2009 CSO Annual Report
National Pollutant Discharge Elimination System

FOR THE

CITY OF CAMBRIDGE, MASSACHUSETTS
COMBINED SEWER OVERFLOW PERMIT
#MA0101974

April 2010

Submitted to:

U.S. Environmental Protection Agency
Water Technical Unit

MA Department of Environmental Protection
Bureau of Resource Protection

Submitted by:

City of Cambridge
Department of Public Works

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

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Signature of Authorized Official: Robert W. Healy
City Manager, City of Cambridge

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Date

TABLE OF CONTENTS

1.0 Purpose of Report

This Annual Report has been prepared in accordance with Part I, Section D of permit No. MA0101974 (the Permit), issued to the City of Cambridge Department of Public Works (the City) on September 30, 2009 (effective February 1, 2010) under the National Pollutant Discharge Elimination System (NPDES) program. The Permit authorizes the City of Cambridge to discharge twelve Combined Sewer Overflows (CSOs) to receiving water bodies named in the Permit. The twelve CSOs are associated with eleven regulator structures. Three (3) CSOs are temporarily plugged and nine (9) of the twelve CSOs are capable of discharging effluent under current physical configurations. A copy of the Permit is provided in **Appendix A**.

The Annual Report has been structured to present required components in the order provided in the Permit. Consequently, Chapter 2 describes the existing Combined Sewer Overflow Monitoring Plan, summarizes 2009 CSO activations, and presents the proposed modifications to the program, to the extent necessary, to be implemented during the 2010 – 2014 Permit reporting period. The daily precipitation data for 2009 is provided in **Appendix B1.** Monthly CSO discharge volumes are provided in **Appendix B2**. Chapter 3 describes the status of CSO abatement projects for which the City of Cambridge is directly responsible under relevant regulatory and legal frameworks.

In addition to the CSO annual reporting requirements of the permit, the City is required to provide an updated Nine Minimum Controls (NMC) Plan with the 2009 (Year1) Annual Report (April 30, 2010). The updated NMC Plan is to describe any modifications to the approved NMC Plan (dated 1997) based upon review of the current controls and enhancements regarding their effectiveness. At a minimum, the updated NMC Plan is to include or exceed all of the minimum implementation levels (MILs) described in Part I.C of the permit. Chapter 4 provides a brief summary of modifications contained within the updated NMC Plan. Subsequent Annual Reports will include additional sections relative to specific permit obligations which apply to investigations and analyses to be performed in future permit reporting periods. The updated NMC Plan has been provided as **Appendix C** of this first Annual Report. Hereafter, results of the annual evaluation of effectiveness and modifications to controls will be provided as a summary table.

2.0 Combined Sewer Overflow Monitoring Plan

The original January 1997 Nine Minimum Controls Plan did not detail specifics of protocols or means by which CSO activations were monitored or volumes of discharge estimated. The objective of the measure, as it was described at that time, was to "provide an initial characterization of the Combined Sewer System (CSS); to collect and document information on overflow occurrences and related known water quality problems and incidents that reflect use impairments caused by CSOs." The protocols to achieve the initial objective, and ongoing obligation to monitor and report, have been developed over the intervening years and continue to be refined by the City of Cambridge. Section 2.1 describes the existing methodology by which the City estimates effluent volumes and characterizes CSO events. Section 2.2 presents data from calendar year 2009 based on this approach, and Section 2.3 describes recommended enhancements and reporting methodology to be utilized by the City going forward.

2.1 Existing CSO Monitoring Methodology

As part of the City's current NPDES Permit, the Department of Public Works (DPW) monitors flow over existing weirs within combined sewer overflow regulator structures to estimate CSO discharge to the Charles River and Alewife Brook. Currently there are 12 permitted CSO locations associated with 11 CSO regulator structures. CAM 002A and CAM 002B are associated with a single regulator structure at CAM 002A. Of these 11 regulator structures, three have been temporarily plugged (CAM 002B, CAM 009, and CAM 011) resulting in nine active CSO outfalls currently being metered: CAM 001 (Alewife Brook Parkway), CAM 002A (Massachusetts Ave. at Alewife Brook Parkway), CAM 004 (Fresh Pond Rotary), CAM 400 (Harrison Ave. at Alewife Brook Parkway), CAM 401A (Bellis Circle/Sherman Street), CAM 401B (Massachusetts Ave. at Alewife Brook Parkway) discharging to Alewife Brook; and CAM 005 (Mount Auburn Hospital), CAM 007 (Memorial Drive at Hawthorne Street), and CAM 017 (Binney Street at First Street) discharging to the Charles River.

Metering is typically performed by measuring the depth of flow in the structure and computing discharge using a weir equation. In addition, CAM 002A and CAM 005 have secondary area and velocity flow measuring devices in place at the CSO outfall pipe to more accurately determine the CSO overflow discharge.

Weir Equation: Currently the City uses the following rectangular contracted weir equation as provided by the flow meter manufacturer to compute flow over a standard weir:

$$Q = K(l - 0.2h)h^{1.5}$$

Where:

Q is flow measured in cubic feet per second (CFS)

l is the weir crest length in feet

K is the weir coefficient equal to 3.330, when $1 \leq l \leq 10$ feet

h is the head on the weir in feet, the limits of which vary according to l as follows:

Weir Length l (ft.)	**h minimum (ft.)**	**h maximum (ft.)**
1	0.2	0.5
1.5	0.2	0.75
2	0.2	1.0
2.5	0.2	1.25
3	0.2	1.5
4	0.2	2.0
5	0.2	2.5
6	0.2	3.0
8	0.2	4.0
10	0.2	4.5

The CSO regulator weir crest lengths as reported under existing conditions are:

Location	**Weir Length (ft.)**
CAM 001 (Alewife Brook Pkwy)	1.46
CAM 002A (Massachusetts Ave at Alewife Brook Pkwy)	3.97
CAM 004 (Fresh Pond Rotary)	7.50
CAM 400 (Harrison Ave at Alewife Brook Pkwy)	7.48
CAM 401A (Bellis Circle at Sherman Street)	19.96
CAM 401B (Massachusetts Ave at Alewife Brook Pkwy)	2.17
CAM 005 (Mount Auburn Hospital)	3.94
CAM 007 (Memorial Drive at Hawthorne Street)	6.29
CAM 017 (Binney Street at First Street)	8.00

The summary of CSO activations for 2009 which follows is based on activation and quantification results based exclusively on the weir equations and flow measuring devices in use during 2009, as described above.

2.2 Summary of 2009 CSO Activations

Frequency and Volume

Based on the monitoring procedures described above, there were four (4) activations recorded resulting in CSO discharges to the Charles River. There were no instances in which either the number of activations for a specific outfall, or volume of discharge at a specific outfall, exceeded the effluent limitations stipulated in the Permit. There were

eighteen (18) total activations resulting in discharges to Alewife Brook. CAM-002A/B experienced seven (7) of these activations with a total volume of estimated effluent at 0.86 million gallons. Neither the activation frequency nor total volume of effluent exceeded interim limitations established in the Final Variance Report for Alewife Brook and the Upper Mystic River (EOEA No. 10335). CAM-004, which is scheduled to be closed upon completion of proposed CSO abatement projects, experienced seven (7) activations. Neither frequency nor volume interim limitations were exceeded. CAM-401B experienced four (4) activations. Neither frequency nor volume limits were exceeded. A summary of effluent limitations and 2009 activations is provided in Tables 2.1 and 2.2.

The twenty-two (22) total activations were the result of seven (7) rain events which averaged 1.7 inches of rain fall per event. Precipitation data for each day of the 2009 reporting period is provided on monthly tables in **Appendix B1**. In conformance with permit requirements under Part 1, Section D(2), data is provided for each day, including total rainfall, peak intensity, and average intensity. The monthly CSO volume data sheets are provided in **Appendix B2**.

Duration

CSO flow data is recorded by the City at the nine active discharging outfalls. As described below in Section 2.3, the flow data is derived from flow meters that measure height of water over a weir wall and compute flow rate based on site specific parameters. The data is downloaded by the DPW Staff from the flow meters. Each data file contains the name of the CSO site and the data showing the date and time of the measurement and the corresponding calculated flow rate, taken in 10-15 minute increments. The duration of each overflow event is then calculated from the metering data by looking at when the flow begins and ends and estimating the total time over which flow occurs. The duration of the activations are provided in Table 2.3.

Table 2.1
Summary of 2009 Activations
Charles River CSOs

Receiving Water	Outfall No.	Discharge Location	Final Effluent Limitations		2009 Effluent Discharges	
			Annual Activation Frequency	Annual Volume (million gallons)	2009 Activation Frequency	2009 Volume (million gallons)
Charles River	CAM-005	Lowell Street at Mt. Auburn	3	0.84	3	0.09
	CAM-007	Memorial Drive at Hawthorne St.	1	0.03	0	0
	CAM-009	Memorial Drive at Old Murray Rd.	2	0.01	0	0
	CAM-011	Plympton St.	0	0	0	0
	CAM-017	Binney St. at Edwin Land Blvd.	1	0.45	1	0.045

Note: Approximately 1.5 million gallons flowed from the Charles River back into the MWRA interceptor through CAM-007.

Table 2.2
Summary of 2009 Activations
Alewife Brook CSOs

Receiving Water	Outfall No.	Discharge Location	Final Effluent Limitations		Interim Effluent Limitations*		2009 Effluent Discharges	
			Annual Activation Frequency	Annual Volume (million gallons)	Annual Activation Frequency	Annual Volume (million gallons)	2009 Activation Frequency	2009 Volume (million gallons)
Alewife Brook	CAM-001	Foch Street @Alewife Brook Pkwy	5	0.19	0	0	0	0
	CAM-002A CAM-002B	Alewife Brook Pkwy @ Mass. Ave.	4	0.69	7	1.52	7	0.86
	CAM-004	Concord Ave. Rotary	0	0	14	7.69	7	7.65
	CAM-400	Alewife Brook @ Harrison Ave. Ext.	0	0	10	0.78	0	0
	CAM-401A	Sherman St. and Alewife Brook @ B&M Railroad	5	1.61	7	2.77	0	0
	CAM-401B	Alewife Brook @ Mass. Ave.	7	2.15	25	10.7	4	0.003

Note: No volume was recorded for two activations from CAM-401B due to meter malfunction.

* Interim Limitations are described in the Final Variance Report for Alewife Brook and the Upper Mystic River (EOEA No. 10335 (provided in Appendix A)

Table 2.3
CSO Activation Durations - 2009

	Event Date & Time)	Duration (Hour:Min)
CAM 001	-	-
CAM 002A	4/6/2009 16:45	0:45
	7/2/2009 9:30	1:00
	7/24/2009 2:30	0:30
	7/30/2009 11:00	0:20
	7/31/2009 12:50	1:00
	9/12/2009 7:40	1:20
	11/14/2009 9:50	0:40
CAM 004	4/6/2009 16:30	1:00
	7/2/2009 9:30	1:30
	7/24/2009 3:30	4:15
	7/30/2009 11:00	0:45
	7/31/2009 17:30	0:30
	9/12/2009 7:45	2:45
	11/14/2009 10:00	4:15
CAM 005	7/2/2009 13:15	0:15
	7/30/2009 11:00	0:15
	9/12/2009 7:45	0:15
CAM 007	-	-
CAM 009	-	-
CAM 011	-	-
CAM 017	9/12/2009 7:45	2:45
CAM 400	-	-
CAM 401A	-	-
CAM 401B	7/2/2009 13:00	0:15
	7/24/2009 0:00	*
	9/12/2009 0:00	*
	11/14/2009 10:00	0:15

- No activations

** Flow meter malfunction - duration data not available*

2.3 CSO Monitoring Plan Analysis

The purpose of this analysis is to evaluate the current monitoring plan and to improve upon it if possible by modifying the present metering approach, and thus improve CSO activation reporting under the current NPDES permit.

The City is proposing to continue to utilize weir equations to provide estimates of the combined sewer overflow quantities as part of routine reporting of activations at the various regulators and will, as part of the Year 2 (2011) Annual Report, further refine these results using model simulations where CSO activations are impacted by the river systems.

River Backwater Effects

While the Charles River is controlled by a downstream dam and has an average water surface elevation between 12.2-ft and 13.0-ft Cambridge City Base (CCB) datum, the Alewife Brook is much more prone to hydraulic gradeline impacts during storm events, and in many situations may rise above the outlet pipe or weir crest elevation, further restricting discharge from the pipe. Table 2.4 provides an estimate of when each CSO structure may experience backwater conditions associated with high river levels that surcharge over the weir elevation.

Table 2.4
CSO Overflow Backwater Impact Summary

CSO Regulator Structure	Existing Weir Elevation (CCB)	Proposed Weir Elevation (CCB)	Approximate Storm Event with Tailwater Submergence
CAM 001	14.52	15.2	> 5-year
CAM 002A	17.36	17.3	> 25-year
CAM 004	14.49 15.16	-	> 5-year
CAM 400	14.94	-	> 5-year
CAM 401A	17.04	-	25-year
CAM 401B	14.84	14.2	5-year
CAM 005	14.82	-	N/A
CAM 007	13.15	-	N/A
CAM 017	14.49	-	N/A

CSO Regulator Structures

The methodology used to calculate overflows at each regulator structure has been reviewed and evaluated as described below. Where appropriate, revisions to existing calculation methodology are proposed. In addition, calculations will continue to be updated based on field investigations in order to reflect current field conditions.

CAM 001

The CAM 001 CSO structure involves a stainless steel weir that is located within a 17.5" pipe connection between the regulator structure and an overflow manhole along the bank of the Alewife Brook. The System Optimization Program (SOP) weir at this location has been removed but is scheduled to be restored during the ongoing floatable control construction project. In the interim, the City is evaluating level of service issues in the contributing area. Under proposed conditions, the weir crest will be at a height of 1.02 feet above the pipe invert (elevation = 15.22-ft CCB), such that a clearance of only 0.4 feet will remain. However, under existing conditions, the weir crest is only 0.34 feet above the pipe invert (elevation = 14.52-ft CCB), with a remaining clearance of approximately 1.1 feet. It should also be noted that this overflow is located high within the structure, so the estimated clearance between the existing weir configuration and the structure ceiling is approximately 2.1-ft under existing conditions.

Consequently, for smaller storms (less than the 5-year event), the City will utilize an updated site specific equations to account for these orifice flow conditions. For storms greater than the 5-year storm, backwater conditions will impact the flow and discharge from this CSO. The City will attempt to model such including the river impact for larger events in subsequent annual reports.

CAM 002A

The standard weir equation provides an accurate picture of CSO discharge for CAM002A. It is important to note that upon completion of current construction within this CSO structure, the configuration of this discharge will change and require an updated weir equation. Based on the current weir elevation of 17.36-ft (CCB) there should be no backwater effect at this outfall until exceeding the 25-year storm event. Fortunately at this site, an area / velocity meter has been previously installed and it will continue to be used to verify the accuracy of CSO overflows from the CAM 002A site.

CAM 004

This CSO is located within Drain Vault 5 within the Alewife Brook Rotary at the junction of Concord Avenue and The Alewife Brook Parkway. The weir structure within this CSO is a complex weir with the lowest weir having a length of 7.5 ft and being perpendicular to the direction of flow, while as the two higher weirs are aligned parallel to the direction of flow and are 8 inches higher and totaling in length an additional 17 feet. To better represent overflows at this structure, a site specific equation will be used that includes the summation of flows over the low level weir and both of the high level weirs. Note that the weir coefficient for the parallel weirs has been reduced to account for additional losses over this side weir configuration. Combining the terms of these three separate weir equations into one

equation that utilizes a value of 'h' representing the height above the lower weir, gives the following:

$$Q = C_{w1}(l_1 - 0.2h)h^{1.5} + 2C_{w2}(l_2 - 0.2(h - 0.67))(h - 0.67)^{1.5}$$

Where:

$C_{w1} = 3.33$
$C_{w2} = 2.6$
$0.67 < h < 1.7$
$l_1 = 8$
$l_2 = 8.5$

Nevertheless, the standard weir equation should continue to be used for head values less than 0.67-ft above the weir crest, while for values between 0.67-ft to 1.7-ft a modified version of the standard weir equation will be used that assumes three parallel weirs with crest lengths of 8-ft, 8.5-ft, and 8.5-ft to account for flow over all three existing weirs. For events exceeding the 5-year storm, a surcharging condition will be assumed where river backwater impacts should be considered, and as was reported earlier, those flows would be reported as part of the annual reporting requirements, rather than throughout the year.

Another factor to consider is that under future conditions, the downstream Wheeler Street drain is scheduled to be cleaned and additional infrastructure put in place as part of the City's CAM004 sewer separation contract (Contract 12). The results of these improvements will again impact the predicted model values and a revised curve will be developed at that time to more accurately represent these future conditions.

CAM 400

The standard equation will continue to be used to predict the flow for this CSO.

CAM 401A

Due to the complicated nature of this structure and the existing floatables control brush screen at the existing weir, an alternative weir equation was used for comparison to the standard equation. This configuration requires a weir coefficient of K = 2.4 (based on information from the brush screen manufacturer) to replace the standard weir equation coefficient of 3.33. Consequently the equation used for this CSO structure overflow was:

$$Q = 2.4(l - 0.2h)h^{1.5}$$

The City will use this revised weir equation for future flow estimates. It should be noted that similar to other CSOs, this system will experience a backwater effect above the weir elevation for the 25-year storm event and above and will be subject to additional analysis when submitting annual reports.

CAM 401B

For storms less than the 5-year event, the standard weir equation will continue to be used, but for storms greater than the 5-year, a model simulation will be required to more

accurately account for backwater effects within the system. This analysis would be done at the end of the year in the next annual report. The City will continue to investigate the possibility of installing a depth / velocity meter in the downstream outfall pipe to further verify flows and volumes.

CAM 005

Similar to CAM 002A, an area / velocity meter has been installed in the downstream overflow pipe, and it will continue to authenticate CSO overflows from the CAM 005 site instead of relying solely on the weir equations or model output.

CAM 007

The standard weir equation is accurate in this scenario, and the City will continue to use this existing equation for flow approximation purposes.

CAM 017

For the CAM017 structure, the present weir equation approximates flows similar to the model prediction, with the only difference being the peak of the model prediction upon h reaching the structure's ceiling. Thus the City will continue to use the weir equation for $h < 2.5$ feet, but will use modeled flow approximations for h in excess of this height.

Note that this structure will undergo considerable modifications over the next year to replace the existing weir configuration and install a large bending weir flow control device. Similar to other CSO structures scheduled for system improvements in 2010 and 2011, the equations and curves will be re-evaluated following construction to ensure that the most appropriate assumptions are being used.

3.0 Status of CSO Abatement Projects

The City of Cambridge continues to implement abatement projects in accordance with the Massachusetts Water Resources Authority (MWRA) Final CSO Facilities Plan, the Federal Court Order (US v. MDC., et al., No. 85-0489 (D. Mass)), as amended by the Second Stipulation of the United States and the Massachusetts Water Resources Authority on Responsibility and Legal Liability for Combined Sewer Overflow Control. The Second Stipulation has been provided as an attachment to the Permit in **Appendix A** of this report. The information provided in this Annual Report conforms to information and data submitted to the MWRA for inclusion in their court-ordered annual report on CSO abatement project progress.

As described in more detail in the MWRA 2009 Progress Report (available at http://www.mwra.com/cso/csoannualreports.htm), the most current CSO Control Plan for Alewife Brook includes four project components for which the City of Cambridge is responsible, including:

- CAM004 Stormwater Outfall and Wetland Basin (Contract 12)
- CAM004 Sewer Separation
- CAM400 Manhole Separation (Contract 13)
- Interceptor Connection Relief and Floatables Control (Contract 4)

The majority of the work under the Alewife program has been delayed due to citizen appeals of required wetland permits. The delays were tracked and reported as required in MWRA's quarterly and annual reports to the Federal Court. Substantive progress has been achieved since the DEP issued a final decision sustaining the Superseding Order of Conditions for Contract 12 in 2007. Contract 12 is key to the overall CSO plan and is necessary for the remaining contracts to move forward. The project involves construction of the CAM004 wetland basin and new storm drain outfall in the Alewife Reservation, as well as a bending weir structure to maximize the volume of stormwater that will be directed to the wetland system for treatment and attenuation. These facilities must be in place to accommodate the stormwater that will be removed from the combined sewer system and redirected to Alewife Brook.

In October 2008, Cambridge resumed design work for the following projects:

- CAM400 manhole separation;
- interceptor connection relief and floatables control at CAM002 and CAM401B and floatables control at CAM001; and,
- CAM004 stormwater outfall and wetland basin (Contract 12).

Soon after work began , the City determined that technical and cost efficiencies could be gained by combining two of the projects – Interceptor Connection Relief and Floatables Control at CAM002 and CAM401B (Contract 4) and CAM400 Manhole Separation (Contract 13) – into one construction package, now referred to as Contract 4/13. Through 2009, final design work for these projects assumed one construction contract, and the design work progressed rapidly. The City completed final design in the fall of 2009 and advertised the contract for construction bids on November 19, 2009. The City issued the Notice to Proceed for Contract 4/13 on January 26, 2010.

Final design of the CAM004 wetland basin and stormwater outfall (Contract 12) proceeds. The City has been working to obtain numerous construction and long-term maintenance easements from private and public land owners prior to awarding the contract. The City anticipates bidding Contract 12 in 2010.

Design and construction milestones for the Alewife Brook projects were added to Schedule Seven in 2006 when EPA and DEP approved the regional long-term CSO control plan. However, the wetland appeals process continued through 2007 and into 2008. As a result of the delays associated with the wetlands appeals, the City has developed new project schedules and time estimates to complete major design, permitting and construction tasks.

MWRA is seeking approval on the federal court case to amend the Schedule Seven milestones in accordance with the new proposed project schedules. The projects are anticipated to meet existing and proposed milestone deadlines established in Schedule Seven of the Order. MWRA plans to circulate a motion seeking to amend Schedule Seven once negotiations are finalized and to file the motion with the Court thereafter.

A general summary of project progress and status in relation to Exhibit B of the Second Stipulation is provided below in Table 3.1.

Table 3.1 – City of Cambridge CSO Abatement Projects and Status, April 2010

CSO Outfall	Required Project Type Under 2nd Stipulation	Receiving Water	Contract / Project Name	Completion Date or *Proposed Completion Date*	Notes
CAM001	Floatables Control	Alewife	Contract 4 - Floatables	*October 2010*	Baffles to be installed.
CAM002	Floatables control; interceptor relief	Alewife	Contract 4 - Floatables	*October 2010*	Baffles to be installed. Underflow enlarged.
CAM004	Sewer Separation	Alewife	2A/2B Fresh Pond Parkway	2001	CSO is now controlled by Drain Vault 5
CAM004	Sewer Separation	Alewife	Contract 8A/8B/9	*December 2015*	At completion, CSO at CAM004 will be eliminated
CAM004	Sewer Separation	Alewife	Contract 12- Stormwater Outfall	*July 2012*	Stormwater outfall and treatment wetland
CAM400	Sewer Separation / common manholes	Alewife	Contract 13	*October 2010*	CSO regulator to be eliminated; convert to stormwater outfall
CAM401A	Floatables Control	Alewife	Bellis Circle	2005	Installed brush screen
CAM401B	Floatables control; interceptor relief	Alewife	Contract 4- Floatables	*October 2010*	Baffles to be installed. Underflow enlarged.
CAM005	Hydraulic Relief	Charles	MWRA CAM005 Hydraulic Relief	2000	For full project description see: http://www.mwra.com/annual/csoar/2009/csoar2009.pdf
CAM007	Floatables Control	Charles	Contract 5	2009	Baffle installed
CAM009	Floatables Control	Charles	Contract 5	2009	Outfall temporarily plugged
CAM011	Floatables Control	Charles	Contract 5	2009	Outfall temporarily plugged
CAM017	Floatables Control	Charles	Contract 5	2009	Baffles were installed in 2009.

4.0 Summary of Modifications to Nine Minimum Controls Plan

The Nine Minimum Controls Plan has been appended to this report in its entirety (**Appendix C**). The Plan provides a summary of the evaluations undertaken to address each control measure since the original plan was developed in 1997. Upon completion of the evaluation, enhancements that have been undertaken or are proposed to be undertaken to meet the minimum implementation levels stipulated in the permit are outlined. Highlights of proposed enhancements are as follows:

Control Measure	Proposed Enhancement
1. Proper Operation and Regular Maintenance Programs	• Adherence to detailed "Good Housekeeping Manual" to provide specific guidance and protocols for major DPW tasks • Development and utilization of routine inspection forms and work order system • Update of infrastructure assets and nomenclature • Update of DPW organizational structure and budget figures
2. Maximization of Storage in the Collection System	• Update database of existing key regulator components • Establish procedure for documentation of purpose and benefits to any future modifications to existing structures
3. Review and Modification of Pretreatment Requirements	• Adherence to recently developed Wastewater and Stormwater Use Regulations, inspection frequencies and enforcement activities
4. Maximization of Flow to POTW	• Maintain updated inventory of CSO capital projects; • Continue funding for annual cleaning and remedial repair and reconstruction contracts
5. Prohibition/Elimination of Dry Weather Discharges	• The City is unaware of any dry weather discharges from CSO outfalls
6. Control of Solid and Floatable Materials in CSOs	• Continue to implement floatable controls projects in conformance with revised Schedule Seven milestone deadlines. • Continue to require compliance with new City Wastewater and Stormwater Use Regulations
7. Pollution Prevention Programs to Reduce Contaminants in CSOs	• Adherence to "Good Housekeeping Manual" guidance and protocols to reduce the City's contribution of contaminants to stormwater; • Adherence to City of Cambridge Integrated Pest Management plan to reduce contributions of pesticides, fungicides, herbicides and fertilizer to run-off; • Continue aggressive recycling, street sweeping and household hazardous waste collections and management • Continue with public education and outreach activities • Continue to require compliance with new City Wastewater and Stormwater Use Regulations

Control Measure	Proposed Enhancement
8. Public Notification	• Continue with 24-hour notification of CSO activations from CAM-401B through e-mails notification to EPA, DEP, local health agents and the Mystic River Watershed Association, and post such activations on the DPW website.
9. Monitoring to Characterize CSO Impacts and Efficacy of CSO Controls	• On a regulator site-specific basis, use revised weir equations and parameters and/or hydraulic models and analysis to estimate effluent volumes released during CSO events