04	Jun-04	155	155	0													
S.92394.6990 Back Hoe (WRA385)	Jan-08	Mar-08	317	97	220	220												
S.92395.7027 Closed Circuit TV Insp Truck	Apr-07	Jun-07	165		165	165												
S.92396.7028 Front-End Loader	Jul-05	Mar-06	110	110	0													
S.92398.7030 Dump Truck (WRA 522)	Jan-08	Mar-08	110		110	110												
S.92400.7074 Crane (WRA-185)	Apr-06	Jun-06	298		298	298												
S.92409.7232 Future Vehicle Purchases			1,862		1,862	210	230	390	220	565	247	1,652						

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S.92411.7239 Major Laboratory Instrumentation	Mar-09	Mar-10	1,000		1,000		80	920				1,000						
S.92416.7246 Ford Ramp Truck	Jul-08	Sep-08	125		125		125					125						
S.92417.7247 Street Sweeper	Jul-08	Sep-08	140		140		140					140						
S.930 MWRA Facility - Chelsea			**9,886**	**9,849**	**37**	**37**												
S.92321.5052 Planning	Jan-95	Jun-97	30	30	0													
S.92320.5886 Conceptual Design	Sep-97	Dec-98	49	49	0													
S.92354.6510 Design Review	Sep-99	Mar-05	386	386	0													
S.92355.6511 Fitout - Office Furnish/Equip	Feb-01	Jun-04	644	644	0													
S.92356.6512 Inform./Telecom. Consultant	Aug-00	Jun-01	382	382	0													
S.92357.6513 Existing Facility "Button Up"	Dec-01	Dec-05	379	379	0													
S.92358.6514 Moving Expense	Dec-01	Jun-04	362	362	0													
S.92362.6624 Legal	Mar-99	Dec-99	14	14	0													
S.92363.6713 Moving Expenses CNY	Mar-01	Jun-01	237	237	0													
S.92364.6714 CNY Retrofit	Jul-00	Jun-01	1,574	1,574	0													
S.92365.6715 MIS Network	Mar-01	May-07	1,676	1,639	37	37												
S.92366.6716 Fitout - All Other	Feb-01	Jun-07	4,153	4,153	0													
S.925 Technical Assistance			**1,800**		**1,800**		**600**	**600**	**600**			**1,800**						
S.30000.MECH Mechanical			150		150		50	50	50			150						
S.50000.MATT Material Testing			150		150		50	50	50			150						
S.80000.SURV Surveying			150		150		50	50	50			150						
S.90000.HAZM Hazardous Material			900		900		300	300	300			900						
S.33000.INST Instrument Control			150		150		50	50	50			150						
S.44000.WETP Wetland/Permitting			150		150		50	50	50			150						
S.77000.LAND Land Appraisal			150		150		50	50	50			150						

Massachusetts Water Resources Authority
Final FY09 Capital Expenditure Forecast
($000s)

Program / Project	Notice to Proceed	Substantial Completion	Total Contract Amount	Payments Through FY07	Remaining Balance 6/30/07	FY08	FY09	FY10	FY11	FY12	FY13	FY09-13	FY14	FY15	FY16	FY17	FY18	Beyond FY18
S.931 Business Systems Plan			**32,572**	**19,830**	**12,742**	**3,102**	**2,717**	**1,973**	**1,000**	**600**	**500**	**6,790**	**375**	**1,725**	**750**			
S.92338.6014 Phase I (FY95-97)	Jul-94	Mar-03	1,146	1,146	0													
S.92339.6013 Hardware-Phase I	Jul-94	Dec-96	441	441	0													
S.92322.6015 Network-Phase I	Jul-94	Dec-96	142	142	0													
S.92347.6362 Phase III (FY99-01)	Dec-97	Jun-04	10,807	10,748	58	58												
S.92352.6508 Phase IV / Year 2000 Imp.	Jul-98	Jan-00	3,051	3,038	13	13												
S.92353.6509 Phase V	Jul-01	Jun-11	1,942	350	1,592	673	880	39				919						
S.92418.7249 DITP/OMS	Jun-08	Jun-09	142		142	34	80	29				109						
S.92419.7250 GIS/TV Inspection	Apr-09	Jun-09	45		45		45					45						
S.92420.7251 Open VMS HW Replacement	Apr-09	Jun-10	300		300		100	200				300						
S.92380.6865 Phase VI	Jan-03	Jun-11	2,608	1,128	1,480	1,480												
S.92422.7253 MIS Strategic Plan	Apr-09	Jun-09	500		500		500					500						
S.92423.7254 MIS Licensing	Jul-08	Sep-08	24		24		24					24						
S.92424.7255 Lawson Conversion	Jun-08	Sep-08	430		430	320	110					110						
S.92404.7200 Computer Center - OCC Infrastructure	Jul-14	Jun-16	1,500		1,500									750	750			
S.92343.6177 Phase II FY97-99	Jul-96	Jun-10	4,174	2,837	1,337	524	813					813						
S.92405.7201 Net 2020	Jul-09	Jun-12	1,500		1,500			750	750			1,500						
S.92406.7203 SAN II	Jul-11	Jun-12	600		600					600		600						
S.92408.7205 Telecommunications	Jul-13	Jun-15	750		750								375	375				
S.92410.7238 Laboratory Instrument Data Mgmt	Mar-09	Mar-10	250		250				250			250						
S.92407.7204 SAN III	Jul-14	Jun-15	600		600									600				
S.92425.7256 Cyber Security	Apr-09	Jun-10	330		330		165	165				330						
S.92412.7240 Corporate Server Infra & Doc Dist	Jun-10	Jun-13	1,000		1,000			500			500	1,000						
S.92426.7257 Original SAN	Jul-09	Jun-10	290		290			290				290						

Massachusetts Water Resources Authority
Final FY09 Capital Expenditure Forecast
($000s)

Program / Project	Notice to Proceed	Substantial Completion	Total Contract Amount	Payments Through FY07	Remaining Balance 6/30/07	FY08	FY09	FY10	FY11	FY12	FY13	FY09-13	FY14	FY15	FY16	FY17	FY18	Beyond FY18
S.932 Environmental Remediation			**1,805**	**1,440**	**365**	**33**	**52**	**40**	**40**	**29**	**55**	**216**	**57**	**59**				
S.92369.6745 Tech Asst./ Env. Remediation	Feb-99	Jun-07	545	545	0													
S.92370.6746 Prision Point Tank Removal - Const.	Feb-99	Aug-99	777	412	365	33	52	40	40	29	55	216	57	59				
S.92371.6747 Cottage Farm Tank Replace - Const	Jun-02	Dec-02	428	428	0													
S.92376.6805 Oakdale Power Station	Sep-03	Dec-04	47	47	0													
S.92377.6806 Cosgrove Power Station			8	8	0													
S.934 MWRA Facilities Management & Planning			**6,928**		**6,928**		**500**	**1,075**	**2,676**	**2,677**		**6,928**						
S.92389.6983 Design/Engineering Services	Mar-05	Jan-11	1,259		1,259		225	400	276	358		1,259						
S.92390.6984 Facilities Construction	Jul-10	Dec-11	5,669		5,669		275	675	2,400	2,319		5,669						
S.935 Alternative Energy Initiatives			**7,000**		**7,000**	**983**	**4,017**	**2,000**				**6,017**						
S.19285.6974 Alternative Energy Initiatives	Sep-07	Dec-10	7,000		7,000	983	4,017	2,000				6,017						

MASSACHUSETTS WATER RESOURCES AUTHORITY
CONTINGENCY FUND FORECAST FY2009 - 2018
($000)

	Total Contingency Budget FY09-18	Q1 FY2009	Q2 FY2009	Q3 FY2009	Q4 FY2009	FY2009	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018
-															
Wastewater System Improvements															
FY2009	10,848	3,974	2,267	2,220	2,387	10,848									
FY2010	8,861						8,861								
FY2011	7,577							7,577							
FY2012	6,342								6,342						
FY2013	5,037									5,037					
FY2014	5,022										5,022				
FY2015	5,334											5,334			
FY2016	3,889												3,889		
FY2017	2,583													2,583	
FY2018	2,293														2,293
Total Wastewater System Improvements	**$57,786**	**$3,974**	**$2,267**	**$2,220**	**$2,387**	**$10,848**	**$8,861**	**$7,577**	**$6,342**	**$5,037**	**$5,022**	**$5,334**	**$3,889**	**$2,583**	**$2,293**
Waterworks System Improvements															
FY2009	3,949	862	1,041	1,042	1,004	3,949									
FY2010	4,441						4,441								
FY2011	4,049							4,049							
FY2012	5,412								5,412						
FY2013	6,272									6,272					
FY2014	8,112										8,112				
FY2015	7,061											7,061			
FY2016	7,347												7,347		
FY2017	4,369													4,369	
FY2018	2,273														2,273
Total Waterworks System Improvements	**$53,284**	**$862**	**$1,041**	**$1,042**	**$1,004**	**$3,949**	**$4,441**	**$4,049**	**$5,412**	**$6,272**	**$8,112**	**$7,061**	**$7,347**	**$4,369**	**$2,273**
Business & Operations Support	**$2,269**	**$143**	**$133**	**$226**	**$286**	**$788**	**$512**	**$343**	**$331**	**$87**	**$30**	**$125**	**$53**	**$0**	**$0**
Total MWRA	**$113,339**	**$4,978**	**$3,441**	**$3,488**	**$3,677**	**$15,585**	**$13,814**	**$11,970**	**$12,085**	**$11,395**	**$13,164**	**$12,520**	**$11,288**	**$6,951**	**$4,566**

APPENDIX 3

Master Plan/CIP Status

Master Plan Priority Ratings - Wastewater

Priority One **Critical/Emergency** Risk moderate to high/Consequence very high

Projects which:

Resolve emergencies or critical threats to public health or worker health and safety

Prevent imminent failure of the system and significant loss of service

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Priority Two **Essential Projects** Risk variable/Consequences high

Projects which are essential to:

Critical facility assessment

Fix existing reliability or capacity problems during dry weather flow conditions

Reduce sanitary sewer overflows from the MWRA system

Address facilities in poor condition where the ability to provide uninterrupted service or adequate flow is compromised.

Upgrade or maintain emergency backup facilities in poor condition

Meet minimum hydraulic performance requirements and service needs

Implement MWRA's approved CSO control plan

Maintain wastewater effluent and residuals quality

To comply with mandated legal, regulatory or statutory requirements

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Priority Three **Necessary Projects** Risk moderate to high/Consequence moderate to low

Projects which are necessary to:

Improve public health and worker safety

Restore the system's infrastructure where it is seriously deteriorated

Improve hydraulic performance

Significantly improve the effectiveness, efficiency, or reliability of system operations and service delivery including where appropriate, the ability to monitor the system

Maintain consumer confidence

To comply with other legal, regulatory or statutory requirements

---

Priority Four **Important Projects** Risk moderate/Consequences low

Projects which are important to:

Maintain the integrity of the system's infrastructure

Produce significant cost savings or revenue gains for MWRA

Monitor system needs and plan appropriate longer-term responses

Provide acceptable working conditions at field sites and at maintenance support facilities

Implement the regional I/I plan

Priority Five **Desirable Projects** Risk/Consequence both low

Projects which are desirable because they would:

Yield worthwhile cost savings, revenue gains, or efficiency improvements for MWRA

Protect the long term value and usefulness of system assets

Solve future problems and conditions which are expected to arise in the latter half of the planning period

Be beneficial towards the improved operation of a local system

Master Plan Priority Ratings - Water

Priority One **Critical/Emergency** Risk moderate to high/Consequence very high
Projects which:

Resolve emergencies or critical threats to public health or worker health and safety

Prevent imminent failure of the system and significant loss of service

---

Priority Two **Essential Projects** Risk variable/Consequences high
Projects which are essential to:

Critical facility assessment

Fix existing reliability problems related to "single points of failure"

Upgrade or maintain emergency back-up facilities in operational condition

Address facilities in poor condition where the ability to provide uninterrupted service, sanitary protections or adequate flow is compromised.

Meet minimum hydraulic performance requirements and service needs including adequate distribution storage in areas with a critical shortfall of storage

To comply with mandated legal, regulatory or statutory requirements

---

Priority Three **Necessary Projects** Risk moderate to high/Consequences moderate to low
Projects which are necessary to:

Improve public health and worker safety

Restore the system's infrastructure where it is seriously deteriorated

Significantly improve the effectiveness, efficiency, or reliability of system operations and service delivery including where appropriate, the ability to monitor the system

Preserve water quality during distribution

Maintain consumer confidence

To comply with other legal, regulatory or statutory requirements

---

Priority Four **Important Projects** Risk moderate/Consequence low
Projects which are important to:

Maintain the integrity of the system's infrastructure

Improve hydraulic performance or add distribution storage

Produce significant cost savings or revenue gains for MWRA

Monitor system needs and plan appropriate longer-term responses

Provide acceptable working conditions at field sites and at maintenance support facilities

Maintain efforts to manage system demands

Provide broader environmental benefits

Priority Five **Desirable Projects** Risk/Consequence both low

Projects which are desirable because they would:

Yield worthwhile cost savings, revenue gains, or efficiency improvements for MWRA

Protect the long term value and usefulness of system assets

Solve future problems and conditions which are expected to arise in the latter half of the planning period

Be beneficial towards the improved operation of a local system

Appendix 3
Master Plan/CIP Status

Listing of Master Plan Projects	Original MP Rating	CIP Year	Rating when added to CIP	NTP	SC	Total Contract Amount	FY09-13	Beyond FY 13	Comment
FY09 Budget Cycle									
S.145 I&P Facility Asset Protection						**69,715**	**28,116**	**36,063**	
S.10418.6936 Interceptor Renewal No. 2	2	FY09	2	Jul-12	Jul-14	5,429	1,953	3,476	
S.10457.7216 Interceptor Renewal #7 Study	2	FY09	2	Jul-08	Jun-09	300	300	0	
S.10458.7217 Interceptor Renewal #7 Constr	2	FY09	2	Jul-09	Jun-12	1,000	1,000	0	
S.10460.7219 NI Mech & Elec Replacements	3	FY09	3	Jun-09	Jun-12	3,800	3,800	0	
S.130 Siphon Structure Rehabilitation						**2,605**	**114**		
S.10293.6224 Design/CS/RI	2	FY09	3	Jun-12	Sep-16	476	114	362	**Lower consequence after review**
S.10294.6225 Construction	2	FY09	3	Sep-14	Sep-15	1,189	0	1,189	**Lower consequence after review**
S.147 Randolph Trunk Sewer Relief						**750**	**656**		
S.10461.7220 Study	3	FY09	3	Jul-11	Jun-13	750	656	94	
S.132 Corrosion & Odor Control						**14,637**	**3,134**		
S.10406.6919 FES/FERS Biofilters Design	3	FY09	3	Jul-09	Apr-13	995	995	0	
S.10456.7215 FES/FERS Biofilters Const.	3	FY09	3	Apr-11	Apr-12	2,140	2,140	0	
S.206 DI Treatment Plant Asset Protection						**402,571**	**200,717**		
S.19278.6967 STG System Modifications-Des	3	FY09	3	Oct-08	May-12	750	751	0	
S.19284.6973 STG System Mods-Constr	3	FY09	3	May-10	May-12	2,500	2,500	0	
S.616 Quabbin Transmission System						**7,780**	**3,114**		
S.60103.7229 Oakdale Phase 1A Elec Des	3	FY09	1	Jul-09	Oct-13	921	915	6	**Rising safety and other concerns**
S.60104.7230 Oakdale Phase 1A Elec Constr	3	FY09	1	Jan-11	Oct-12	2,150	2,150	0	**Rising safety and other concerns**
S.722 NIH Redundancy & Covered Storage						**84,929**	**48,421**		
S.68250.6892 Section 80 Design CS/RI	3	FY09	3	Jan-11	May-15	1,524	962	562	
S.68249.6891 Section 80 Construction	3	FY09	3	May-13	May-15	6,096	0	6,096	
S.931 Business Systems Plan						**32,572**	**6,790**		
S.92410.7238 Laboratory Instrument Data Mgmt	3	FY09	3	Mar-09	Mar-10	250	250	0	
S.92411.7239 Major Laboratory Instrumentation	4	FY09	3	Mar-09	Mar-10	1,000	1,000	0	
FY09 Master Plan Totals						**31,270**	**19,486**		

Appendix 3
Master Plan/CIP Status

Listing of Master Plan Projects	Original MP Rating	CIP Year	Rating when added to CIP	NTP	SC	Total Contract Amount	FY09-13	Beyond FY 13	Comment
FY08 Budget Cycle									
S.104 Braintree-Weymouth Relief Facilities						**221,336**	**6,233**	**0**	
S.10060.5310 Rehab Sections 624 & 652	1	FY08	2	May-10	Jun-13	4,000	4,000	0	
S.10452.7193 Rehab of Section 624 Des	1	FY08	2	Jul-09	Jun-13	1,000	1,000	0	
S.132 Corrosion & Odor Control						**11,503**	**0**	**8,500**	
S.10405.6918 FES Tunnel Rehab	2	FY08	2	Dec-15	Jun-17	6,800	0	6,800	
S.10453.7196 FES Tunnel Rehab Des	2	FY08	2	Jul-15	Jun-17	1,700	0	1,700	
S.136 West Roxbury Tunnel						**88,881**	**33,400**	**46,300**	
S.10400.6897 Tunnel Design	1	FY08	1	Mar-08	Sep-10	16,000	8,500	7,200	
S.10401.6898 Tunnel Construction	1	FY08	1	Mar-11	Mar-17	64,000	24,900	39,100	
S.142 Wastewater Meter Sys-Equip Replace						**26,578**	**145**	**21,200**	
S.10451.7191 Wastewater Metering Asset Protection	2	FY08	2	Jul-15	Jan-00	20,000	0	20,000	
S.145 I&P Facility Asset Protection						**59,603**	**22,418**	**31,180**	
S.10444.7144 Nut Island Headworks Fire Alarm/Wire	1	FY08	1	Jul-09	Jun-10	200	200	0	
S.10445.7161 HW Fac. Plan Upgrades 3 Older HWKS	1	FY08	2	Jun-10	Dec-28	28,000	3,690	24,310	
S.10446.7162 PS/CSO Condition Assessment	2	FY08	2	Jul-11	Jun-14	3,000	1,900	1,100	
S.10447.7163 Interceptor AP-Interc Renewal Des #1	2	FY08	2	Feb-08	Dec-10	200	184	0	
S.10448.7164 Interceptor AP-Interc Renew #1 Const	2	FY08	2	Dec-10	Jun-11	1,600	1,600	0	
S.10455.7206 HW Facility Plan Upgrades Des	1	FY08	1	Jan-10	Dec-28	7,000	1,480	5,520	
S.146 D.I. Cross Harbor Tunnel						**5,000**	**0**	**5,000**	
S.10454.7199 Tunnel Shaft Repairs Plan/Des/Const	2	FY08	2	Jul-14	Jun-17	5,000	0	5,000	
S.200 DI Plant Optimization						**70,944**	**10,109**	**26,783**	
S.19311.7121 DI As needed Tech Design	1	FY08	1	Sep-13	Jun-27	26,450	0	26,450	
S.206 DI Treatment Plant Asset Protection						**353,470**	**128,052**	**198,718**	
S.19285.6974 Alternative Energy Initiatives	5	FY08	2	Jan-08	Dec-08	7,000	5,000	0	**Priority changed to reflect acceleration of green energy initiatives.**
S.19293.7055 Digester Mod 1&2 Pipe Replc.		FY08	1	Apr-08	Oct-09	8,000	6,000	0	
S.19312.7122 DI Digester Sludge Pump Repl Des	1	FY08	1	Jul-09	Nov-11	906	507	400	
S.19313.7123 DI Digester Sludge Pump Repl Const	1	FY08	1	Nov-10	Nov-11	3,624	2,023	1,600	
S.19314.7124 DI Elec Equip Upgrade Ph.5	1	FY08	1	Jan-12	Jan-14	20,662	2,635	18,027	
S.19315.7125 DI Equipment Replacement Projection	2	FY08	2	Jul-08	Jun-27	41,538	700	40,838	
S.19316.7126 Future SSPS VFD Replacements Des	1	FY08	1	Jul-15	Nov-18	4,800	0	4,800	
S.19317.7127 Future SSPS VFD Replacements Constr	1	FY08	1	Nov-16	Nov-18	19,200	0	19,200	
S.19318.7128 Future NMPS VFD Replacements Des	1	FY08	1	Jul-17	Nov-20	4,420	0	4,420	
S.19319.7129 Future NMPS VFD Replacements Constr	1	FY08	1	Nov-18	Nov-20	17,680	0	17,680	
S.19320.7130 Future Misc. VFD Replacements Des	1	FY08	1	Jul-17	Nov-20	1,333	0	1,333	
S.19321.7131 Future Misc. VFD Replacements Constr	1	FY08	1	Nov-18	Nov-20	5,334	0	5,334	
S.19322.7132 DI Switchgear Replacement Design	1	FY08	1	Jul-17	Apr-22	3,250	0	3,250	
S.19323.7133 DI Switchgear Replacement Constr	1	FY08	1	Apr-19	Apr-22	13,000	0	13,000	
S.19324.7134 DI PICS Replacement Construction	1	FY08	1	Jul-21	Jul-22	5,400	0	5,400	
S.19325.7135 DI Dystor Membrane Replacements	1	FY08	1	Jul-14	Oct-14	3,000	0	3,000	
S.19326.7136 DI CTG Rebuilds	1	FY08	1	Jul-14	Jul-16	6,000	0	6,000	
S.19327.7137 DI Centrifuge Replacements Des	1	FY08	1	Jul-13	Oct-15	4,160	0	4,160	
S.19328.7138 DI Centrifuge Replacements Constr	1	FY08	1	Oct-14	Oct-15	16,640	0	16,640	
S.19329.7139 DI Cryogenics Plant-Equip Repl Des	1	FY08	1	Jul-13	May-16	1,600	0	1,600	
S.19330.7140 DI Cryogenics Plant-Equip Repl Constr	1	FY08	1	Nov-14	May-16	6,400	0	6,400	
S.19331.7141 Laboratory As needed Tech Des		FY08	1	Jul-08	Jun-27	4,000	500	3,500	
S.19332.7142 Future Sodium Hypo Tank Rehab	1	FY08	1	Jul-16	Jul-18	10,000	0	10,000	
S.19333.7167 Leak Protection System Upgrade	2	FY08	2	Jul-08	Jul-09	1,138	1,139	0	
S.19334.7168 Barge Berth and Fac. Replacement	2	FY08	2	Jul-10	Jun-27	2,265	1,265	1,000	
S.19335.7169 South Systm PS Lube System Repl	2	FY08	2	Dec-08	Dec-10	2,019	2,018	0	
S.19336.7170 DI Grit and Odor Control Air Handlers	3	FY08	2	Jan-09	Jan-10	3,265	1,265	2,000	**Condition determined to be worse than when Master Plan Priority Ratings assigned.**
S.19337.7171 Central Lab Fume Hood Replacement		FY08	2	Jul-08	Jul-12	1,632	1,631	0	
S.19338.7172 DI PICS Dist. Proc. Units Replac	2	FY08	2	Jul-14	Jul-16	8,000	0	8,000	
Deer Island Equipment & Replacement Drop-downs	2	FY08	2			20,572	25,904	-1,402	

Appendix 3
Master Plan/CIP Status

Listing of Master Plan Projects	Original MP Rating	CIP Year	Rating when added to CIP	NTP	SC	Total Contract Amount	FY09-13	Beyond FY 13	Comment
S.271 Residuals Asset Protection						**148,570**	**6,252**	**141,999**	
S.26069.7143 Residual Plant System Reliability	1	FY08	1	Sep-07	Sep-09	870	580	0	
S.26070.7145 Residuals Pellet Plant Upgrade Design	1	FY08	1	Jul-10	Jun-18	4,000	4,000	0	
S.26071.7146 Residuals Pellet Plant Upgrade Constr	1	FY08	1	Jul-13	Jul-18	4,000	0	4,000	
S.26093.7187 Utility Upgrades Des.	1	FY08	1	Jan-00	Jan-00	0	0	0	
S.26094.7188 Utility Upgrades Const.	1	FY08	1	Jul-16	Jul-18	6,000	0	6,000	
S.26072.7147 Condition Assessment/Fac Plan	1	FY08	1	Jul-08	Jun-10	1,000	1,000	0	
S.26074.7149 Six Rotary Dryer Replacements Constr	1	FY08	1	Jul-13	Jul-16	60,000	0	60,001	
S.26076.7151 Six Air Scrubber Replacements Constr	1	FY08	1	Jul-15	Jul-17	9,000	0	9,000	
S.26078.7153 Plant MCC Replacements Const	1	FY08	1	Jul-16	Jul-18	4,500	0	4,500	
S.26079.7173 FRSA Pier Rehab Des	1	FY08	1	Dec-07	Jun-10	140	112	0	
S.26080.7174 FRSA Pier Rehab Const.	1	FY08	1	Dec-08	Jun-10	560	560	0	
S.26082.7176 Rehab Rail System Const.	1	FY08	1	Jul-16	Jul-18	3,000	0	3,000	
S.26084.7178 Replace 9 Pellet Storage Silos Const.	1	FY08	1	Jul-15	Jul-17	6,000	0	6,000	
S.26086.7180 Sludge Conveyor Replacement Const.	1	FY08	1	Jul-14	Jul-15	3,000	0	3,000	
S.26088.7182 Sludge Storage Tank Rehab	1	FY08	1	Jul-15	Jul-16	3,000	0	3,000	
S.26090.7184 Upgrade Pumping System Const.	1	FY08	1	Jul-14	Jul-16	6,000	0	6,000	
S.26092.7186 Replace 12 Centrifuges Const.	1	FY08	1	Jul-14	Jul-16	36,000	0	36,000	
S.26096.7190 Odor Control System Upgrade Const.	1	FY08	1	Jul-17	Jul-18	1,500	0	1,500	
S.542 John J. Carroll Water Treatment Plant						**437,668**	**51,965**	**7,205**	
S.53457.7085 Ancillary Mods Const 2	2	FY08	2	Jan-08	Jun-13	6,080	5,616	32	
S.53458.7192 Ancil Mods Design 3	2	FY08	2	Jan-08	Jan-10	750	613	13	
S.53459.7208 Ancillary Mods Design 4	2	FY08	2	Jan-08	Jan-10	750	613	13	
S.550 Low Service Storage Near Spot Pond						**39,456**	**16,692**	**22,531**	
S.53401.6456 Env Rev Con Des Owners Rep	2	FY08	2	Apr-09	Sep-14	2,500	2,152	348	
S.53402.6457 Design/Build	3	FY08	2	Apr-12	Apr-14	36,093	13,977	22,116	**Priority revised as project added to CIP**
S.53447.6868 Easement/Land Acquisition		FY08	2	Apr-09	Apr-14	630	563	67	
S.597 Winsor Dam Hydroelectric						**11,372**	**11,084**	**0**	
S.60033.6277 Detail Design	4	FY08	2	Jul-09	Feb-11	359	359	0	**Priority revised as project added to CIP**
S.60044.6526 Construction	4	FY08	2	Aug-10	Feb-11	1,406	1,406	0	**Priority revised as project added to CIP**
S.60077.7017 Design and Construction		FY08	2	Oct-07	Jun-09	2,000	1,750	0	
S.60087.7114 Winsor Power Station Pipe Des	1	FY08	2	Sep-08	Jun-12	1,012	1,012	0	
S.60088.7115 Winsor Power Station Pipe Constr Ph1	1	FY08	2	Apr-10	Jun-12	4,047	4,047	0	
S.60095.7197 Shft 12 Quabbin Aqdct Sluice Gate Des	2	FY08	2	Jul-08	Jun-12	400	400	0	
S.60096.7198 Shft 12 Quabbin Aqdct Sluice Gate Con	2	FY08	2	Jul-09	Jun-12	1,600	1,600	0	
S.60101.7212 Winsor Power St. Chapman Valve Repair		FY08	2	Mar-09	Dec-09	509	509	0	
S.614 Metropolitan Tunnel Loop						**3,500**	**3,208**	**0**	
S.60035.6273 Redundancy StudyTunnel Insp Fea Study	1	FY08	1	Mar-08	Feb-10	3,500	3,208	0	
S.618 Northern High NW Trans Sect 70-71						**1,000**	**1,000**	**0**	
S.60063.6895 Planning	2	FY08	2	Jul-10	Jun-12	1,000	1,000	0	
S.623 Dam Projects						**4,529**	**4,299**	**0**	
S.60089.7154 Engineering Studies for Dam Risk	1	FY08	1	Jul-07	Jun-09	460	230	0	
S.60094.7194 Immediate Repair Dams	2	FY08	2	Mar-10	Jun-11	3,255	3,255	0	
S.60100.7211 Immediate Repair Dams-Design	2	FY08	2	Jul-08	Jun-11	814	814	0	
S.624 Wachusett Aqueduct Pressurization						**100,000**	**7,000**	**93,000**	
S.60090.7156 Wachusett Aqueduct Pressurization Des	1	FY08	1	Jul-11	Jun-16	20,000	7,000	13,000	
S.60091.7157 Wachusett Aqueduct Pressurization Con	1	FY08	1	Jul-13	Jun-16	80,000	0	80,000	
S.625 Long Term Redundancy						**100,000**	**0**	**100,000**	
S.60092.7159 Long Term Redundancy Des	1	FY08	1	Jul-13	Jun-23	20,000	0	20,000	
S.60093.7160 Long Term Redundancy Construction	1	FY08	1	Jul-14	Dec-23	80,000	0	80,000	

Appendix 3
Master Plan/CIP Status

Listing of Master Plan Projects	Original MP Rating	CIP Year	Rating when added to CIP	NTP	SC	Total Contract Amount	FY09-13	Beyond FY 13	Comment
S.677 Valve Replacement						**19,254**	**6,351**	**2,500**	
S.68300.7195 Valve Replacement 8&9 Construction	2	FY08	2	Jul-10	Jun-16	5,000	2,500	2,500	
S.719 Chestnut Hill Connecting Mains						**24,551**	**7,035**	**30**	
S.68052.6302 Construction- Chp 149	2	FY08	2	Jul-10	Jul-12	3,431	3,431	0	
S.68267.6982 Construction-Chp 30	2	FY08	2	Jul-10	Jul-12	2,220	2,220	0	
S.721 Southern Spine Distribution Mains						**66,570**	**24,666**	**24,225**	
S.68299.7155 Southern Spine Sect 22 N Fac Plan/EIR	1	FY08	1	Jul-08	Jun-10	1,000	1,000	0	
S.722 NIH Redundancy & Covered Storage						**57,200**	**36,712**	**19,519**	
S.68252.6906 Section 89/29 Redundancy Design	1	FY08	1	Jul-08	Jun-13	5,059	5,000	59	
S.68282.7066 Sec 89&29 Redundancy Constr	1	FY08	1	Jul-10	Jun-13	19,224	14,949	4,275	
S.68283.7067 NIH Storage Fin Des/CS/RI	1	FY08	1	Jul-08	Sep-12	2,024	2,024	0	
S.68284.7068 NIH Storage Construction	1	FY08	1	Sep-10	Sep-12	8,094	8,094	0	
S.68294.7116 Section 89/29 Rehab Design	1	FY08	1	Jul-13	Jun-17	1,012	0	1,012	
S.68295.7117 Section 89/29 Rehab Construction	1	FY08	1	Jul-15	Jun-17	4,047	0	4,047	
S.68296.7118 NIH Gillis Redundancy Design	1	FY08	1	Jul-13	Jun-18	2,024	0	2,024	
S.68297.7119 NIH Gillis Redundancy Construction	1	FY08	1	Jul-15	Jun-18	8,094	0	8,094	
S.727 SEH Redundancy & Storage						**41,312**	**22,065**	**18,532**	
S.53397.6452 Concept Plan/Prelim Des/Env Rev	1	FY08	2	Feb-07	Aug-08	840	125	0	
S.53398.6453 SEH Storage Final Des/CS/RI	2	FY08	2	Jul-09	Jun-14	2,024	1,539	485	
S.53399.6454 SEH Storage Construction	2	FY08	2	Jul-12	Jun-14	8,094	4,550	3,544	
S.68135.6444 SEH Red Loop Final Des/CA/RI	2	FY08	2	Jul-09	Jun-14	4,047	3,217	830	
S.68136.6445 SEH Redund Loop Construction	2	FY08	2	Jul-11	Jun-14	21,248	12,634	8,614	
S.68292.7112 Design Sect 77/88 Rehab	2	FY08	2	Jul-18	Jun-23	1,012	0	1,012	
S.68293.7113 Section 77/88 Rehab	2	FY08	2	Sep-20	Jun-23	4,047	0	4,047	
S.931 Business Systems Plan						**29,976**	**4,520**	**2,850**	
S.92404.7200 Computer Center - OCC Infrastructure		FY08	2	Jul-14	Jun-16	1,500	0	1,500	
S.92405.7201 Net 2020		FY08	2	Jul-09	Jun-12	1,500	1,500	0	
S.92406.7203 SAN II		FY08	2	Jul-11	Jun-12	600	600	0	
S.92407.7204 SAN III		FY08	2	Jul-14	Jun-15	600	0	600	
S.92408.7205 Telecommunications		FY08	2	Jul-13	Jun-15	750	0	750	
FY08 Master Plan Totals						**955,014**	**217,800**	**734,343**	

APPENDIX 4

Project Status Overview

Appendix 4
Project Status Overview

The following information presented below provides an approximation of status for design and construction phases in the current capital budget. Planned end dates are provided for ongoing phases. Planned start dates are provided for future phases. These dates are anticipated Notice-to-Proceed dates after the bid period. All dates are subject to change.

Subphase/Project	Total Contract Amount	Projected Pmts. Thr. FY08	**Status** Based on % of Budget Expended	**% Complete**	Planned Start	Planned End
S.104 Braintree-Weymouth Relief Facilities	**232,491**	**215,813**	**92.8%**	**92.8%**		
S.10045.5311 Facilities Planning Phase 1	331	331	Complete	100.0%		
S.10046.5312 EIR Phase 1	514	514	Complete	100.0%		
S.10057.5324 Final EIR/Fac.Plan	1,111	1,111	Complete	100.0%		
S.10044.5332 Geotechnical - Land	8	8	Complete	100.0%		
S.10001.5333 Geotechnical - Marine	443	443	Complete	100.0%		
S.10047.5313 Design 1/CS/RI	18,991	18,882	Complete	99.4%		
S.10251.6016 Sedimentation Testing	96	96	Complete	100.0%		
S.10058.5331 Design 2/CS/RI	15,265	13,959	91.4%	91.4%		Jun-09
S.10048.5314 Land Acquisition	13,967	3,704	26.5%	26.5%		Jun-09
S.10049.5315 Tunnel Construction/Rescue	84,037	84,037	Complete	100.0%		
S.10050.5316 Intermediate P.S. Construction	47,445	47,445	Complete	100.0%		
S.10051.5303 No. Weymouth Relief Interceptor	4,705	4,705	Complete	100.0%		
S.10052.5373 HDD Siphon Construction	16,357	16,357	Complete	100.0%		
S.10054.5375 B-W Replacement Pump Station	17,740	17,740	Complete	100.0%		
S.10060.5310 Rehab Sections 624 & 652	4,000	0	Future	0.0%	May-10	
S.10302.6368 Mill Cove Siphon Construction	2,749	2,749	Complete	100.0%		
S.10055.5308 Design - Rehab	24	24	Complete	100.0%		
S.10056.5309 Construction - Rehab	255	255	Complete	100.0%		
S.10265.6074 Hazardous Waste	5	5	Complete	100.0%		
S.10263.6072 Legal	731	731	Complete	100.0%		
S.10264.6073 Public Relations	5	5	Complete	100.0%		
S.10061.5951 Technical Assistance	144	144	Complete	100.0%		
S.10278.6119 Design - Marine Pipeline	1,100	1,100	Complete	100.0%		
S.10354.6631 Community Technical Assistance	1,111	1,111	Complete	100.0%		
S.10375.6766 Geotechnical Consultant	56	56	Complete	100.0%		
S.10378.6792 IPS/RPS Communication System	300	300	Complete	100.0%		
S.10452.7193 Rehab of Section 624 Des	1,000	0	Future	0.0%	Jul-09	
S.131 Upper Neponset Valley Sewer System	**55,777**	**54,629**	**97.9%**	**97.9%**		
S.10256.6031 Design/CS/RI	4,648	4,506	96.9%	96.9%		Apr-09
S.10290.6191 Replace Sewer Sections 685-686	38,168	37,645	Complete	98.6%		
S.10352.6629 Replacement Sewer Section 687	8,271	8,074	97.6%	97.6%		Apr-08
S.10311.6450 Land Acquisition	1,670	1,628	97.5%	97.5%		Apr-08
S.10266.6075 Legal	5	4	80.0%	80.0%		Apr-08
S.10267.6076 Public Relations	5	4	80.0%	80.0%		Apr-08
S.10268.6077 Hazardous Waste	5	4	80.0%	80.0%		Apr-08
S.10393.6830 Boston Paving	660	635	96.2%	96.2%		Apr-08
S.10439.7072 Resident Engineering/Inspection	2,347	2,129	90.7%	90.7%		Aug-08
S.127 Cummingsville Replacement Sewer	**9,189**	**9,031**	**98.3%**	**98.3%**		
S.10217.5826 Facilities Plan/EIR	602	602	Complete	100.0%		
S.10275.6092 Design/CS/RI	2,210	2,086	94.4%	94.4%		Sep-08
S.10285.6186 Cummingsville Branch Sew Const	4,897	4,897	Complete	100.0%		
S.10284.6185 Land Acquisition	102	72	70.6%	70.6%		Sep-07
S.10334.6571 Public Participation	5	1	20.0%	20.0%		Sep-07
S.10335.6572 Legal	15	15	Complete	100.0%		
S.10403.6916 Siphon Modifications	1,358	1,358	Complete	100.0%		

Subphase/Project	Total Contract Amount	Projected Pmts. Thr. FY08	**Status** Based on % of Budget Expended	**% Complete**	Planned Start	Planned End
S.130 Siphon Structure Rehabilitation	**2,605**	**940**	**36.1%**	**36.1%**		
S.10253.6017 Planning	938	938	Complete	100.0%		
S.10293.6224 Design/CS/RI	476	0	Future	0.0%	Jun-12	
S.10294.6225 Construction	1,189	0	Future	0.0%	Sep-14	
S.10280.6165 Land Acquisition	2	2	Complete	100.0%		
S.132 Corrosion & Odor Control	**14,637**	**3,003**	**20.5%**	**20.5%**		
S.10279.6137 Planning/Study	587	587	Complete	100.0%		
S.10327.6553 Design/CS/RI	1,788	1,788	Complete	100.0%		
S.10323.6549 Land Acquisition	3	3	Complete	100.0%		
S.10325.6551 Legal	2	2	Complete	100.0%		
S.10373.6743 Interim Corrosion Control	622	622	Complete	100.0%		
S.10405.6918 FES Tunnel Rehab	6,800	0	Future	0.0%	Dec-15	
S.10406.6919 FES/FERS Biofilters Design	995	0	Future	0.0%	Jul-09	
S.10453.7196 FES Tunnel Rehab Des	1,700	0	Future	0.0%	Jul-15	
S.10456.7215 FES/FERS Biofilters Const.	2,140	0	Future	0.0%	Apr-11	
S.136 West Roxbury Tunnel	**88,880**	**8,880**	**10.0%**	**10.0%**		
S.10299.6230 Inspection	344	344	Complete	100.0%		
S.10333.6570 Design/CS/RI	1,412	1,412	Complete	100.0%		
S.10332.6569 Construction	6,674	6,674	Complete	100.0%		
S.10330.6567 Legal	2	2	Complete	100.0%		
S.10331.6568 Land Acquisition	440	440	Complete	100.0%		
S.10366.6709 Technical Assistance	8	8	Complete	100.0%		
S.10400.6897 Tunnel Design	16,000	0	Future	0.0%	Sep-08	
S.10401.6898 Tunnel Construction	64,000	0	Future	0.0%	Sep-11	
S.137 Wastewater Central Monitoring	**21,165**	**13,883**	**65.6%**	**65.6%**		
S.10301.6232 Planning	563	563	Complete	100.0%		
S.10319.6532 Design and Integration Services	6,519	5,046	77.4%	77.4%		Nov-08
S.10320.6533 Construction 1 (CP1)	7,677	7,677	Complete	100.0%		
S.10321.6534 Construction 2 (CP2)	4,818	500	10.4%	10.4%		May-07
S.10357.6657 Construction 3 (CP3)	1,179	0	Future	0.0%	Nov-08	
S.10322.6535 Technical Assistance	2	2	Complete	100.0%		
S.10398.6861 Equipment Prepurchase	406	94	23.2%	23.2%		Oct-09
S.139 South System Relief Project	**4,945**	**3,445**	**69.7%**	**69.7%**		
S.10309.6419 CS/RI-Archdale	6	6	Complete	100.0%		
S.10310.6420 Construction-Archdale	211	211	Complete	100.0%		
S.10318.6519 Sec 70&71 HLS Eval.	215	215	Complete	100.0%		
S.10349.6611 Sec 70 & 71 HLS Construction	417	417	Complete	100.0%		
S.10345.6595 Design Outfall 023	1	1	Complete	100.0%		
S.10346.6596 Cleaning Outfall 023	1,098	1,098	Complete	100.0%		
S.10347.6605 Land Acquisition/Easements	5	5	Complete	100.0%		
S.10350.6616 Milton Financial Assistance	1,488	1,488	Complete	100.0%		
S.10362.6680 Legal/Permits	5	5	Complete	100.0%		
S.10386.6801 Outfall 023 Str Impovements	1,500	0	Future	0.0%	Jan-10	
S.141 Wastewater Process Optimization	**2,319**	**930**	**40.1%**	**40.1%**		
S.10367.6733 Planning	930	930	Complete	100.0%		
S.10413.6931 Somerville Sewer-Design	200	0	Future	0.0%	Oct-08	
S.10414.6932 Somerville Sewer-Construction	1,039	0	Future	0.0%	Mar-11	
S.10415.6933 Siphon- Planning	150	0	Future	0.0%	Nov-11	
S.142 Wastewater Meter Sys-Equip Replace	**26,578**	**5,176**	**19.5%**	**19.5%**		
S.10371.6739 Planning/Study	100	0	Future	0.0%	Jan-13	
S.10379.6793 Equipment Purchase/Installation	5,278	5,176	98.1%	98.1%		Jun-08
S.10410.6928 Design	200	0	Future	0.0%	Jul-13	
S.10411.6929 Construction	1,000	0	Future	0.0%	Jan-15	
S.10451.7191 Wastewater Metering Asset Protection	20,000	0	Future	0.0%	Jul-15	

Subphase/Project	Total Contract Amount	Projected Pmts. Thr. FY08	**Status** Based on % of Budget Expended	**% Complete**	Planned Start	Planned End
S.145 I&P Facility Asset Protection	**69,715**	**5,537**	**7.9%**	**7.9%**		
S.10383.6798 Rehab of Section 93A Lexington	1,566	1,566	Complete	100.0%		
S.10392.6829 Technical Assistance	40	21	52.5%	52.5%		Nov-08
S.10394.6842 Sections 80&83	395	395	Complete	100.0%		
S.10395.6843 Section 160	1,602	1,145	71.5%	71.5%		Nov-08
S.10396.6857 Survey	11	11	Complete	100.0%		
S.10397.6858 Permits	7	7	Complete	100.0%		
S.10418.6936 Interceptor Renewal No. 2	5,429	0	Future	0.0%	Jul-12	
S.10423.6987 93 A Force Main Replacement	462	462	Complete	100.0%		
S.10424.7004 Mill Brook Valley Sewer Sec 79&92	542	542	Complete	100.0%		
S.10440.7073 Land/Easements	150	150	Complete	100.0%		
S.10447.7163 Interceptor AP-Interc Renewal Des #1	200	0	Future	0.0%	Sep-08	
S.10448.7164 Interceptor AP-Interc Renew #1 Const	1,600	0	Future	0.0%	Jul-11	
S.10457.7216 Interceptor Renewal #7 Study	300	0	Future	0.0%	Jul-08	
S.10458.7217 Interceptor Renewal #7 Constr	1,000	0	Future	0.0%	Jul-09	
S.10464.7248 Melrose Sewer	600	0	Future	0.0%	Apr-09	
S.10465.7258 Melrose Sewer Repayment	-600	0	Future	0.0%	Apr-09	
S.10380.6795 Prison Point HVAC Upgrades	1,106	0	Future	0.0%	Nov-09	
S.10381.6796 Remote Headworks Heating Sys Upgrade	1,206	1,206	Complete	100.0%		
S.10382.6797 Alewife Brook Pump & Screen Repl	3,127	0	Future	0.0%	Sep-10	
S.10387.6802 Hdwks Screens/Grit Construction	5,000	0	Future	0.0%	Feb-11	
S.10399.6886 Remote Headworks Concept Plan	699	0	Future	0.0%	May-08	
S.10419.6937 Alewife Brook Pump Screen Repl Des/CA	544	0	Future	0.0%	Mar-09	
S.10420.6938 Des-Prison Pt HVAC Upgrades	254	33	13.0%	13.0%		Feb-12
S.10427.7033 Hingham PS Isolation Gate Const	350	0	Future	0.0%	Jun-09	
S.10431.7037 Caruso PS Replace Generator	250	0	Future	0.0%	Jul-13	
S.10433.7039 P/P & C/F Washdown Sys Pipe Des	150	0	Future	0.0%	Jul-09	
S.10434.7040 P/P & C/F Washdown Sys Pipe Const	500	0	Future	0.0%	Mar-11	
S.10438.7044 Caruso PS Shaft Replac Const	425	0	Future	0.0%	Jul-08	
S.10444.7144 Nut Island Headworks Fire Alarm/Wire	200	0	Future	0.0%	Jan-09	
S.10445.7161 Headdworks Upgrades Construction	28,000	0	Future	0.0%	Feb-12	
S.10446.7162 PS/CSO Condition Assessment	3,000	0	Future	0.0%	Jul-11	
S.10455.7206 Headworks Upgrades Design	6,000	0	Future	0.0%	Feb-10	
S.10459.7218 NI Fire Pump Bldg Study	300	0	Future	0.0%	Jul-09	
S.10460.7219 NI Mech & Elec Replacements	3,800	0	Future	0.0%	Jun-09	
S.10462.7231 Headworks Screens/Grit Des/CA	1,000	0	Future	0.0%	Aug-09	
S.10463.7237 Headworks Effluent Shaft Study	500	0	Future	0.0%	Jul-09	
S.146 D.I. Cross Harbor Tunnel	**5,000**	**0**	**Future**	**0.0%**		
S.10454.7199 Tunnel Shaft Repairs Plan/Des/Const	5,000	0	Future	0.0%	Jul-14	
S.147 Randolph Trunk Sewer Relief	**750**	**0**	**Future**	**0.0%**		
S.10461.7220 Study	750	0	Future	0.0%	Jul-11	

Subphase/Project	Total Contract Amount	Projected Pmts. Thr. FY08	**Status** Based on % of Budget Expended	**% Complete**	Planned Start	Planned End
S.200 DI Plant Optimization	**71,454**	**34,391**	**48.1%**	**48.1%**		
S.19156.6235 Construction-Plumbing	110	110	Complete	100.0%		
S.19170.6369 Supplementary Mod Pkg #1	488	488	Complete	100.0%		
S.19154.6233 As-Needed Des. Phase 1	1,122	1,122	Complete	100.0%		
S.18212.6364 Ancil Mods-Des 1	2,055	2,055	Complete	100.0%		
S.19189.6590 Ancil Mods Des 2-1 (REI)	584	584	Complete	100.0%		
S.19190.6591 Ancil Mods - Des 3-1	941	941	Complete	100.0%		
S.19191.6592 Ancil Mods - Prelim Des 4	360	0	Future	0.0%	Jul-09	
S.19220.6721 As Needed Des Phase 6-1	2,250	0	Future	0.0%	Jan-09	
S.19183.6499 Ancil Mods-Con 1	9,973	9,973	Complete	100.0%		
S.19186.6536 Ancil Mods Constr 2-1	2,866	2,866	Complete	100.0%		
S.19232.6744 Ancil Mods Constr 2-2	5,387	5,387	Complete	100.0%		
S.19187.6537 Ancil Mods-Constr 3-1	3,387	3,387	Complete	100.0%		
S.19188.6538 Ancil Mods-Con 4	4,468	0	Future	0.0%	Jan-13	
S.19221.6722 As-Needed Des Phase 6-2	2,250	0	Future	0.0%	Jan-09	
S.19206.6673 Digester Storage Tank - Repair	275	275	Complete	100.0%		
S.19211.6698 As Needed Des Phase 4-1	1,124	1,124	Complete	100.0%		
S.19212.6699 As Needed Des Phase 4-2	1,230	1,154	93.8%	93.8%		Sep-08
S.19215.6702 As-needed Design Phase 2-1	760	760	Complete	100.0%		
S.19234.6753 As-needed design Phase 2-2	695	695	Complete	100.0%		
S.19214.6701 As-needed Des. Phase 3-1	796	796	Complete	100.0%		
S.19240.6768 Ancil Mods Des2-2 (REI/ESDC)	577	577	Complete	100.0%		
S.19257.6874 As-needed Design Phase 3-2	625	625	Complete	100.0%		
S.19286.6201 BHP Site Completion	285	285	Complete	100.0%		
S.19303.7088 Ancils Mods Final Des 4	821	0	Future	0.0%	May-11	
S.19305.7090 As-needed Des Phase 5-1	847	639	75.4%	75.4%		Dec-08
S.19306.7091 As-needed Des Phase 5-2	729	549	75.3%	75.3%		Dec-08
S.19311.7121 DI As needed Tech Design	26,450	0	Future	0.0%	Jan-12	
S.206 DI Treatment Plant Asset Protection	**402,571**	**15,715**	**3.9%**	**3.9%**		
S.19182.6478 Equip Replacement Projection	25,000	0	Future	0.0%		
S.19193.6594 Equipment Condition Monitoring	1,777	1,777	Complete	100.0%		
S.19231.6742 Drive Chain Replacement	264	264	Complete	100.0%		
S.19238.6765 CTG Modifications	482	482	Complete	100.0%		
S.19176.6422 Pump Packing Replacement	750	750	Complete	100.0%		
S.19177.6423 Demineralizer Construction	51	51	Complete	100.0%		
S.19264.6881 Grit Air Handler Replacement	1,830	0	Future	0.0%	Jun-08	
S.19265.6882 CEMS Equip. Replacement	97	97	Complete	100.0%		
S.19273.6904 Fire Alarm Syst Repl -Des	1,108	0	Future	0.0%	Mar-10	
S.19287.7005 Digester Chiller Replacement	635	635	Complete	100.0%		
S.19288.7006 Dystor Tank Membrane Replacement	640	640	Complete	100.0%		
S.19289.7051 Fire Alarm Syst Repl Const	3,502	0	Future	0.0%	May-11	
S.19290.7052 Grit Blower Replac Construction	372	0	Future	0.0%	Nov-10	
S.19291.7053 Thick Prim Sldg Pump Repl Des	575	0	Future	0.0%	Sep-09	
S.19292.7054 TPS Pump Replac Construction	2,280	27	1.2%	1.2%		Apr-12
S.19293.7055 Digester Mod 1&2 Pipe Replc.	8,000	0	Future	0.0%	Mar-09	
S.19294.7056 LOCAT Scrubber Replac Const	4,433	0	Future	0.0%	Aug-10	
S.19295.7057 Centrifuge Backdrive Replac	2,398	0	Future	0.0%	Sep-09	
S.19309.7111 HVAC equipment replacement Des/ESDC	1,603	0	Future	0.0%	Oct-08	
S.19310.7110 HVAC equipment replacement constr	5,118	0	Future	0.0%	Jan-10	
S.19313.7123 DI Digester Sludge Pump Repl Const	3,624	0	Future	0.0%	Dec-08	
S.19325.7135 DI Dystor Membrane Replacements	3,000	0	Future	0.0%	Jul-14	
S.19327.7137 DI Centrifuge Replacements Des	4,160	0	Future	0.0%	Jul-13	
S.19328.7138 DI Centrifuge Replacements Constr	16,640	0	Future	0.0%	Oct-14	
S.19329.7139 DI Cryogenics Plant-Equip Repl Des	1,600	0	Future	0.0%	Jul-13	
S.19330.7140 DI Cryogenics Plant-Equip Repl Constr	6,400	0	Future	0.0%	Nov-14	
S.19335.7169 South Systm PS Lube System Repl	2,112	0	Future	0.0%	Jan-09	
S.19336.7170 E/W Odor Ctrl Air Handler Repl	4,015	0	Future	0.0%	Feb-10	
S.19222.6723 Eastern Seawall Design - 1	449	0	Future	0.0%	Jan-11	
S.19223.6724 Eastern Seawall Construction - 1	1,926	0	Future	0.0%	May-12	

Subphase/Project	Total Contract Amount	Projected Pmts. Thr. FY08	**Status** Based on % of Budget Expended	**% Complete**	Planned Start	Planned End
S.19226.6727 Study/Concept Des-Concrete Rpr	300	0	Future	0.0%	May-10	
S.19204.6668 Expansion Joint Repair-Design	149	149	Complete	100.0%		
S.19205.6669 Expansion Joint Repair- Constr 1	305	305	Complete	100.0%		
S.19334.7168 Barge Berth and Fac. Replacement	2,265	0	Future	0.0%	Jul-10	
S.19243.6811 Outfall Modification-Inspection	174	174	Complete	100.0%		
S.19239.6767 Elec Equip Upgrade Constr 2	1,913	1,913	Complete	100.0%		
S.19236.6763 Busduct Replacement (2+22)	196	196	Complete	100.0%		
S.19245.6813 Transformer Replacement	2,538	38	1.5%	1.5%		Jun-13
S.19227.6728 DIGAS Flare#4 Des	250	0	Future	0.0%	Dec-09	
S.19228.6729 DI Digesters Flare #4	625	0	Future	0.0%	Apr-11	
S.19252.6851 Chemical pipe Replacement-Des	447	0	Future	0.0%	Sep-10	
S.19253.6852 Chemical pipe Replac - Constr	1,489	0	Future	0.0%	Jan-12	
S.19254.6853 Sodium Hypo Pipe Repl-Des	1,142	0	Future	0.0%	Jul-10	
S.19255.6854 Sodium Hypo Pipe Repl- Constr	3,052	0	Future	0.0%	Jul-10	
S.19256.6855 Elect Equip Upgrade Const 3	14,639	407	2.8%	2.8%		Feb-11
S.19270.6901 Elect Equip Upgrade Const 4	4,644	0	Future	0.0%	Jul-10	
S.19271.6902 NMPS VFD Repl Des/ESDC	1,403	251	17.9%	17.9%		Jul-12
S.19272.6903 NMPS VFD Replace Constr	29,029	0	Future	0.0%	Aug-09	
S.19275.6964 Low Voltage Lighting Repl	750	0	Future	0.0%	Dec-09	
S.19278.6967 STG System Modifications-Des	750	0	Future	0.0%	Oct-08	
S.19297.7059 DITP Switchgear Repl Constr	3,043	0	Future	0.0%	Nov-10	
S.19298.7060 Power Consult Recs Design	2,500	1,869	74.8%	74.8%		Dec-11
S.19299.7061 Power System Improv Constr	8,965	0	Future	0.0%	Aug-08	
S.19300.7062 NMPS VFD Repl-REI	1,564	0	Future	0.0%	Jul-09	
S.19301.7063 Heat Loop pipe Repl- Const 3	10,724	0	Future	0.0%	Aug-08	
S.19307.7094 TPP Fuel & Steam Mods- REI	345	0	Future	0.0%	Dec-08	
S.19314.7124 DI Elec Equip Upgrade Ph.5	20,662	0	Future	0.0%	Jan-12	
S.19316.7126 Future SSPS VFD Replacements Des	4,800	0	Future	0.0%	Jul-15	
S.19317.7127 Future SSPS VFD Replacements Constr	19,200	0	Future	0.0%	Nov-16	
S.19318.7128 Future NMPS VFD Replacements Des	4,420	0	Future	0.0%	Jul-17	
S.19319.7129 Future NMPS VFD Replacements Constr	17,680	0	Future	0.0%	Nov-18	
S.19320.7130 Future Misc. VFD Replacements Des	1,333	0	Future	0.0%	Jul-25	
S.19321.7131 Future Misc. VFD Replacements Constr	5,334	0	Future	0.0%	Nov-11	
S.19322.7132 DI Switchgear Replacement Design	4,500	0	Future	0.0%	Jul-15	
S.19323.7133 DI Switchgear Replacement Constr	16,000	0	Future	0.0%	Apr-17	
S.19324.7134 DI PICS Replacement Construction	5,400	0	Future	0.0%	Jul-23	
S.19326.7136 DI CTG Rebuilds	6,000	0	Future	0.0%	Jul-14	
S.19338.7172 DI PICS Dist. Proc. Units Replac	8,000	0	Future	0.0%	Jul-16	
S.19162.6241 DISC Application	250	125	50.0%	50.0%		Dec-09
S.19241.6791 Document Format Conversion	152	45	29.6%	29.6%		May-12
S.19237.6764 Hypochlorite tanks 1&3 Reline	1,698	1,698	Complete	100.0%		
S.19276.6965 Prim & Sec Clarifier Rehab Des	3,000	0	Future	0.0%	Sep-08	
S.19277.6966 Gravity Thickener Imp Constr	3,910	0	Future	0.0%	Dec-08	
S.19304.7089 Sodium Hypo Tk Lnr Removal	196	196	Complete	100.0%		
S.19308.7095 Clinton Perm Standby Generator	230	230	Complete	100.0%		
S.211 Laboratory Services	**8,409**	**932**	**11.1%**	**11.1%**		
S.19152.6197 Metals Lab Fume Hood Repl Const	613	0	Future	0.0%	Nov-09	
S.19249.6848 Metals Lab Fume Hood Repl	531	0	Future	0.0%	Nov-08	
S.19251.6850 Metals Lab Modification Constr	976	932	95.5%	95.5%		Sep-08
S.19261.6878 Lab Sample Area Mod-Des	119	0	Future	0.0%	Oct-10	
S.19262.6879 Lab Sample Area Mod-Const	477	0	Future	0.0%	Dec-11	
S.19331.7141 Laboratory As needed Tech Des	4,000	0	Future	0.0%	Jan-09	
S.19337.7171 Central Lab Fume Hood Replacement	1,693	0	Future	0.0%	Jul-10	

Subphase/Project	Total Contract Amount	Projected Pmts. Thr. FY08	**Status** Based on % of Budget Expended	**% Complete**	Planned Start	Planned End
S.271 Residuals Asset Protection	**148,570**	**0**	**Future**	**0.0%**		
S.26069.7143 Residual Plant Facil Plan/EIR	870	0	Future	0.0%	Jul-09	
S.26070.7145 Residuals Pellet Plant Upgrade Design	4,000	0	Future	0.0%	Jan-11	
S.26071.7146 Residuals Pellet Plant Upgrade Constr	10,000	0	Future	0.0%	Jul-13	
S.26072.7147 Condition Assessment/ReliabilityStudy	1,000	0	Future	0.0%	Aug-08	
S.26074.7149 Six Rotary Dryer Replacements Constr	57,000	0	Future	0.0%	Jul-13	
S.26076.7151 Six Air Scrubber Replacements Constr	8,000	0	Future	0.0%	Jul-15	
S.26078.7153 Plant MCC Replacements Const	4,500	0	Future	0.0%	Jul-16	
S.26079.7173 FRSA Pier Rehab Des	140	0	Future	0.0%	Dec-09	
S.26080.7174 FRSA Pier Rehab Const.	560	0	Future	0.0%	Jun-11	
S.26082.7176 Rehab Rail System Const.	3,000	0	Future	0.0%	Jul-16	
S.26084.7178 Replace 9 Pellet Storage Silos Const.	6,000	0	Future	0.0%	Jul-15	
S.26086.7180 Sludge Conveyor Replacement Const.	3,000	0	Future	0.0%	Jul-14	
S.26088.7182 Sludge Storage Tank Rehab	3,000	0	Future	0.0%	Jul-15	
S.26090.7184 Upgrade Pumping System Const.	6,000	0	Future	0.0%	Jul-14	
S.26092.7186 Replace 12 Centrifuges Const.	34,000	0	Future	0.0%	Jul-14	
S.26094.7188 Utility Upgrades Const.	6,000	0	Future	0.0%	Jul-16	
S.26096.7190 Odor Control System Upgrade Const.	1,500	0	Future	0.0%	Jul-17	
S.339 North Dorchester Bay	**234,299**	**144,279**	**61.6%**	**61.6%**		
S.32660.6220 Design ESDC/Tunnel	24,619	22,284	90.5%	90.5%		Apr-11
S.32661.6244 Tunnel Construction (Ch30)	148,888	113,251	76.1%	76.1%		Dec-09
S.32662.6245 Dewater/Odor Control Constr	41,961	0	Future	0.0%	Mar-09	
S.32726.6993 Tunnel & Facilities CM Services	11,244	3,219	28.6%	28.6%		Apr-12
S.32732.7012 Pleasure Bay Construction	3,195	3,195	Complete	100.0%		
S.32733.7013 Design ESDC/Facilities	3,570	1,930	54.1%	54.1%		May-12
S.32744.7103 Tunnel Rescue/Emergency Response	822	400	48.7%	48.7%		Dec-09
S.354 Hydraulic Relief Projects	**2,295**	**2,295**	**Complete**	**100.0%**		
S.32692.6250 Design/CS/RI	558	558	Complete	100.0%		
S.32669.6252 Construction	1,737	1,737	Complete	100.0%		
S.347 East Boston Branch Sewer Relief	**88,423**	**10,630**	**12.0%**	**12.0%**		
S.32673.6256 Design	3,463	3,463	Complete	100.0%		
S.32674.6257 East Boston Branch Relief Sewer	61,905	0	Future	0.0%	Jun-08	
S.32716.6790 Boston Paving	348	0	Future	0.0%	Jun-08	
S.32719.6840 East Boston Branch Sewer Rehab	5,222	5,222	Complete	100.0%		
S.32720.6841 Sections 38 & 207 Replacement	10,100	0	Future	0.0%	Dec-08	
S.32742.7087 Design 2 CS	2,996	1,945	64.9%	64.9%		Jun-11
S.32743.7097 Resident Inspection Services	4,389	0	Future	0.0%	Jun-08	
S.348 BOS019 Storage Conduit	**14,344**	**14,304**	**Complete**	**99.7%**		
S.32675.6258 Design	2,045	2,045	Complete	100.0%		
S.32677.6260 BOS019 Storage Conduit Constr	10,873	10,873	Complete	100.0%		
S.32728.7008 Construction Management Services	1,427	1,387	97.2%	97.2%		Sep-08
S.349 Chelsea Trunk Sewer	**29,779**	**29,779**	**Complete**	**100.0%**		
S.32659.6198 Design/CS/RI	3,651	3,651	Complete	100.0%		
S.32679.6262 Chelsea Trunk Relief	3,577	3,577	Complete	100.0%		
S.32680.6263 Chelsea Branch Sewer	19,141	19,141	Complete	100.0%		
S.32689.6370 Rehab/Chelsea Brnch/Revere Ext	3,125	3,125	Complete	100.0%		
S.32690.6371 Modify Chelsea Screen House	284	284	Complete	100.0%		
S.350 Union Park Detention Treatment Fac	**49,736**	**49,736**	**Complete**	**100.0%**		
S.32681.6264 Design	8,124	8,124	Complete	100.0%		
S.32682.6265 Construction	46,832	46,832	Complete	100.0%		
S.32718.6826 Construction - Park	528	528	Complete	100.0%		
S.32721.6909 BWSC Construction ...	-5,747	-5,747	Complete	100.0%		
S.353 Upgrade Existing CSO Facilities	**22,385**	**22,385**	**Complete**	**100.0%**		
S.32647.6123 Design	6,499	6,499	Complete	100.0%		
S.32685.6268 Cottage Farm CSO Facility	4,377	4,377	Complete	100.0%		
S.32686.6269 Prision Point CSO Facility	3,339	3,339	Complete	100.0%		
S.32693.6496 Comm/Fox Point, Som. Marginal	8,029	8,029	Complete	100.0%		
S.32687.6270 Non-Treated Floatable (Beacon)	124	124	Complete	100.0%		
S.32717.6803 Cottage Farm Programing	17	17	Complete	100.0%		

Subphase/Project	Total Contract Amount	Projected Pmts. Thr. FY08	**Status** Based on % of Budget Expended	**% Complete**	Planned Start	Planned End
S.355 MWR003 Gate & Siphon	**2,718**	**0**	**Future**	**0.0%**		
S.32722.6952 Design	906	0	Future	0.0%	Feb-11	
S.32723.6953 Construction	1,812	0	Future	0.0%	Sep-12	
S.357 Charles River CSO Controls	**5,601**	**1,248**	**22.3%**	**22.3%**		
S.32729.7009 CF Brookline Conn Inflow Controls Des	1,260	948	75.2%	75.2%		Jun-10
S.32730.7010 Interceptor Optimization Eng/Des	1,166	300	25.7%	25.7%		Jan-12
S.32731.7011 Existing Gate Controls System	1,200	0	Future	0.0%	Jan-10	
S.32740.7080 CF Brookline Conn Controls Constr	1,976	0	Future	0.0%	Jun-08	
S.340 S. Dorch Bay Sew Separ (Fox Pt.)	**53,783**	**53,763**	**Complete**	**100.0%**		
S.32651.6155 Design	11,172	11,154	Complete	99.8%		
S.32664.6247 Construction	42,610	42,609	Complete	100.0%		
S.341 S. Dorch Bay Sew Separ (Comm. Pt.)	**63,134**	**55,667**	**88.2%**	**88.2%**		
S.32650.6154 Design	14,484	14,121	97.5%	97.5%		Aug-09
S.32665.6248 Construction	48,649	41,545	85.4%	85.4%		Nov-07
S.344 Stony Brook Sewer Separation	**45,322**	**45,052**	**Complete**	**99.4%**		
S.32667.6395 Design/CS/RI	10,007	9,792	97.9%	97.9%		Sep-08
S.32668.6251 Construction	35,315	35,260	Complete	99.8%		
S.342 Neponset River Sewer Separation	**2,681**	**2,444**	**91.2%**	**91.2%**		
S.32652.6156 Design/CS/RI	480	470	97.9%	97.9%		Dec-03
S.32653.6160 Construction	2,201	1,975	89.7%	89.7%		Oct-02
S.343 Constitution Beach Sewer Separation	**3,769**	**3,769**	**Complete**	**100.0%**		
S.32649.6153 Design/CS/RI	673	673	Complete	100.0%		
S.32666.6249 Construction	3,096	3,096	Complete	100.0%		
S.346 Cambridge CAM002-004 Sew.Separation	**56,151**	**18,451**	**32.9%**	**32.9%**		
S.32654.6161 Design/CS/RI	19,503	8,683	44.5%	44.5%		Jun-15
S.32672.6255 Construction	36,648	9,768	26.7%	26.7%		Dec-14
S.351 BWSC Floatables Controls	**933**	**933**	**Complete**	**100.0%**		
S.32657.6168 Design	555	555	Complete	100.0%		
S.32683.6266 Construction	378	378	Complete	100.0%		
S.352 Cambridge Floatables Controls	**3,377**	**922**	**27.3%**	**27.3%**		
S.32655.6162 Design	796	377	47.4%	47.4%		Nov-10
S.32684.6267 Construction	2,581	545	21.1%	21.1%		Nov-10
S.356 Fort Point Channel Sewer Separation	**11,239**	**8,291**	**73.8%**	**73.8%**		
S.32725.6992 Construction	9,172	6,930	75.6%	75.6%		Mar-07
S.32724.6991 Design	2,067	1,361	65.8%	65.8%		Mar-08
S.358 Morrissey Boulevard Drain	**36,863**	**14,676**	**39.8%**	**39.8%**		
S.32713.6696 Construction	31,017	11,694	37.7%	37.7%		Jun-09
S.32735.7015 Design	5,846	2,982	51.0%	51.0%		Dec-09

Subphase/Project	Total Contract Amount	Projected Pmts. Thr. FY08	**Status** Based on % of Budget Expended	**% Complete**	Planned Start	Planned End
S.359 Reserved Channel Sewer Separation	**113,835**	**2,717**	**2.4%**	**2.4%**		
S.32727.6994 Construction	95,011	0	Future	0.0%	May-09	
S.32734.7014 Design	18,824	2,717	14.4%	14.4%		Jun-16
S.360 Brookline Sewer Separation	**23,483**	**1,272**	**5.4%**	**5.4%**		
S.32736.7076 Design CS/RI	3,018	1,272	42.1%	42.1%		Jan-13
S.32737.7077 Construction	20,464	0	Future	0.0%	Nov-08	
S.361 Bulfinch Triangle Sewer Separation	**10,236**	**497**	**4.9%**	**4.9%**		
S.32738.7078 Design CS/RI	1,201	497	41.4%	41.4%		Jun-11
S.32739.7079 Construction	9,035	0	Future	0.0%	Aug-08	
S.324 CSO Support	**50,191**	**45,250**	**90.2%**	**90.2%**		
S.32400.5790 Technical Assistance	228	228	Complete	100.0%		
S.32407.5970 Tech. Assistance-Geotech	61	61	Complete	100.0%		
S.32401.5791 Planning/EIR	10,769	10,769	Complete	100.0%		
S.32403.5716 Master Planning	22,007	21,877	Complete	99.4%		
S.32645.6036 Watershed Planning	877	877	Complete	100.0%		
S.32409.5795 Modeling	300	300	Complete	100.0%		
S.32411.5767 SOP Program	1,957	1,957	Complete	100.0%		
S.32691.6372 System Assessment	476	27	5.7%	5.7%		Jun-20
S.32648.6150 Technical Review	794	529	66.6%	66.6%		Jun-20
S.32658.6169 Land/Easement	12,723	8,626	67.8%	67.8%		Jun-12
S.128 I/I Local Financial Assistance	**86,594**	**91,747**	**Complete**	**106.0%**		
S.10232.5300 Community I/I Grants	0	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
S.10233.5393 Community I/I Loans	0	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
S.10234.5394 Community I/I Loan Repayment	0	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
S.10273.6084 Grants - Phase II	15,938	15,938	Complete	100.0%		
S.10274.6085 Loans - Phase II	47,664	47,664	Complete	100.0%		
S.10282.6170 Repayment - Phase II	-47,664	-46,503	97.6%	97.6%		May-11
S.10315.6505 Grants-Phase III	0	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
S.10316.6506 Loans-Phase III	0	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
S.10317.6507 Repayment-Phase III	0	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
S.10368.6736 Grants - Phase IV	34,650	33,426	96.5%	96.5%		May-13
S.10369.6737 Loans - Phase IV	42,350	40,853	96.5%	96.5%		May-13
S.10370.6738 Repayment - Phase IV	-42,350	-27,982	66.1%	66.1%		May-18
S.10348.6609 Public Participation	6	6	Complete	100.0%		
S.10407.6925 Grants-Phase V	18,000	11,831	65.7%	65.7%		Jun-13
S.10408.6926 Loans-Phase V	22,000	14,460	65.7%	65.7%		Jun-13
S.10409.6927 Repayments-Phase V	-22,000	-3,191	14.5%	14.5%		Jun-18
S.10441.7107 Grants-Phase VI	18,000	2,511	14.0%	14.0%		Jun-15

Subphase/Project	Total Contract Amount	Projected Pmts. Thr. FY08	**Status** Based on % of Budget Expended	**% Complete**	Planned Start	Planned End
S.542 John J. Carroll Water Treatment Plant	**431,085**	**372,914**	**86.5%**	**86.5%**		
S.53293.5023 Study 1	444	444	Complete	100.0%		
S.53294.5024 Study 2	2,368	2,368	Complete	100.0%		
S.53375.6182 AWWARF Study	650	650	Complete	100.0%		
S.53376.6206 Emerg Dis Res Water Mgmt Study	1,454	1,454	Complete	100.0%		
S.53367.6118 Crypto. Inactivation Study	150	150	Complete	100.0%		
S.53390.6365 Cosgrove Disinfection Ph II	2,169	2,169	Complete	100.0%		
S.53391.6397 Cosgrove Disinfection Ph I	150	150	Complete	100.0%		
S.53393.6406 Immediate Disinf. MECO	10	10	Complete	100.0%		
S.53392.6401 Distribution Water Consultant	3	3	Complete	100.0%		
S.53304.5157 Permit Fees	79	48	60.8%	60.8%		Mar-14
S.53300.5997 Technical Assistance	72	72	Complete	100.0%		
S.53296.5042 EIR/Conceptual Design	5,808	5,808	Complete	100.0%		
S.53301.5017 Design/CS/RI - Wachusett WTP	46,606	46,606	Complete	100.0%		
S.53377.6207 WHCP1 Wachusett Cosgrove Intakes	15,391	15,391	Complete	100.0%		
S.53412.5522 WHCP2 Interim Rehab. Wach. Aque.	23,400	23,400	Complete	100.0%		
S.53413.6488 WHCP3 Sitework & Storage Tanks	67,368	67,368	Complete	100.0%		
S.53414.6489 WHCP4 Treatment Facility	145,871	145,871	Complete	100.0%		
S.53416.6491 WHCP6 Late Sitework	4,088	4,088	Complete	100.0%		
S.53426.6650 WHCP7 Existing Facilities Mods	5,000	0	Future	0.0%	Dec-09	
S.53371.6134 Design Management Support	1,730	1,730	Complete	100.0%		
S.53378.6208 Construction Management/RI	31,438	31,438	Complete	100.0%		
S.53406.6479 Cosgrove Disinf.-Fac. Underwater Imps.	217	217	Complete	100.0%		
S.53410.6485 Community Chlorine Analyzers	49	49	Complete	100.0%		
S.53418.6494 OCIP	5,107	5,107	Complete	100.0%		
S.53419.6495 Professional Services	2,857	2,752	96.3%	96.3%		Oct-05
S.53420.6497 Marlboro MOA	5,859	5,859	Complete	100.0%		
S.53421.6520 WHWTP- MECO	128	128	Complete	100.0%		
S.53425.6613 Site Security Services	1,264	1,264	Complete	100.0%		
S.53427.6670 CSX Crossing	65	65	Complete	100.0%		
S.53428.6671 Wachusetts Algae Design CS/RI	450	0	Future	0.0%	Sep-11	
S.53432.6691 Public Health Research	1,703	1,703	Complete	100.0%		
S.53435.6756 Security Equipment	571	571	Complete	100.0%		
S.53437.6773 WHCP8 Cosgrove Screens Con	3,238	3,238	Complete	100.0%		
S.53443.6815 AWWARF-Evaluation Ozone & UV	302	302	Complete	100.0%		
S.53445.6827 Fitout/Construction	1,500	779	51.9%	51.9%		Dec-11
S.53448.6889 Wachusetts Algae ...	1,800	0	Future	0.0%	Feb-13	
S.53449.6922 JJCWTP UV Validation	2,000	0	Future	0.0%	Mar-09	
S.53450.6923 WH Ultra Violet Dis Des ESDC/RI	4,394	0	Future	0.0%	May-08	
S.53451.6924 WH Ultra Violet Disinfect Cons	34,000	0	Future	0.0%	Aug-11	
S.53452.6939 As needed Tech Assistance #1	750	535	71.3%	71.3%		Jun-08
S.53453.6951 Des WH CP7 Existing Fac Mods	1,876	214	11.4%	11.4%		Oct-12
S.53455.6989 As needed Tech Assistance ...	750	665	88.7%	88.7%		Jun-08
S.53456.7084 Ancillary Mods Constr 1	160	160	Complete	100.0%		
S.53457.7085 Ancillary Mods Const 2	6,670	0	Future	0.0%	Sep-08	
S.53458.7192 Ancil Mods Design 3	563	43	7.6%	7.6%		Mar-10
S.53459.7208 Ancillary Mods Design 4	563	43	7.6%	7.6%		Mar-10

Subphase/Project	Total Contract Amount	Projected Pmts. Thr. FY08	**Status** Based on % of Budget Expended	**% Complete**	Planned Start	Planned End
S.543 Quabbin Water Treatment Plant	**17,729**	**10,144**	**57.2%**	**57.2%**		
S.53363.6043 Quabbin WTP Des/CA/RI	3,823	3,823	Complete	100.0%		
S.53382.6212 Construction	5,071	5,071	Complete	100.0%		
S.53381.6211 Utilities	13	13	Complete	100.0%		
S.53380.6210 Permit Fees	10	7	70.0%	70.0%		Jan-12
S.53433.6706 Ware Fire Dept. MOA	25	25	Complete	100.0%		
S.53434.6711 W Q Analysis Equipment	49	49	Complete	100.0%		
S.53439.6775 Quabbin UVWTP: Des/CA/RI	2,380	0	Future	0.0%	Sep-08	
S.53440.6776 Quabbin UVWTP: Construction	5,203	0	Future	0.0%	Sep-10	
S.53442.6804 Quabbin UVWTP:Study/Pilot	1,156	1,156	Complete	100.0%		
S.545 Blue Hills Covered Storage	**40,740**	**18,823**	**46.2%**	**46.2%**		
S.68025.6139 EIR/Preliminary Design/OR	2,557	2,168	84.8%	84.8%		Jun-10
S.53386.6216 Design Build	37,766	16,626	44.0%	44.0%		Apr-10
S.53385.6215 Tech Support/Permit Comp	104	29	27.9%	27.9%		Dec-15
S.53460.7213 Roadway Resurfacing	51	0	Future	0.0%	Apr-10	
S.53461.7214 Roadway Resurfacing	261	0	Future	0.0%	Jan-11	
S.550 Low Service Storage Near Spot Pond	**44,856**	**233**	**0.5%**	**0.5%**		
S.53400.6455 Env Rev	233	233	Complete	100.0%		
S.53401.6456 Env Rev Concept Design	1,330	0	Future	0.0%	Jul-11	
S.53402.6457 Design/Build	38,725	0	Future	0.0%	Jan-15	
S.53447.6868 Easement/Land Acquisition	630	0	Future	0.0%	Jul-13	
S.53462.7233 Owners's Representative	3,938	0	Future	0.0%	Jul-13	

Subphase/Project	Total Contract Amount	Projected Pmts. Thr. FY08	**Status** Based on % of Budget Expended	**% Complete**	Planned Start	Planned End
S.604 MetroWest Tunnel	**700,101**	**633,788**	**90.5%**	**90.5%**		
S.59794.5043 Study	415	415	Complete	100.0%		
S.59796.5048 Construction-Sudbury Pipe Bridge	296	296	Complete	100.0%		
S.59795.5044 Design/EIR - Tunnel/ESDC	37,981	37,934	Complete	99.9%		
S.59798.6054 West Tunnel Segment - CP1	147,787	147,787	Complete	100.0%		
S.60013.6055 Midd.Tunnel Segment - CP2	245,809	245,809	Complete	100.0%		
S.60015.6059 Shaft 5A - CP3	5,872	5,872	Complete	100.0%		
S.60040.6374 East Tunnel Segment-CP3A	55,976	55,976	Complete	100.0%		
S.60014.6056 MHD Salt Sheds - CP5	1,314	1,314	Complete	100.0%		
S.60031.6205 CP6B Upper Hultman Rehab	7,889	0	Future	0.0%	Apr-11	
S.60030.6204 Testing & Disinfection-CP7	3,612	3,612	Complete	100.0%		
S.60029.6203 Loring Road Storage Tanks CP-8	41,368	41,368	Complete	100.0%		
S.59799.5284 Const. Mgmt/Resident Inspect	39,428	39,428	Complete	100.0%		
S.59806.5141 Hultman Study	1,864	1,864	Complete	100.0%		
S.60022.6128 Hultman Leak Repair	307	307	Complete	100.0%		
S.60026.6140 Hultman Repair Band	28	28	Complete	100.0%		
S.60042.6430 Hultman Investigation and Repair	1,604	1,604	Complete	100.0%		
S.60043.6492 Hultman Repair Bands 98-99	116	116	Complete	100.0%		
S.59805.5139 Land Acquisition	6,259	6,259	Complete	100.0%		
S.59804.5976 Technical Assistance	131	131	Complete	100.0%		
S.60012.6037 DEP Permit Fees	50	47	94.0%	94.0%		Jun-11
S.60020.6117 Prof. Services	731	731	Complete	100.0%		
S.60023.6129 Framingham MOU	2,444	2,444	Complete	100.0%		
S.60039.6367 Weston MOA	1,006	1,006	Complete	100.0%		
S.60038.6366 Southboro MOA	255	255	Complete	100.0%		
S.60053.6762 Wayland MOA	35	35	Complete	100.0%		
S.60017.6063 Local Sup Cont Des/CA/RI	859	859	Complete	100.0%		
S.60024.6130 Loc. Support Cont. Constr	4,308	4,290	Complete	99.6%		
S.60025.6131 Loc. Sup Cont. Legal/Easement	9	9	Complete	100.0%		
S.60018.6067 Community Technical Assistance	297	297	Complete	100.0%		
S.60021.6122 OCIP	26,023	26,023	Complete	100.0%		
S.60054.6777 Equipment Prepurchase	198	198	Complete	100.0%		
S.60058.6856 Hultman Rehab CP9	3,257	3,257	Complete	100.0%		
S.60059.6872 Interim Disinfection	1,245	1,245	Complete	100.0%		
S.60066.6911 Hultman Interconnect/Fin Des/CA Insp	8,323	2,953	35.5%	35.5%		Apr-13
S.60073.6975 CP6A Lower Hultman Rehab	52,700	0	Future	0.0%	Jul-08	
S.60085.7105 CP6 Easements	175	20	11.4%	11.4%		Apr-13
S.60086.7106 CP6A Demolition	130	0	Future	0.0%	Jul-08	
S.615 Chicopee Valley Aqued. Redundancy	**8,914**	**8,821**	**Complete**	**99.0%**		
S.60045.6527 Pipeline Redundancy Des/CA/RI	1,927	1,838	95.4%	95.4%		Dec-08
S.60046.6528 Pipeline Redundancy Construction	6,739	6,737	Complete	100.0%		
S.60065.6908 Construction Easements	147	147	Complete	100.0%		
S.60074.7002 Permits	50	50	Complete	100.0%		
S.60084.7100 MWRA/SHFD NO.1 Take -off	50	50	Complete	100.0%		
S.597 Winsor Dam Hydroelectric/Pipeline Replace	**15,081**	**38**	**0.3%**	**0.3%**		
S.60032.6276 Preliminary Permit Study & Licensing	38	38	Complete	100.0%		
S.60033.6277 Detail Design for Hydro	376	0	Future	0.0%	Jul-09	
S.60044.6526 Construction for Hydro	1,471	0	Future	0.0%	Aug-10	
S.60077.7017 Quabbin Release Pipeline Design	500	0	Future	0.0%	Jul-09	
S.60087.7114 Shaft 12 Sluice Gates/Winsor Pipe Des	2,360	0	Future	0.0%	Jan-09	
S.60088.7115 Winsor Power Station Pipe Constr Ph1	4,310	0	Future	0.0%	Aug-10	
S.60096.7198 Shaft 12 Sluice Gate Construction	3,797	0	Future	0.0%	May-10	
S.60101.7212 Winsor Power St. Chapman Valve Repair	528	0	Future	0.0%	Oct-08	
S.60105.7234 Purchase of Sleeve Valves	200	0	Future	0.0%	May-08	
S.60106.7235 Quabbin Release Pipeline Const	1,500	0	Future	0.0%	Jan-11	

Subphase/Project	Total Contract Amount	Projected Pmts. Thr. FY08	**Status** Based on % of Budget Expended	**% Complete**	Planned Start	Planned End
S.616 Quabbin Transmission System	**7,780**	**4,659**	**59.9%**	**59.9%**		
S.75491.6690 Phase 1 Oakdale Valves Const.	1,811	1,811	Complete	100.0%		
S.60055.6828 Facilities Inspection	1,046	1,038	Complete	99.2%		
S.75496.6831 Ph 1 Oakdale Valves Study/Des	1,307	1,270	97.2%	97.2%		
S.60075.7007 Equipment Pre-purchase	543	539	Complete	99.3%		
S.60103.7229 Oakdale Phase 1A Elec Des	921	0	Future	0.0%	Jul-09	
S.60104.7230 Oakdale Phase 1A Elec Constr	2,150	0	Future	0.0%	Jan-11	
S.617 Sudbury / Weston Aqueduct Repairs	**3,236**	**794**	**24.5%**	**24.5%**		
S.75486.6617 Haz Material Sudbury Aqueduct	279	279	Complete	100.0%		
S.60056.6838 Sudbury Aqueduct Inspection	516	516	Complete	100.0%		
S.60070.6947 Weston Aqueduct Inspection	150	0	Future	0.0%	Apr-10	
S.60076.7016 Sudbury Short-Term Repairs	2,292	0	Future	0.0%	Apr-10	
S.620 Wachusetts Res Spill Impr/Winsor Dam Repairs	**15,489**	**8,239**	**53.2%**	**53.2%**		
S.60078.7018 Equipment Pre-purchase	537	537	Complete	100.0%		
S.60079.7019 Design	2,292	1,942	84.7%	84.7%		May-10
S.60080.7020 Construction	5,395	4,014	74.4%	74.4%		Nov-08
S.60097.7207 Technical Assistance	117	117	Complete	100.0%		
S.60098.7209 Cosgrove and Shaft A PCB Removal	1,999	837	41.9%	41.9%		Oct-08
S.60099.7210 Wachusett Dam PCB Removal	2,180	792	36.3%	36.3%		Nov-08
S.60102.7221 PH2 PCB Material Remediation	2,969	0	Future	0.0%	Nov-08	
S.621 Watershed Land	**19,000**	**10,116**	**53.2%**	**53.2%**		
S.60081.7069 Land Acquisition	19,000	10,116	53.2%	53.2%		Jun-12
S.623 Dam Projects	**7,295**	**0**	**Future**	**0.0%**		
S.60094.7194 Immediate Repair Dams	5,836	0	Future	0.0%	Aug-11	
S.60100.7211 Immediate Repair Dams-Design	1,459	0	Future	0.0%	Jul-09	
S.625 Long Term Redundancy	**203,500**	**0**	**Future**	**0.0%**		
S.60035.6273 Water Transmission Redun Plan	3,500	0	Future	0.0%	Sep-08	
S.60090.7156 Wachusett Aq Pressurization Des	20,000	0	Future	0.0%	Jul-11	
S.60091.7157 Wachusett Aq Pressurization Cons	80,000	0	Future	0.0%	Jul-13	
S.60092.7159 Long Term Redundancy Des	20,000	0	Future	0.0%	Jul-13	
S.60093.7160 Long Term Redundancy Construction	80,000	0	Future	0.0%	Jul-14	
S.677 Valve Replacement	**19,666**	**8,560**	**43.5%**	**43.5%**		
S.67559.5126 Construction 1	718	718	Complete	100.0%		
S.68012.6105 Construction 2	1,357	1,357	Complete	100.0%		
S.68039.6278 Construction 3	1,338	1,338	Complete	100.0%		
S.68079.6345 Construction 4	1,540	1,540	Complete	100.0%		
S.68080.6346 Construction 5	1,389	1,389	Complete	100.0%		
S.68126.6435 Construction 6	1,613	1,313	81.4%	81.4%		Jul-08
S.68127.6436 Construction 7	2,435	0	Future	0.0%	Oct-10	
S.68005.6088 Equip. Purchase	4,036	787	19.5%	19.5%		Jun-18
S.67560.5124 Technical Assistance	112	112	Complete	100.0%		
S.68239.6859 Permits	5	2	40.0%	40.0%		May-10
S.68240.6860 Easements	6	6	Complete	100.0%		
S.68300.7195 Construction 8	2,559	0	Future	0.0%	Oct-12	
S.68307.7236 Construction 9	2,559	0	Future	0.0%	Oct-14	
S.712 Cathodic Protection Of Distr.Mains	**1,618**	**141**	**8.7%**	**8.7%**		
S.68002.6058 Planning Phase I	108	108	Complete	100.0%		
S.68129.6438 Test Station Installation 2	492	0	Future	0.0%	May-13	
S.68130.6439 Test Station Installation 3	492	0	Future	0.0%	May-14	
S.68131.6440 Test Station Installation 4	492	0	Future	0.0%	May-15	
S.68216.6751 Technical Assistance	33	33	Complete	100.0%		

Subphase/Project	Total Contract Amount	Projected Pmts. Thr. FY08	**Status** Based on % of Budget Expended	**% Complete**	Planned Start	Planned End
S.730 Weston Aqueduct Supply Mains (WASMs)	**125,612**	**60,988**	**48.6%**	**48.6%**		
S.68027.6142 Design/CA/RI-PhA/W1&2	5,374	5,175	96.3%	96.3%		
S.67865.5147 Design/CA/RI - W4	5,879	5,879	Complete	100.0%		
S.68041.6280 Newton WASM 1&2	9,219	9,219	Complete	100.0%		
S.68042.6281 Boston WASM 1&2	7,039	7,039	Complete	100.0%		
S.68166.6539 Design/CA/RI WASM3	10,066	0	Future	0.0%	Jul-11	
S.68170.6543 Waltham WASM 3-CP2	15,429	0	Future	0.0%	Jul-14	
S.68171.6544 Belmont WASM 3 - CP3	15,801	0	Future	0.0%	Oct-16	
S.68172.6545 Arlington WASM 3 - CP4	16,358	0	Future	0.0%	Jan-19	
S.68173.6546 Section 28, Arlington-CP1	2,251	0	Future	0.0%	Jan-09	
S.68031.6175 Auburndale WASM 1,2&4	4,001	4,001	Complete	100.0%		
S.68069.6312 Newton WASM 2&4	8,282	8,282	Complete	100.0%		
S.68070.6313 Allston WASM 4 & W. Ave. Sewer	17,331	17,331	Complete	100.0%		
S.68032.6176 Construction Meter 103	61	61	Complete	100.0%		
S.59774.5034 Construction Newton Water Mains	669	669	Complete	100.0%		
S.59776.5975 Technical Assistance	186	186	Complete	100.0%		
S.68030.6174 Appraisal/Easement	753	292	38.8%	38.8%		Oct-18
S.68245.6870 Survey	210	89	42.4%	42.4%		Oct-18
S.68272.7000 Section PCCP W-12 ...	2,114	2,114	Complete	100.0%		
S.68273.7001 WASM3 SPL12 PCCP Des	266	266	Complete	100.0%		
S.68285.7083 Design/CA/RI Section 28	908	385	42.4%	42.4%		Jan-11
S.68167.6540 Design/CA/RI Section 36	599	0	Future	0.0%	Jan-09	
S.68301.7222 Section 36 Replacement Constr	2,816	0	Future	0.0%	Sep-10	
S.732 Walnut St. & Fisher Hill Pipeline Rehab.	**2,514**	**1,614**	**64.2%**	**64.2%**		
S.68189.6586 Construction Phs. 1	2,453	1,558	63.5%	63.5%		Jan-09
S.68220.6779 Technical Assistance	21	21	Complete	100.0%		
S.68221.6780 Survey	35	35	Complete	100.0%		
S.68270.6998 Permits	5	0	Future	0.0%	Jul-04	

Subphase/Project	Total Contract Amount	Projected Pmts. Thr. FY08	**Status** Based on % of Budget Expended	**% Complete**	Planned Start	Planned End
S.727 SEH Redundancy & Storage	**77,981**	**1,147**	**1.5%**	**1.5%**		
S.53397.6452 Concept Plan/Prelim Des/Env Rev	840	462	55.0%	55.0%		Feb-09
S.53398.6453 SEH Pipe/Storage Final Des/CA/RI Ph 1	4,634	0	Future	0.0%	Apr-10	
S.53399.6454 SEH Pipe/Storage Construction Ph 1	20,004	0	Future	0.0%	Jul-13	
S.68135.6444 SEH Pipe/Storage FinalDes/CA/RI Ph 2	7,484	0	Future	0.0%	Apr-13	
S.68308.7245 SEH Pipe/Storage Construction PH2	32,300	0	Future	0.0%	Jan-15	
S.68136.6445 University Ave Water Main	6,172	685	11.1%	11.1%		Nov-08
S.68292.7112 Design Sect 77/88 Rehab	1,058	0	Future	0.0%	Jul-18	
S.68293.7113 Section 77/88 Rehab	4,234	0	Future	0.0%	Sep-20	
S.68302.7223 Des CA/RI Short Term Impr	200	0	Future	0.0%	Jul-09	
S.68303.7224 Construction Short Term Impr	750	0	Future	0.0%	Apr-10	
S.68305.7226 Easements	300	0	Future	0.0%	Aug-08	
S.68306.7227 Permits	5	1	20.0%	20.0%		Dec-12
S.719 Chestnut Hill Connecting Mains	**25,042**	**17,462**	**69.7%**	**69.7%**		
S.68026.6141 Des/CA/RI PS Potable Connection	1,360	1,360	Complete	100.0%		
S.68051.6301 Preliminary Engineering	432	432	Complete	100.0%		
S.68157.6503 Design/CA/RI - Emer. Pump Relocation	1,121	1,121	Complete	100.0%		
S.68052.6302 Construction- Chp 149	3,681	0	Future	0.0%	Jul-11	
S.68155.6501 Const - Emer. Pump Relocation	6,502	6,502	Complete	100.0%		
S.68053.6303 Easements	81	81	Complete	100.0%		
S.68180.6558 Boston Paving	133	133	Complete	100.0%		
S.68182.6560 Legal	1	1	Complete	100.0%		
S.68199.6623 BECO Emergency Pump Construction	431	431	Complete	100.0%		
S.68203.6651 Const.- Pump Station Potable Connection	7,132	7,132	Complete	100.0%		
S.68230.6814 Equipment pre-purchase	154	154	Complete	100.0%		
S.68231.6820 Demolition of Garages	72	72	Complete	100.0%		
S.68244.6869 Utilities	44	44	Complete	100.0%		
S.68267.6982 Construction-Chp 30	2,382	0	Future	0.0%	Jul-11	
S.68268.6995 Final Design CA/RI	1,517	0	Future	0.0%	Jul-09	
S.704 Rehab of Other Pumping Stations	**28,599**	**15,614**	**54.6%**	**54.6%**		
S.67885.5153 Preliminary Design	351	351	Complete	100.0%		
S.68017.6110 Design/CS/RI	2,546	2,546	Complete	100.0%		
S.68072.6304 Construction II&C	639	639	Complete	100.0%		
S.68102.6375 Rehab of 5 Pump Stations	20,167	9,494	47.1%	47.1%		May-10
S.68178.6556 Public Participation	5	0	Future	0.0%		
S.68179.6557 Legal	5	0	Future	0.0%		
S.68204.6676 Proprietary Equipment Purchases	285	173	60.7%	60.7%		Jan-10
S.68266.6980 Design 2 CS/RI	4,600	2,411	52.4%	52.4%		May-11
S.722 NIH Redundancy & Covered Storage	**84,929**	**659**	**0.8%**	**0.8%**		
S.68093.6306 Easements	300	0	Future	0.0%	Jan-10	
S.68252.6906 Section 89/29 Redundancy Design	7,057	0	Future	0.0%	Jul-09	
S.53454.6954 Concept Plan	969	659	68.0%	68.0%		Feb-09
S.68276.7026 NIH Improvements Const	5,600	0	Future	0.0%	Mar-10	
S.68277.7045 Design CA/RI NIH Improvements	1,192	0	Future	0.0%	Jul-09	
S.68278.7047 Permits	5	0	Future	0.0%	Jan-09	
S.68279.7048 Technical Assistance	18	0	Future	0.0%	Jan-09	
S.68282.7066 Sec 89&29 Redundancy Constr	35,079	0	Future	0.0%	Jul-11	
S.68283.7067 NIH Storage Fin Des/CS/RI	2,864	0	Future	0.0%	Jul-09	
S.68284.7068 NIH Storage Construction	14,113	0	Future	0.0%	Jul-11	
S.68294.7116 Section 89/29 Rehab Design	1,192	0	Future	0.0%	Jan-14	
S.68295.7117 Section 89/29 Rehab Construction	5,958	0	Future	0.0%	Jan-16	
S.68296.7118 NIH Gillis Redundancy Design	2,117	0	Future	0.0%	Jan-14	
S.68297.7119 NIH Gillis Redundancy Construction	8,467	0	Future	0.0%	Jan-16	

Subphase/Project	Total Contract Amount	Projected Pmts. Thr. FY08	**Status** Based on % of Budget Expended	**% Complete**	Planned Start	Planned End
S.713 Spot Pond Supply Mains - Rehab	**62,568**	**61,234**	**97.9%**	**97.9%**		
S.68038.6223 Prelim Design & Design/CA/RI	10,874	10,806	Complete	99.4%		
S.68059.6316 Easements/Paving CP1	143	143	Complete	100.0%		
S.68106.6379 Easements CP2	50	50	Complete	100.0%		
S.68107.6380 Easements CP3	80	80	Complete	100.0%		
S.68151.6476 Easements CP4	1	1	Complete	100.0%		
S.68060.6317 North (Medford/Melrose)	6,597	6,597	Complete	100.0%		
S.68108.6381 Middle (Medford/Somerville)	22,177	22,177	Complete	100.0%		
S.68109.6382 South (Cambridge/Boston)	17,778	17,651	Complete	99.3%		
S.68150.6475 Early Valve Replacement Contract	2,387	2,387	Complete	100.0%		
S.68209.6697 Construction 4-Trusses	1,030	0	Future	0.0%	Apr-17	
S.68153.6483 Early Valve Equip. Purchase	161	161	Complete	100.0%		
S.68274.7003 CA/RI CP3	1,289	1,181	91.6%	91.6%		Apr-08
S.723 Nor Low Service Rehab Secs. 8	**18,571**	**59**	**0.3%**	**0.3%**		
S.68094.6321 Sec 8 Survey	80	10	12.5%	12.5%		May-09
S.68095.6322 Sec 8 Construction	10,940	0	Future	0.0%	Jul-14	
S.68262.6962 Rehab Sects 37,46 Chel/EB Con	3,200	0	Future	0.0%	May-13	
S.68263.6977 Permits	230	5	2.2%	2.2%		Aug-11
S.68264.6979 Technical Assistance	44	44	Complete	100.0%		
S.68275.7021 Section 97A Construction	1,888	0	Future	0.0%	Jul-08	
S.68287.7092 Design CA/RI Sec 8	2,189	0	Future	0.0%	Jul-12	
S.702 New Connecting Mains - Shaft 7 to ...	**56,969**	**5,494**	**9.6%**	**9.6%**		
S.68035.6199 Watertown MOU	167	167	Complete	100.0%		
S.67846.5163 Routing Study	397	397	Complete	100.0%		
S.68110.6383 Design/CA/RI DP1	4,810	3,568	74.2%	74.2%		Mar-15
S.68118.6391 Revised N. Segment (CP1A) New 48"	28,332	0	Future	0.0%	Mar-12	
S.68114.6387 Easements CP1 A&B	800	17	2.1%	2.1%		Sep-11
S.68111.6384 Des/CA/RI DP2/4 Meter 120	2,943	1,315	44.7%	44.7%		Mar-11
S.68174.6548 Constr CP2 C&L Sec 59&60	3,488	0	Future	0.0%	Nov-15	
S.68175.6547 Easements CP2	49	0	Future	0.0%	May-11	
S.68119.6392 South Segment (CP3)	6,133	0	Future	0.0%	Mar-12	
S.68115.6388 Easements CP3	74	15	20.3%	20.3%		Aug-09
S.68121.6394 Northeast Segment (CP5)	6,723	0	Future	0.0%	Oct-08	
S.68117.6390 Easements CP5	54	15	27.8%	27.8%		Jun-09
S.68255.6955 Repl of Sect 25-Design CA/RI	400	0	Future	0.0%	Jul-12	
S.68256.6956 Repl of Sect 25-Construction	2,100	0	Future	0.0%	Jul-14	
S.68286.7086 Design CA/RI Sec 59&60	500	0	Future	0.0%	Nov-13	
S.692 NHS - Section 27 Improvements	**2,983**	**124**	**4.2%**	**4.2%**		
S.67769.6333 Construction Sect 27	2,859	27	0.9%	0.9%		Mar-15
S.68192.6589 Easements	23	0	Future	0.0%	Apr-12	
S.68211.6712 Technical Assistance	64	60	93.8%	93.8%		Mar-12
S.68229.6809 Surveying	37	37	Complete	100.0%		

Subphase/Project	Total Contract Amount	Projected Pmts. Thr. FY08	**Status** Based on % of Budget Expended	**% Complete**	Planned Start	Planned End
S.693 NHS - Revere & Malden Pipeline Impr	**33,038**	**23,897**	**72.3%**	**72.3%**		
S.67780.5185 Design/CS/RI-Revere/Malden	1,786	1,786	Complete	100.0%		
S.67781.5186 Constr-Revere Beach	6,314	6,314	Complete	100.0%		
S.67782.5176 Constr-Malden Sect 53	10,026	10,026	Complete	100.0%		
S.68020.6113 Landscaping Malden Section 53	20	20	Complete	100.0%		
S.67792.5238 Construction - Linden Square	1,849	1,849	Complete	100.0%		
S.67793.5239 Construction Admin.-Linden Squar	125	125	Complete	100.0%		
S.67784.5177 Const-Revere Sect 53	3,652	0	Future	0.0%	Jul-08	
S.68078.6334 Easements Revere 53	27	2	7.4%	7.4%		Jul-09
S.67996.6033 Des/CA/RI-Rd Restoration	77	77	Complete	100.0%		
S.67997.6034 Construction Road Restoration	1,714	1,714	Complete	100.0%		
S.68033.6183 Sidewalk Restoration	54	54	Complete	100.0%		
S.67785.5191 Constr-Control Valves	949	949	Complete	100.0%		
S.67786.5179 Const.-DI Pipeline C&L	158	158	Complete	100.0%		
S.67787.5178 Constr-Win C&L	575	575	Complete	100.0%		
S.67790.6335 Constr 68 & 53A	4,229	0	Future	0.0%	Jul-13	
S.67791.5986 Technical Assistance	246	246	Complete	100.0%		
S.68258.6958 Shaft 9A-D Ext Construction	1,200	0	Future	0.0%	Apr-14	
S.68265.6978 Survey	30	1	3.3%	3.3%		Nov-15
S.68280.7049 Permits	5	0	Future	0.0%		
S.731 Lynnfield Pipeline	**6,705**	**446**	**6.7%**	**6.7%**		
S.68187.6584 Construction (Phase 2)	5,250	0	Future	0.0%	Jun-10	
S.68196.6619 Easem/Legal/License/Permits	200	20	10.0%	10.0%		Jul-11
S.68251.6905 Design CA/RI	966	137	14.2%	14.2%		Jun-13
S.68289.7096 Temporary Interconnect Constr(Ph 1)	289	289	Complete	100.0%		
S.708 Nor Extra High Serv - New Pipelines	**6,384**	**3,633**	**56.9%**	**56.9%**		
S.67970.5242 Design/CA/RI	588	588	Complete	100.0%		
S.67972.6340 Construction	3,032	3,032	Complete	100.0%		
S.68162.6522 Construction-Sections 34,45	2,691	0	Future	0.0%	Jan-14	
S.68176.6554 Public Participation	5	0	Future	0.0%		
S.68177.6555 Legal	5	0	Future	0.0%		
S.68210.6707 Technical Assistance	54	8	14.8%	14.8%		Nov-15
S.68215.6749 PLC Equipment Purchases	4	4	Complete	100.0%		
S.68281.7050 Permits	5	0	Future	0.0%	Nov-10	
S.725 Hydraulic Model Update	**686**	**598**	**87.2%**	**87.2%**		
S.68101.6342 Hydraulic Model Update	563	563	Complete	100.0%		
S.68165.6531 Model Enhancement Support Services	123	35	28.5%	28.5%		Jun-07
S.735 Section 80 Rehabilitation	**7,620**	**0**	**Future**	**0.0%**		
S.68250.6892 Section 80 Design CS/RI	1,524	0	Future	0.0%	Jan-11	
S.68249.6891 Section 80 Construction	6,096	0	Future	0.0%	May-13	
S.618 Northern High NW Trans Sect 70-71	**1,000**	**0**	**Future**	**0.0%**		
S.60063.6895 Planning	1,000	0	Future	0.0%	Oct-11	
S.753 Central Monitoring System	**16,092**	**15,742**	**97.8%**	**97.8%**		
S.75300.5025 Study	190	190	Complete	100.0%		
S.75301.5026 Design	2,651	2,651	Complete	100.0%		
S.75304.5160 Communications Structures	161	161	Complete	100.0%		
S.75305.5173 CS/Start Up Services	352	352	Complete	100.0%		
S.75302.5027 Equipment Prepurchase	2,162	2,162	Complete	100.0%		
S.75306.5171 Construction 1	209	209	Complete	100.0%		
S.75303.5028 SCADA Implementation	2,201	1,851	84.1%	84.1%		Jun-09
S.75474.6125 Microwave Equipment	782	782	Complete	100.0%		
S.75308.5849 Operations Center Construction	1,499	1,499	Complete	100.0%		
S.75309.5987 Technical Assistance	386	386	Complete	100.0%		
S.75488.6653 Microwave Comm System-Wide Backbone	1,694	1,694	Complete	100.0%		
S.75489.6654 Study & Design Monitoring & Control	1,808	1,808	Complete	100.0%		
S.75494.6816 Microwave Comm for Waterworks Facil	1,957	1,957	Complete	100.0%		
S.75495.6825 Ludlow Communications	41	41	Complete	100.0%		

Subphase/Project	Total Contract Amount	Projected Pmts. Thr. FY08	**Status** Based on % of Budget Expended	**% Complete**	Planned Start	Planned End
S.763 Distribution Systems Facs. Mapping	**2,444**	**1,036**	**42.4%**	**42.4%**		
S.75458.5162 Planning Design	936	936	Complete	100.0%		
S.75476.6152 Data Purchase	100	100	Complete	100.0%		
S.75484.6525 Records Development	1,407	0	Future	0.0%	Jul-09	
S.765 Local Water Pipeline Imp. Loan Program	**0**	**91,093**				
S.75485.6608 Community Loans	256,724	140,097	54.6%	54.6%		Jun-13
S.75493.6759 Community Repayment	-256,724	-49,003	19.1%	19.1%		Jun-23
S.766 Waterworks Facility Asset Protection	4,705	245	5.2%	5.2%		
S.75490.6689 Meter Vault Manhole Retrofits	1,573	0	Future	0.0%	Sep-14	
S.75497.6832 Design-Walnut Hill Tank	300	0	Future	0.0%	Jan-10	
S.75498.6833 Construction-Walnut Hill Tank	1,000	0	Future	0.0%	Jul-11	
S.75501.6910 Waltham Pipe/Bridge Repl	238	238	Complete	100.0%		
S.75502.6920 Permits/Legal Fees	15	8	53.3%	53.3%		Mar-12
S.75506.7023 Design Cosgrove Turbine Isolation	480	0	Future	0.0%	Jul-12	
S.75509.7064 Cosgrove Valve Seat Repl	500	0	Future	0.0%	Jul-12	
S.75510.7065 Des Cosgrove Valve Seat Repl	100	0	Future	0.0%	Jul-11	
S.75511.7228 Transformer at Cosgrove Intake Bldg	500	0	Future	0.0%	May-09	
S.933 Capital Maintenance Planning/Development	**7,688**	**4,009**	**52.1%**	**52.1%**		
S.19175.6421 Inventory & Evaluation-1&2	2,579	2,579	Complete	100.0%		
S.92387.6976 As-needed Design Contract 1	314	314	Complete	100.0%		
S.92393.6988 As Needed Design Contract 2	318	318	Complete	100.0%		
S.92402.7101 As-Needed Des Contract 3	650	450	69.2%	69.2%		Aug-09
S.92403.7102 As-Needed Des Contract 4	515	348	67.6%	67.6%		Aug-09
S.92399.7070 As-Needed Des Contract 5	750	0	Future	0.0%	Sep-08	
S.92413.7242 As-Needed Des Contract 6	750	0	Future	0.0%	Sep-08	
S.92414.7243 As-Needed Des Contract 7	906	0	Future	0.0%	Sep-10	
S.92415.7244 As-Needed Des Contract 8	906	0	Future	0.0%	Sep-10	
S.881 Equipment Purchase	**11,977**	**6,157**	**51.4%**	**51.4%**		
S.92367.6732 TV Inspection Truck	175	175	Complete	100.0%		
S.92374.6760 Security Equip & Installation	6,112	3,209	52.5%	52.5%		Jun-11
S.92379.6808 ICP-MS Lab Testing Equip	150	150	Complete	100.0%		
S.92381.6866 Back Hoe	130	130	Complete	100.0%		
S.92382.6867 Vactor Truck	220	220	Complete	100.0%		
S.92383.6907 Water Service Truck	114	114	Complete	100.0%		
S.92384.6944 Bucket Machine	137	137	Complete	100.0%		
S.92385.6945 Excavator	233	233	Complete	100.0%		
S.92386.6946 Grove Crane	311	311	Complete	100.0%		
S.92388.6981 Land Fill Loader	113	113	Complete	100.0%		
S.92392.6986 PowerSweeper/Catch Basin ...	155	155	Complete	100.0%		
S.92394.6990 Back Hoe (WRA385)	317	317	Complete	100.0%		
S.92395.7027 Closed Circuit TV Insp Truck	165	165	Complete	100.0%		
S.92396.7028 Front-End Loader	110	110	Complete	100.0%		
S.92398.7030 Dump Truck (WRA 522)	110	110	Complete	100.0%		
S.92400.7074 Crane (WRA-185)	298	298	Complete	100.0%		
S.92409.7232 Future Vehicle Purchases	1,862	210	11.3%	11.3%		
S.92411.7239 Major Laboratory Instrumentation	1,000	0	Future	0.0%	Mar-09	
S.92416.7246 Ford Ramp Truck	125	0	Future	0.0%	Jul-08	
S.92417.7247 Street Sweeper	140	0	Future	0.0%	Jul-08	
S.925 Technical Assistance	**1,800**	**0**	**Future**	**0.0%**		
S.30000.MECH Mechanical	150	0	Future	0.0%		
S.50000.MATT Material Testing	150	0	Future	0.0%		
S.80000.SURV Surveying	150	0	Future	0.0%		
S.90000.HAZM Hazardous Material	900	0	Future	0.0%		
S.33000.INST Instrument Control	150	0	Future	0.0%		
S.44000.WETP Wetland/Permitting	150	0	Future	0.0%		
S.77000.LAND Land Appraisal	150	0	Future	0.0%		

Subphase/Project	Total Contract Amount	Projected Pmts. Thr. FY08	**Status** Based on % of Budget Expended	**% Complete**	Planned Start	Planned End
S.931 Business Systems Plan	**32,572**	**22,932**	**70.4%**	**70.4%**		
S.92338.6014 Phase I (FY95-97)	1,146	1,146	Complete	100.0%		
S.92339.6013 Hardware-Phase I	441	441	Complete	100.0%		
S.92322.6015 Network-Phase I	142	142	Complete	100.0%		
S.92347.6362 Phase III (FY99-01)	10,807	10,807	Complete	100.0%		
S.92352.6508 Phase IV / Year 2000 Imp.	3,051	3,051	Complete	100.0%		
S.92353.6509 Phase V	1,942	1,022	52.6%	52.6%		Jun-11
S.92418.7249 DITP/OMS	142	34	23.9%	23.9%		Jun-09
S.92419.7250 GIS/TV Inspection	45	0	Future	0.0%	Apr-09	
S.92420.7251 Open VMS HW Replacement	300	0	Future	0.0%	Apr-09	
S.92380.6865 Phase VI	2,608	2,608	Complete	100.0%		
S.92422.7253 MIS Strategic Plan	500	0	Future	0.0%	Apr-09	
S.92423.7254 MIS Licensing	24	0	Future	0.0%	Jul-08	
S.92424.7255 Lawson Conversion	430	320	74.4%	74.4%		Sep-08
S.92404.7200 Computer Center - OCC Infrastructure	1,500	0	Future	0.0%	Jul-14	
S.92343.6177 Phase II FY97-99	4,174	3,361	80.5%	80.5%		Jun-10
S.92405.7201 Net 2020	1,500	0	Future	0.0%	Jul-09	
S.92406.7203 SAN II	600	0	Future	0.0%	Jul-11	
S.92408.7205 Telecommunications	750	0	Future	0.0%	Jul-13	
S.92410.7238 Laboratory Instrument Data Mgmt	250	0	Future	0.0%	Mar-09	
S.92407.7204 SAN III	600	0	Future	0.0%	Jul-14	
S.92425.7256 Cyber Security	330	0	Future	0.0%	Apr-09	
S.92412.7240 Corporate Server Infra & Doc Dist	1,000	0	Future	0.0%	Jun-10	
S.92426.7257 Original SAN	290	0	Future	0.0%	Jul-09	
S.932 Environmental Remediation	**1,805**	**1,473**	**81.6%**	**81.6%**		
S.92369.6745 Tech Asst./ Env. Remediation	545	545	Complete	100.0%		
S.92370.6746 Prision Point Tank Removal - Const.	777	445	57.3%	57.3%		
S.92371.6747 Cottage Farm Tank Replace - Const	428	428	Complete	100.0%		
S.92376.6805 Oakdale Power Station	47	47	Complete	100.0%		
S.92377.6806 Cosgrove Power Station	8	8	Complete	100.0%		
S.934 MWRA Facilities Management & Planning	**6,928**	**0**	**Future**	**0.0%**		
S.92389.6983 Design/Engineering Services	1,259	0	Future	0.0%		
S.92390.6984 Facilities Construction	5,669	0	Future	0.0%	Jul-10	
S.935 Alternative Energy Initiatives	**7,000**	**983**	**14.0%**	**14.0%**		
S.19285.6974 Alternative Energy Initiatives	7,000	983	14.0%	14.0%		Dec-10

APPENDIX 5

Municipality and Project Reference by Municipality

APPENDIX 5

PROJECT/MUNICIPALITY(s)

New Projects from Master Plan Shaded

Project Number/ Project		Community(s) Served
104	Braintree-Weymouth Relief Facilities	Braintree, Hingham, Holbrook, Randolph, Weymouth, Quincy
127	Cummingsville Replacement Sewer	Burlington, Winchester, Woburn
128	Infiltration/Inflow Local Financial Assistance Program.	All Wastewater Communities
130	Siphon Structure Rehabiliation	All Wastewater Communities
131	Upper Neponset Valley Sewer System	Brookline, Dedham, Newton, West Roxbury
132	Corrosion and Odor Control Study	All Wastewater Communities
136	West Roxbury Tunnel	Ashland, Framingham, Natick, Wellesley, Dedham, Boston, Brookline, Newton,
137	Wastewater Central Monitoring	All Wastewater Communities
139	South System Relief Project	Boston, Milton
141	Wastewater Process Optimization	All Wastewater Communities
142	Wastewater Metering System Equipment Replacement	All Wastewater Communities
145	Interception & Pumping Facility Asset Protection	All Wastewater Communities
146	D.I. Cross Harbor Tunnel	All Wastewater Communities
147	Randolph Trunk Sewer Relief	Braintree & Randolph
200	Deer Island Plant Optimization	All Wastewater Communities
206	Deer Island Treatment Plant Asset Protection	All Wastewater Communities
210	Clinton Wastewater Treatment Plant	Clinton
211	Laboratory Services	All MWRA Communities
271	Residuals Asset Protection	All Wastewater Communities
324	CSO Support	Boston, Cambridge, Chelsea, Revere, Somerville
339	North Dorchester Bay & Reserve Channel Conduits/CSO	Boston
340	South Dorchester Bay Sewer Separation (Fox Point)	Boston
341	South Dorchester Bay Sewer Separation (Commercial Pt.)	Boston
342	Neponset River Sewer Separation	Boston
343	Constitution Beach Sewer Separation	Boston
344	Stony Brook Sewer Separation	Boston
346	Cambridge CAM002-004 Sewer Separation	Cambridge
347	East Boston Branch Sewer Relief	Boston, Chelsea, Everett
348	Fort Point Channel & BOS019 Conduits	Boston
349	Chelsea Trunk Sewer	Chelsea, Revere
350	Union Park Detention Treatment Facility	Boston
351	BWSC Floatables Control	Boston
352	Cambridge Floatables Control	Cambridge
353	Upgrade Existing CSO Facilities	Boston, Cambridge, Revere, Somerville
354	Hydraulic Relief Projects	Boston, Cambridge
355	MWR003 Gate and Siphon	Boston, Cambridge
356	Fort Point Channel Sewer Separation	Boston
357	Charles River CSO Controls	Boston, Brookline, Cambridge
358	Morrisey Boulevard Drain	Boston
359	Reserved Channel Sewer Separation	Boston
360	Brookline Sewer Separation	Brookline
361	Bulfinch Triangle Sewer Separation	Boston
542	Walnut Hill Treatment Plant	All Water Customers (except Chicopee, Wilbraham, South Hadley Fire District #1, Worcester, Clinton, and Leominster)
543	Quabbin Water Treatment Plant	South Hadley, Chicopee, Wilbraham
544	Norumbega Covered Storage	All Water Customers (except Chicopee, Wilbraham, South Hadley Fire District #1, Worcester, Clinton, and Leominster)
545	Blue Hills Covered Storage	Boston, Canton, Milton, Norwood, Quincy, Brookline, Dedham, Westwood, Stoughton
550	Low Service Storage Near Spot Pond	Cambridge, Charlestown, Chelsea, East Boston, Everett, Malden, Somerville
597	Winsor Dam Hydroelectric	All Water Communities
601	Sluice Gate Rehabilitation	All Water Communities
604	MetroWest Tunnel	All Water Communities (except South Hadley Fire District #1, Chicopee, Wilbraham, Worcester, Clinton, and Leominster)
615	Chicopee Valley Aqueduct Redundancy	Chicopee, South Hadley Fire District #1, Wilbraham
616	Quabbin Transmission System	Chicopee, South Hadley, Wilbraham
617	Sudbury/Weston Aqueduct Repairs	All Water Communities (except South Hadley Fire District #1, Chicopee, Wilbraham, Worcester, Clinton, and Leominster)
618	Northern High NW Trans Section 70-71	Stoneham, Wakefield, Melrose, Lynnfield, Saugus, Lynn, Peabody, Marblehead, Swampscott, Nahant
620	Wachusetts Reservior Spillway	All Water Communities
621	Watershed Land	All Water Communities
622	Cosgrove/Wachusett Redundancy	All Water Communities
623	Dam Projects	All Water Communities

APPENDIX 5

PROJECT/MUNICIPALITY(s)

New Projects from Master Plan Shaded

Project Number/ Project		Community(s) Served
625	Long Term Redundancy	All Water Customers (except Chicopee, Wilbraham, South Hadley Fire District #1, Worcester, Clinton, and Leominster)
677	Valve Replacement	All Water Communities
683	Heath Hill Road Pipe Replacement	Boston, Brookline
689	James L. Gillis Pump Station Rehabilitation	Lynn, Lynnfield, Malden, Marblehead, Medford, Melrose, Nahant, Peabody, Reading, Saugus, Stoneham, Swampscott, Wakefield, Winchester, Woburn
690	Northern Low Service Pipeline Replacement	Chelsea, Everett, Malden
692	Northern High Service Section 27 Improvements	Lynn, Marblehead, Nahant, Swampscott
693	Northern High Service Pipe Improvements - Revere/Malden	Boston, Lynn, Malden, Marblehead, Nahant, Peabody, Reading, Revere, Saugus, Winthrop
702	New Connecting Mains - Shaft 7 to WASM 3	Arlington, Bedford, Belmont, Boston, Lexington, Medford, Newton, Somerville, Waltham, Watertown, Winchester
704	Rehabilitation of Other Pump Stations	Arlington, Bedford, Belmont, Boston, Brookline, Canton, Lexington, Milton, Norwood, Waltham, Watertown, Winchester
708	Northern Extra High Service - New Pipelines	Arlington, Bedford, Lexington, Waltham
712	Cathodic Protection of Distribution Mains	All Water Communities
713	Spot Pond Supply Mains Rehabilitation	Arlington, Boston, Cambridge, Chelsea, Everett, Malden, Medford, Somerville
714	Southern Extra High - Sections 41, 42, and 74	Boston, Brookline, Milton, Norwood, Dedham, Westwood, Stoughton
719	Chestnut Hill Connecting Mains	Boston, Brookline, Newton
721	Southern Spine Distribution Mains	Boston, Brookline, Canton, Milton, Norwood, Quincy, Dedham, Westwood, Stoughton
722	NIH Redundancy & Covered Storage	Reading, Stoneham, Wakefield, Winchester, Woburn
723	Northern Low Service Rehab. - Sections 8	Chelsea, Boston, Everett
725	Hydraulic Model Update	All Water Communities
727	SEH Redundancy & Storage	Boston, Brookline, Canton, Milton, Norwood, Dedham, Westwood, Stoughton
730	Weston Aqueduct Supply Mains	Weston, Newton, Boston, Watertown, Cambridge, Waltham, Belmont, Arlington, Somerville
731	Lynnfield Pipeline	Lynnfield, Saugus
732	Walnut St. & Fisher Hill Pipeline Rehabilitation	Boston
753	Central Monitoring System	All Water Communities
763	Distribution Systems Facilities Mapping	All Water Communities
766	Waterworks Facility Asset Protection	All Water Communities
881	Centralized Equipment Purchase	All MWRA Customers
925	Technical Assistance	All MWRA Customers
930	North Maintenance Facility - Chelsea	All MWRA Customers
931	Business Systems Plan	All MWRA Customers
932	Environmental Remediation	All MWRA Customers
933	Capital Maintenance Planning/Development	All MWRA Customers
934	MWRA Facilities Management	All MWRA Customers
935	Alternative Energy Initiatives	All MWRA Customers

APPENDIX 6

Municipality and Project Reference by Project

APPENDIX 6

MUNICIPALITY/PROJECT(s)

Municipality / Project Number	Project
All MWRA COMMUNITIES	
211	Laboratory Services
881	Equipment Purchase
925	Technical Assistance
930	MWRA Facility - Chelsea
931	Business Systems Plan
932	Environmental Remediation
933	Capital Maintenance Planning/Development
934	MWRA Facilities Management
935	Alternatve Energy Initiatives
ALL WASTEWATER COMMUNITIES	
128	Infiltration/Inflow Local Financial Assistance Program
130	Siphon Structure Rehabiliation
132	Corrosion & Odor Control Study
137	Wastewater Central Monitoring
141	Wastewater Process Optimization
142	Wastewater Metering System Equipment Replacement
145	Interception & Pumping Facilities Asset Protection
146	D.I. Cross Harbor Tunnel
147	Randolph Trunk Sewer Relief
200	Deer Island Plant Optimization
206	Deer Island Treatment Plant Asset Protection
271	Residuals Asset Protection
ALL WATER COMMUNITIES	
541	Watershed Protection
597	Winsor Dam Hydroelectric
601	Sluice Gate Rehabilitation
620	Wachusetts Reservoir Spillway
621	Watershed Land
623	Dam Projects
625	Long-Term Redundancy
677	Valve Replacement
712	Cathodic Protection of Distribution Mains
725	Hydraulic Model Update
753	Central Monitoring System
763	Distribution Systems Facilities Mapping
765	Local Water Pipeline Improvement Loan Program
766	Watertown Facility Asset Protection
ALL WATER COMMUNITIES (except South Hadley, Chicopee, Wibraham, Worcester, Clinton, and Leominster)	
542	Walnut Hill Treatment Plant
544	Norumbega Covered Storage
604	MetroWest Tunnel
Arlington	
702	New Connecting Mains - Shaft 7 to WASM 3
704	Rehabilitation of Other Pump Stations
708	Northern Extra High Service - New Pipelines
713	Spot Pond Supply Mains Rehabilitation
730	Weston Aqueduct Supply Mains
Ashland	
136	West Roxbury Tunnel
Bedford	
702	New Connecting Mains - Shaft 7 to WASM 3
704	Rehabilitation of Other Pump Stations
708	Northern Extra High Service - New Pipelines
Belmont	
702	New Connecting Mains - Shaft 7 to WASM 3
704	Rehabilitation of Other Pump Stations
730	Weston Aqueduct Supply Mains
Boston	
136	West Roxbury Tunnel
139	South System Relief Project
324	CSO Support
339	North Dorchester Bay & Reserve Channel Conduits/CSO
340	South Dorchester Bay Sewer Separation (Fox Point)
341	South Dorchester Bay Sewer Separation (Commercial Pt.)
342	Neponset River Sewer Separation
344	Stony Brook Sewer Separation
347	East Boston Branch Sewer Relief
348	BOS019 Storage Conduit
350	Union Park Detention Treatment Facility
351	BWSC Floatables Control
353	Upgrade Existing CSO Facilities
354	Hydraulic Relief Facilities
355	MWR003 Gate and Siphon
356	Fort Point Channel Sewer Separation
357	Charles River CSO Controlls
358	Morrisey Boulevard Drain
359	Reserved Channel Sewer Separation
361	Bulfinch Triangle Sewer Separation
545	Blue Hills Covered Storage
549	SEH Additional Storage
683	Heath Hill Road Pipe Replacement
693	Northern High Service Pipe Improvements - Revere/Malden
702	New Connecting Mains - Shaft 7 to WASM 3
704	Rehabilitation of Other Pump Stations
713	Spot Pond Supply Mains Rehabilitation
714	Southern Extra High - Sections 41, 42, and 74
719	Chestnut Hill Connecting Mains
721	Southern Spine Distribution Mains
723	Northern Low Service Rehab. - Sections 8 & 57
727	SHE Redundancy & Storage
730	Weston Aqueduct Supply Mains
732	Walnut St. & Fisher Hill Pipeline Rehabilitation
Braintree	
104	Braintree-Weymouth Relief Facilities
147	Randolph Trunk Sewer Relief

APPENDIX 6

MUNICIPALITY/PROJECT(s)

Municipality	Project Number/Project
Brookline	
	131 Upper Neponset Valley Sewer System
	136 West Roxbury Tunnel
	357 Charles River CSO Controls
	360 Brookline Sewer Separation
	683 Heath Hill Road Pipe Replacement
	704 Rehabilitation of Other Pump Stations
	714 Southern Extra High - Sections 41, 42, and 74
	719 Chestnut Hill Connecting Mains
	721 Southern Spine Distribution Mains
	727 SHE Redundancy & Storage
Burlington	
	127 Cummingsville Replacement Sewer
Cambridge	
	324 CSO Support
	346 Cambridge CAM002-004 Sewer Separation
	352 Cambridge Floatables Control
	353 Upgrade Existing CSO Facilities
	354 Hydraulic Relief Projects
	355 MWR003 Gate and Siphon
	357 Charles River CSO Controls
	713 Spot Pond Supply Mains Rehabilitation
	730 Weston Aqueduct Supply Mains
Canton	
	101 Wastewater Metering System Upgrade
	545 Blue Hills Covered Storage
	549 SEH Additional Storage
	704 Rehabilitation of Other Pump Stations
	714 Southern Extra High - Sections 41, 42, and 74
	721 Southern Spine Distribution Mains
	727 SHE Redundancy & Storage
Chelsea	
	101 Wastewater Metering System Upgrade
	324 CSO Support
	347 East Boston Branch Sewer Relief
	349 Chelsea Trunk Sewer
	713 Spot Pond Supply Mains Rehabilitation
	723 Northern Low Service Rehab. - Sections 8 & 57

Municipality	Project Number/Project
Chicopee	
	543 Quabbin Water Treatment Plant
	548 Nash Hill Covered Storage
	615 Chicopee Valley Aqueduct Redundancy
	616 Quabbin Transmission System
Clinton	
	210 Clinton Wastewater Treatment Plant
Dedham	
	131 Upper Neponset Valley Sewer System
	136 West Roxbury Tunnel
	727 SEH Redundancy & Storage
Dover	
	136 West Roxbury Tunnel
Everett	
	347 East Boston Branch Sewer Relief
	713 Spot Pond Supply Mains Rehabilitation
	723 Northern Low Service Rehab. - Sections 8 & 57
Framingham	
	136 West Roxbury Tunnel
	617 Sudbury/Weston Aqueduct
Hingham	
	104 Braintree-Weymouth Relief Facilities
Holbrook	
	104 Braintree-Weymouth Relief Facilities
	617 Sudbury/Weston Aqueduct

APPENDIX 6

MUNICIPALITY/PROJECT(s)

Municipality	Project Number	Project
Lexington		
	702	New Connecting Mains - Shaft 7 to WASM 3
	704	Rehabilitation of Other Pump Stations
	708	Northern Extra High Service - New Pipelines
Lynn		
	618	Northern High NW Trans Section 70-71
	689	James L. Gillis Pump Station Rehabilitation
	692	Northern High Service Section 27 Improvements
	693	Northern High Service Pipe Improvements - Revere/Malden
Lynnfield		
	618	Northern High NW Trans Section 70-71
	689	James L. Gillis Pump Station Rehabilitation
	731	Lynnfield Pipeline
Malden		
	689	James L. Gillis Pump Station Rehabilitation
	693	Northern High Service Pipe Improvements - Revere/Malden
	713	Spot Pond Supply Mains Rehabilitation
Marblehead		
	618	Northern High NW Trans Section 70-71
	689	James L. Gillis Pump Station Rehabilitation
	692	Northern High Service Section 27
	693	Northern High Service Pipe Improvements - Revere/Malden
Medford		
	547	Fells Covered Storage
	689	James L. Gillis Pump Station Rehabilitation
	702	New Connecting Mains - Shaft 7 to WASM 3
	713	Spot Pond Supply Mains Rehabilitation
Melrose		
	618	Northern High NW Trans Section 70-71
	689	James L. Gillis Pump Station Rehabilitation
Milton		
	139	South System Relief Project
	545	Blue Hills Covered Storage
	704	Rehabilitation of Other Pump Stations
	714	Southern Extra High - Sections 41, 42, and 74
	721	Southern Spine Distribution Mains
	727	SEH Redundancy & Storage
Nahant		
	618	Northern High NW Trans Section 70-71
	689	James L. Gillis Pump Station Rehabilitation
	692	Northern High Service Section 27
	693	Northern High Service Pipe Improvements - Revere/Malden
Natick		
	136	West Roxbury Tunnel
	617	Sudbury/Weston Aqueduct Repairs
Needham		
	136	West Roxbury Tunnel
Newton		
	131	Upper Neponset Valley Relief Sewer
	136	West Roxbury Tunnel
	702	New Connecting Mains - Shaft 7 to WASM 3
	715	Newton Service Improvements
	719	Chestnut Hill Connecting Mains
	730	Weston Aqueduct Supply Mains
Norwood		
	545	Blue Hills Covered Storage
	549	SEH Additional Storage
	704	Rehabilitation of Other Pump Stations
	714	Southern Extra High - Sections 41 and 42
	721	Southern Spine Distribution Mains
	727	SEH Redundancy & Storage
Peabody		
	618	Northern High NW Trans Section 70-71
	689	James L. Gillis Pump Station Rehabilitation
	693	Northern High Service Pipe Improvements - Revere/Malden

APPENDIX 6

MUNICIPALITY/PROJECT(s)

Municipality	Project Number/Project
Quincy	
	104 Braintree-Weymouth Relief Facilities
	545 Blue Hills Covered Storage
	721 Southern Spine Distribution Mains
Randolph	
	104 Braintree-Weymouth Relief Facilities
	147 Randolph Trunk Sewer Relief
Reading	
	689 James L. Gillis Pump Station Rehabilitation
	722 NIH Redundancy & Covered Storage
Revere	
	324 CSO Support
	349 Chelsea Trunk Sewer
	353 Upgrade Existing CSO Facilities
	693 Northern High Service Pipe Improvements - Revere/Malden
Saugus	
	618 Northern High NW Trans Section 70-71
	689 James L. Gillis Pump Station Rehabilitation
	693 Northern High Service Pipe Improvements - Revere/Malden
	731 Lynnfield Pipeline
Somerville	
	324 CSO Support
	353 Upgrade Existing CSO Facilities
	702 New Connecting Mains - Shaft 7 to WASM 3
	713 Spot Pond Supply Mains Rehabilitation
	730 Weston Aqueduct Supply Mains
South Hadley	
	543 Quabbin Water Treatment Plant
	615 Chicopee Valley Aqueduct Redundancy
	616 Quabbin Transmission System
Stoneham	
	618 Northern High NW Trans Section 70-71
	689 James L. Gillis Pump Station Rehabilitation
	722 NIH Redundancy & Covered Storage
Stoughton	
	714 Southern Extra High - Sections 41, 42, and 74
	721 Southern Spine Distribution Mains
	727 SEH Redundancy & Storage
Sudbury	
	617 Sudbury/Weston Aqueduct Repairs
Swampscott	
	618 Northern High NW Trans Section 70-71
	689 James L. Gillis Pump Station Rehabilitation
	692 Northern High Service Section 27

Municipality	Project Number/Project
Wilbraham	
	543 Quabbin Water Treatment Plant
	615 Chicopee Valley Aqueduct Redundancy
	616 Quabbin Transmission System
Wakefield	
	618 Northern High NW Trans Section 70-71
	689 James L. Gillis Pump Station Rehabilitation
	722 NIH Redundancy & Covered Storage
Waltham	
	702 New Connecting Mains - Shaft 7 to WASM 3
	704 Rehabilitation of Other Pump Stations
	708 Northern Extra High Service - New Pipelines
	730 Weston Aqueduct Supply Mains
Watertown	
	702 New Connecting Mains - Shaft 7 to WASM 3
	704 Rehabilitation of Other Pump Stations
	730 Weston Aqueduct Supply Mains
Wellesley	
	136 West Roxbury Tunnel
	617 Sudbury/Weston Aqueduct Repairs
West Roxbury	
	131 Upper Neponset Valley Relief Sewer
Weston	
	617 Sudbury/Weston Aqueduct Repairs
	730 Weston Aqueduct Supply Mains
Westwood	
	714 Southern Extra High - Sections 41, 42, and 74
	721 Southern Spine Distribution Mains
	727 SEH Redundancy & Storage
Weymouth	
	104 Braintree-Weymouth Relief Facilities
Winchester	
	127 Cummingsville Replacement Sewer
	689 James L. Gillis Pump Station Rehabilitation
	702 New Connecting Mains - Shaft 7 to WASM 3
	704 Rehabilitation of Other Pump Stations
	722 NIH Redundancy & Covered Storage
Winthrop	
	693 Northern High Service Pipe Improvements - Revere/Malden
Woburn	
	127 Cummingsville Replacement Sewer
	689 James L. Gillis Pump Station Rehabilitation
	722 NIH Redundancy & Covered Storage

APPENDIX 7

MWRA Completed Projects

Appendix 7

MWRA Completed Projects
(as of June 30, 2008)

Project	Total Cost ($000)	Completion Date	Summary
Wastewater	$4,121,608		
Waterworks	$269,933		
Business and Operations Support	$36,293		
MWRA Total	$4,427,834		

Wastewater			
Boston Harbor Project	$3,518,800	Nov-01	BHP constructed to minimize the pollution of Boston Harbor. The new Deer Island Primary and Secondary Treatment Facilities are the largest components of the Project to comply with the requirements of the federal Clean Water Act and to improve the harbor for recreational and commercial uses.
S.101 Wastewater Metering System Upgrade	$7,516	Dec-93	Construction of system to provide accurate flow data.
S.102 Quincy Pump Facilities	$25,908	*Sep-03*	*Constructed 3 new pumpstation and rehabbed force mains to ensure continuous pumping to treatment facilitities.*
S.103 Hingham Pump Station	$3,027	Apr-92	Elimination of untreated sewage discharges.
S.105 New Neponset Valley Relief Sewer	$30,300	*Jul-96*	*Relief facilities to correct structural and hydraulic deficiencies in the New Neposet Valley Interceptor Sewer System.*
S.106 Wellesley Extention Replacement Sewer	$64,359	Jan-96	Construction of a replacement sewer and rehabilitation of sections of existing sewer lines to alleviate capacity restraints, improve the water quality of the Charles River, protect aquifers, and reduce back-ups in Needham and Dedham.
S.107 Framingham Extension Relief Sewer	$47,856	*Sep-04*	*Installation of a new force main and gravity sewer and construction of a new pumpstation.*
S.108 Alewife Brk Pkwy Pump St Rehab	$1,455	May-95	Replacement of equipment, construction of building addition and wetwell modifications.
S.110 East Boston Pump Facilities	$48,304	Jan-93	Constructed to eliminate sewage back-ups.
S.113 Millbrook Valley Intermediate Relief	-$1	Mar-90	Evaluation of current siphon condition and development of a system for improved waste disposal.
S.112 Charlestown Pump Station Replacement	$32,529	Apr-93	New 93 mgd pump station to increase pumping efficiency and eliminate overflows to the Mystic River.
S.115 Reading Pump Station Replacement and Extension Relief Sewer	$412	Sep-87	Elimination of surcharges, reduction in staff requirements, and correction of safety hazards.

S.117 Slade's Siphon	$1	Sep-88	Elimination of seawater inflows and sewage overflows.
S.118 Bell Isle Siphon Rehabilitation	$78	Apr-89	Reduction of salt water infiltration and increase in system capacity.
S.129 North Metropolitan Trunk Sewer	$11,997	Mar-99	Rehabilitation of a 19,700 linear-foot 100-year old sewer line.
S.138 Sewerage System Mapping	$281	*Apr-04*	*Updated and new GIS maps of sewer system.*
S.143 Regional I/I Management Planning	$169	*Jun-03*	*Reduction in infiltration and inflow water entering the MWRA system.*
S.178 Deer Island Pump and Power Station Upgrade	$32,943	Feb-91	Constructed to prevent sewage surcharges and overflows in the upstream sewer system by improving flows to Deer Island Tunnel System and Plant.
S.179 Deer Island Remote Headworks Improvements	$27,450	Jul-99	Facility rehabilitation restored headworks capacity.
S.180 D.I. Sedimentation Tank System Improvements	$1,684	Jul-89	Restoration of operating efficiency by replacing 80 inlet sluice gates and baffles, rehabilitation of control building and other improvements.
S.181 Deer Island Intermediate Upgrade	$9,490	Jun-92	Upgrade of the old Deer Island treatment plant.
S.184 Nut Island Immediate Upgrade	$1,254	Dec-86	Upgrade or replacement of equipment, including switch gear, sludge cross collectors and replacement of electric distribution substation to accommodate increased flows to Deer Island Treatment Plant.
S.185 Clinton Wastewater Treatment Plant	$36,747	Sep-92	Upgrade existing plant to improve water quality and met standards by rehabbing and new equipment.
S.187 Deer Island Sludge Thickeners Rebuilding	$114	Sep-88	Ensuring efficient operation of Deer Island treatment plant digesters.
S.189 DI Dual Fuel Engine	$281	Jan-06	Overhaul of five diesel engines.
S.190 Deer Island Electrical Equipment Upgrade	$27,775	Mar-88	Restoration of system operating efficiency.
S.191 Deer Island Chlorination Facility Rehabilitation	$4	Mar-89	Provision of effective disinfection operation and safe working environment.
S.194 Nut Island Intermediate Upgrade	$2,686	Dec-92	Improvements to ensure effective operation of the Nut Island treatment plant.
S.196 Other Wastewater	$92	Apr-90	Removal of hazardous materials from wastewater facilities and creation of on-going safety management programs.
S.197 Deer Island Treatment Plant Outfall Repair	$1,300	Sep-97	Repair of effluent discharge Outfall 002.

S.198 Boston Harbor Performance Certification	$1,275	Dec-02	Certification required for continuous federal grant and loan programs during construction.
S.261 Residuals	$173,513	Dec-01	Phase 1 Feb - 92 - construction of the Residuals Treatment Facility at ore River Staging Area (FRSA). Termination of the sludge discharge to Boston Harbor. Phase 2 Dec-01 - To expand the residuals processing plate at the FRSA in Quincy to provide the capacity to process the sludge quantities produced by Deer Island.
S.325 Fox Point CSO Facility	$160	Apr-89	Elimination of untreated sewage discharges.
S.326 Commercial Point CSO Facility	$7,117	Feb-91	Improvements to water quality by reducing wet weather overflows via construction of a screening and disinfection facility.
S.327 Southwest Corridor CSO	-$6	Fall 86	Elimination of combined sewer overflows.
S.330 St. Mary's Street CSO Modifications	$17	Feb-87	Identification of solution for storm water detention.
S.332 Somerville Marginal CSO Rehabilitation	$98	Feb-89	Elimination of inadequately treated sewage discharges.
S.338 Cottage Farm CSO Ventilation System Repairs	$133	Sep-94	Rehabilitation of HVAC duct work.
S.402 Comprehensive Safety Action Project	$891	Nov-90	Correction of safety hazards at MWRA facilities and establishment ongoing safety management program.
S.403 Sewerage Division Management Services	$1,930	Dec-86	Provision of engineering design and construction advice.
S.924 Harbor Environmental Studies	$1,666	Jun-92	Collection and study of harbor water quality data.
Sub-Total Wastewater	**$4,121,608**		

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Waterworks			
S.533 Local Sources of Supply	$2,108	Jul-95	Provision of assistance to communities to promote effective protection of existing local water supply sources and encourage development of additional local sources where feasible.
S.535 Reservoir Risk Assessment	$647	Jun-92	Development of maps and data to determine at risk areas.
S.537 Drinking Water Quality Improvement Wachusett	$8,331	Oct-95	To comply with Safe Drinking Water Act to strengthen quality standards for water supply from Wachusett.
S.538 Sudbury Reservoir Treatment Plant Study and EIR	$513	Sep-92	Evaluation of alternative uses of the Sudbury Reservoir.
S.539 Drinking Water Quality Improvement Quabbin	$307	Nov-98	To comply with Safe Drinking Water Act to strengthen quality standards for water supply from Quabbin.
S.541 Watershed Protection	$8,500	Dec-03	To develop watershed protection measures for the MWRA/MDC reservoir system.
S.547 Fells Covered Storage	$18,004	Jun-00	Covered storage for Northern High Service System.
S.548 Nash Hill Covered Storage	$14,296	Jul-99	To improve the quality of drinking water to the three Chicopee Valley Aqueduct communities.
S.598 Wachusett Reservoir By-pass Tunnel	$15	Jan-89	Evaluation of the option of constructing a tunnel by-pass.
S.599 Dam Control Valve Replacement	$1,751	Jul-98	Valve replacement at Sudbury Reservoir in Southborough and Wachusett Dam.
S.600 Oakdale Power Station Generator Repair	$881	Sep-91	Repair of substation metering and transformer systems.
S.601 Sluice Gate Rehab	$9,158	Jun-05	Installation of motorized gates and 12 facilities rehabilitated.
S.602 Hultman – Weston Aqueduct Transfer for Hydropower	$4,506	May-89	Production of approximately 3,700,000 kW hours per year of electricity.
S.603 Transmission Maintenance Facility	$5,025	May-93	Construction of new waterworks maintenance facility in Southborough.
S.605 Echo Bridge Rehabilitation	$356	Sep-92	Repair and cleaning of bridge façade and construction of new surface topping.
S.606 Norumbega Chlorination Facility	$10	Mar-89	Provision of a new water disinfection facility.
S.607 Weston Reservoir Chlorination Facility	$2,539	Jun-93	Replacement of obsolete facility with new 4,000 sq.ft. chlorination and ammonia feed facility.
S.675 Water Distribution Master Plan	$1,178	Mar-93	Development of data base and recommendations for master plan.
S.676 Water Meter Modernization	$12,957	Jun-90	Rehab of 139 revenue meters

Appendix 7

S.678 Boston Low Service Pipe & Valve Rehab	$23,691	*Sep-03*	*Improve the condition and operability of the pipelines serving the Boston Low Service System.*
S.679 Nonantum Road Pipe Rehabilitation	$2,138	Mar-97	Rehabilitation and/or replacement of deteriorated pipeline.
S.680 Orient Heights Booster Pump Station	$3	Sep-90	Construction of a booster pump station to increase pressure throughout the Orient Hieght distribution system.
S.681 Southern Service Improvements	$14,450	Oct-99	Reliability and capability improvements to pipelines and pump stations serving the Southern service area.
S.683 Heath Hill Road	$19,368	Oct-07	Repair and improve pipelines and valves in Southern High and Southern Extra High Service areas.
S.684 Commonwealth Ave Pump Station	$8,503	Dec-99	Modernize and improve station serving a major portion of Newton.
S.685 Ward Street Pump Station	$24	Aug-89	Evaluation of the feasibility of pump station rehabilitation.
S.686 Dudley Road Pump Station	$55	Jun-91	Evaluation of the feasibility of pump station rehabilitation.
S.687 Lexington St Pump Station Rehabilitation	$3,985	Jun-99	Installation of larger capacity pumping units, backup power generation, and various electrical upgrades.
S.688 Northern Intermediate High Pipelines	$927	Nov-88	Increase in pipe capacity and pressure.
S.689 James L. Gillis Pump Station Rehab	$33,408	May-02	To improve and modernize pumping facilities.
S.690 Northern Low Service Pipeline Replacement	$714	Aug-99	Repair of Section 16W with replacement and pipe slip lining methods.
S.691 Northern High Service Improvements - Lynn Pipeline	$13,483	Jun-99	Installation of a new primary supply line for the northeast section of the Northern High Service System.
S.701 Northern Extra High Service – Bedford Pipeline	$71	Jan-92	Development of a plan to supply water to Bedford.
S.706 NHS - Con. Mains from Section 91	$2,360	Jun-02	To integrate the new Section 91 pipeline with the existing grid network, improving service pressures and reliability to community meters.
S.714 Southern Extra High Sections 41 & 42	$3,657	Dec-00	To increase hydraulic capacity of the mains that carry water to the Bellevue Tanks.
S.715 Newton Service Improvements	$5,762	Nov-99	New supply to Newton's Oak Hill Tank replacing an antiquated pump station and providing some system redundancy in the area.
S.716 Water Main Relocation in Chelsea River	$10,648	Nov-00	Relocation of the Section 8 water main over the Chelsea River.
S.720 Warren Cottage Line Rehab	$1,205	Dec-02	To improve the carrying capacity and internal condition of the Warren Cottage Line.

S.754 Domestic Device Retrofit	$10,319	Dec-93	Installation of water saving devices to reduce demand.
S.755 Leak Detection Survey	$751	Aug-90	Provision of data on the magnitude and location of water leaks.
S.756 Asbestos Abatement	$562	Aug-90	Elimination of asbestos in MWRA facilities.
S.757 PCB Abatement	$423	Aug-91	Replacement of equipment with unacceptable levels of PCB concentrations.
S.758 Rehab of Existing Facilities	$14,173	Nov-02	Upgrade various facilities in need of significant capital improvement.
S.759 Municipal Toilet Replacement	$127	Dec-90	Reduction in water consumption.
S.760 Chestnut Hill Pump Station REH	$559		
S.764 Local Water Infrastr Rehab Ast Progr	$7,488	Jun-04	To provide financial support to MWRA waterworks communities to replace, rehabilitate, and maintain their waterworks system infrastructures.
Sub-Total Water	**$269,935**		
Business &			
S.901 Charlestown Headquarters	$6,827	Jun-91	Provision of office equipment at MWRA headquarters.
S.921 Management Information Service	$24,117	Dec-92	Enhancement to information systems to support more effective management of MWRA business activities.
S.922 Fore River Preservation	$4,946	Nov-97	Modify FRSA for on-going construction and operational support.
S.929 Affirmative Action	$403	Mar-91	Evaluation of minority participation in the MWRA procurement process.
Sub-Total BOS	**$36,293**		

APPENDIX 8

Expected Useful Life of Capital Projects

APPENDIX 8

EXPECTED USEFUL LIFE OF CAPITAL PROJECTS

The estimated useful lives of the MWRA's capital projects are summarized below:

Type of Capital Improvement	Estimated Useful Life (in years)
Study	5
Equipment	15
Cathodic Protection	15
Stop Planks	40
Control Valves	40
Pipeline	50
Relief Sewer	40
Pump Station	40
Sewerage Treatment Facilities	40
Water Treatment Facilities	50
Covered Storage Facilities	50
Tunnels	100