

APPENDIX C
UPDATED NINE MINIMUM CONTROLS PLAN 2010

Nine Minimum Controls Plan
Updated April 2010

FOR THE

CITY OF CAMBRIDGE, MASSACHUSETTS
Combined Sewer Overflow Permit
#MA0101974

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



Table of Contents

Executive Summary5

1. PROPER OPERATION AND REGULAR MAINTENANCE PROGRAMS7

 1.1 Evaluation Findings.....7

 1.2 Proposed Program Enhancements8

 1.3 Inventory/Data Updates9

 1.3.1 Definitions9

 1.3.2 Infrastructure Inventory10

 1.3.3 Combined Sewer Outfall Facilities.....11

 1.3.4 Organizational Structure15

 1.3.5 Routine Maintenance Operating Protocols15

2. MAXIMIZATION OF STORAGE IN THE COLLECTION SYSTEM17

 2.1 Evaluation Findings.....17

 2.2 Proposed Program Enhancements17

 2.3 Inventory/Data Updates18

3. REVIEW AND MODIFICATION OF PRETREATMENT REQUIREMENTS19

 3.1 Evaluation Findings.....19

 3.2 Proposed Program Enhancements19

 3.3 Inventory/Data Updates20

4. MAXIMIZATION OF FLOW TO THE POTW21

 4.1 Evaluation Findings.....21

 4.2 Proposed Program Enhancements21

 4.3 Inventory/Data Updates21

5. PROHIBITION/ELIMINATION OF DRY WEATHER DISCHARGES.....22

 5.1 Evaluation Findings.....22

 5.2 Proposed Program Enhancements22

 5.3 Inventory/Data Updates22

6. CONTROL OF SOLID AND FLOATABLE MATERIALS IN CSO’S23

 6.1 Evaluation Findings.....23

 6.2 Proposed Program Enhancements23

 6.3 Inventory/Data Updates23

7. POLLUTION PREVENTION PROGRAMS TO REDUCE CONTAMINANTS IN CSO’S
24

 7.1 Evaluation Findings.....24

 7.2 Proposed Program Enhancements24

 7.3 Inventory/Data Updates25

8. PUBLIC NOTIFICATION27

 8.1 Evaluation Findings.....27

 8.2 Proposed Program Enhancements27

 8.3 Inventory/Data Updates28

9. MONITORING TO CHARACTERIZE CSO IMPACTS AND EFFICACY OF CSO
CONTROLS.....29

 9.1 Evaluation Findings.....29

 9.2 Proposed Program Enhancements29

 9.3 Inventory/Data Updates29

Tables

- Table 1-1 Inventory of Infrastructure Assets, March 2010
- Table 1-2 City of Cambridge Permitted CSO Outfalls

Figures

- Figure 1: City of Cambridge, Common Manholes and Storm Water Catchment Areas, March 2010

Appendices

- Appendix A DPW Good Housekeeping Manual
- Appendix B CSO Inspection Form Template
- Appendix C Summary Table of Regulator Characteristics and CSO Engineering Drawings & Photos
- Appendix D DPW Organization Chart
- Appendix E Pump Station O&M Manual
- Appendix F CRS Work Order Form
- Appendix G Current and Historical BMPs Narrative
- Appendix H Summary of CSO Abatement Projects and Status
- Appendix I 2009 FOG Program Information
- Appendix J Sewer Maintenance Routes & Maps
- Appendix K Integrated Pest Management Policy
- Appendix L Public Education / Outreach Materials
- Appendix M Street sweeping schedule/map
- Appendix N Public Notification Documentation
- Appendix O Wastewater & Stormwater Use Regulations; Land Disturbance Regulations and Ordinance

Glossary of Acronyms

ACO	Administrative Consent Order
BMP	Best Management Practice
CCB	Cambridge City Base
CMH	Common Manhole
CSO	Combined Sewer Overflow
CSS	Combined Sewer System
DI	Ductile Iron
DPW	City of Cambridge Department of Public Works
DV5	Drain Vault 5
EOEA	Executive Office of Environmental Affairs
FOG	Fats, Oil and Grease
GIS	Geographic Information System
HHW	Household Hazardous Waste
LTCP	(MWRA) Long Term Control Plan
MIL	Minimum Implementation Level
MS4	Municipal Separate Storm Sewer System
MWRA	Massachusetts Water Resources Authority
NMC	Nine Minimum Controls
NPDES	National Pollutant Discharge Elimination System
O&M	Operation and Maintenance
POTW	Publicly Owned Treatment Works
RCP	Reinforced Concrete Pipe
SD	Storm Drain
SOP	System Optimization Program
SS	Sanitary Sewer
VCP	Vitrified Clay Pipe
WWTP	Wastewater Treatment Plant

Executive Summary

Implementation of the Nine Minimum Controls (NMC) specified in Part I, Section A of National Pollutant Discharge Elimination System (NPDES) Permit No. MA0101974 is a required component of permit compliance. The permit authorizes the City of Cambridge to discharge twelve (12) Combined Sewer Overflows (CSOs) to receiving water bodies named in the permit only during wet weather and subject to certain effluent limitations and other requirements. There are 11 regulator structures associated with these 12 CSO's (CAM-002A and CAM-002B are separate outfalls controlled through the same regulator). The City of Cambridge's Nine Minimum Controls Plan was originally developed in 1997 and in conjunction with the previous NPDES permit, has served as the primary reference for operational controls and regulatory administration of the combined sewer outfalls within the City of Cambridge. The new NPDES CSO permit requires that the Plan be updated to reflect evaluations performed and enhancements proposed. The NMC Plan as presented in this report reflects the current operating protocols and implementation levels for all controls approved under the permit.

The Nine Minimum Controls are presented in the order presented in the original document and reflected in the NPDES CSO permit. The presentation format has been developed to provide the reader with a synopsis of the subject minimum control measure and its component parts as implemented and originally presented in 1997; the evaluations findings based on reviews undertaken to determine efficiency and/or effectiveness of controls in place; and, proposed enhancements (if necessary) resulting from the evaluations. In addition, the report updates infrastructure inventories, standard operating procedures and structure as-built drawings where relevant.

Significant proposed enhancements to the NMC Plan are as follows:

Control Measure	Proposed Enhancement
1. Proper Operation and Regular Maintenance Programs	<ul style="list-style-type: none"> • Adherence to recently developed detailed "Good Housekeeping Manual" to provide specific guidance and protocols for major Department of Public Works (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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Adherence to recently developed Wastewater and Stormwater Use Regulations, inspection frequencies and enforcement activities

Control Measure	Proposed Enhancement
4. Maximization of Flow to POTW	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • The City is unaware of any dry weather discharges to receiving waters from CSO outfalls
6. Control of Solid and Floatable Materials in CSOs	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Adherence to “Good Housekeeping Manual” guidance and protocols to reduce the City’s contribution of contaminants to stormwater • Adherence to the City’s Integrated Pest Management plan to reduce contributions of pesticides, fungicides, herbicides and fertilizer to run-off • Continue with public education and outreach activities • Compliance with City’s Wastewater and Stormwater Use Regulations
8. Public Notification	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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

1. PROPER OPERATION AND REGULAR MAINTENANCE PROGRAMS

Summary of 1997 NMC Plan Content:

- Sewer System Definitions
- Inventory of sewer system components/physical assets
- Description of nine (9) CSO facilities: CAM005, CAM007, CAM011, CAM017, CAM001, CAM002, CAM004, CAM400, CAM401
- CDPW Organizational Structure and budget
- Procedures for Routine Maintenance
- Common Manholes Project
- Inspections
- Training
- Periodic Review of O&M Plans

1.1 Evaluation Findings

- *Minimum Implementation Level (MIL) for this control measure under Permit No. MA0101974 includes a minimum of once per month inspection of each CSO structure/regulator, pumping station and/or tidegate within jurisdiction of the City of Cambridge. Future evaluation of the efficacy of this measure will include conformance with inspection requirements, and timeliness with which corrective measures are undertaken and documented. Documentation of inspection and corrective actions resulting from inspections is mandatory (8 year retention period for all records.)*
- The 1997 document provides system definitions that are still relevant and appropriate to the updated NMC.
- The composition and quantity of respective Combined Sewer System (CSS) infrastructure assets has changed over time. The current inventory provided in the updated NMC reflects changes achieved through abatement projects since 1997.
- Nomenclature associated with the CSO facilities described in the 1997 NMC Plan has changed; it has been updated to conform to permit terminology and conditions provided in the current permit.
- Organizational Structure and budgeting for DPW has changed and has been updated to reflect changes since 1997.
- Procedures for routine maintenance have evolved and certain standard protocols developed. These have been incorporated into the DPW’s Good Housekeeping Manual, the current reference for routine operations and maintenance of the municipal separate storm sewer system (MS4) as well as the CSS. These procedures are now incorporated explicitly or by reference where appropriate in this document.

- The Common Manholes (CMH) Project has advanced significantly and the total number of CMHs throughout the City has been reduced with 29 manholes remaining to be removed in separated areas of the City.
- Routine inspection procedures were not provided in detail, nor were inspection forms or processes described in the 1997 document. The DPW has developed schedules, procedures, standard protocols and template inspection forms that are now used by staff in performance of system inspections and monitoring. The Updated NMC Plan provides (or incorporates by reference) information on protocols, documentation methods and templates, and reporting frequencies.
- Training specific to CSS maintenance and management is a dynamic program that adjusts to equipment specific, regulation specific and service specific requirements. Programs identified in 1997 have evolved and new programs have been introduced in order that service efficiencies (e.g. use of Remedy, GIS and other technology-based tools) and BMP effectiveness may be realized.
- Operation and Maintenance of the CSS has been standardized to provide a consistent quality and measurable results, as described further in this document.

1.2 Proposed Program Enhancements

As part of the National Pollutant Discharge Elimination System (NPDES) Phase II permit for its MS4, the City of Cambridge adopted pollution prevention and good housekeeping controls intended to ensure that City operations and activities conducted at City-owned facilities do not contribute to stormwater pollution. The Best Management Practices (BMPs) to implement the controls provide a systematic, routine and effective means of administering the MS4 system. Although the combined sewer system (CSS) from which the permitted CSO's discharge is not technically part of the MS4, the City applies these BMPs comprehensively throughout the City. The Good Housekeeping Manual was first published in 2007 and in accordance with the policies under which it was adopted, it is reviewed and modified as necessary on an annual basis. Modifications can be the result of findings from inspections, updated or new City policies or procedures, or in response to regulatory changes or permit conditions. The most recent edition of the DPW's Good Housekeeping Manual has been appended to this document as **Appendix A**. The manual includes detailed Fact Sheets for BMPs relating to the following routine procedures:

- Road sand/salt application and storage
- Snow stockpiling/removal
- Materials management
- Hazardous materials storage
- Vehicle fueling, maintenance and storage
- Vehicle washing
- Spill prevention and response
- Lawn and grounds maintenance
- Street and parking lot sweeping
- Catch basin cleaning
- Stormwater, sanitary and water line maintenance
- Pet waste and litter
- Sidewalk cleaning and repair
- Graffiti cleaning
- Mosquito control

- Waste management
- Building Operations

Modifications to BMPs resulting from the annual review will be synopsisized and documented in the CSO NPDES Permit Annual Report; readers are referred to the Manual directly for detailed descriptions of current procedures.

In addition to the MS4/CSS BMPs included in the Good Housekeeping Manual, the City has developed a Sanitary Sewer System cleaning program and maintenance schedule that specifically targets problematic catchments, such as those that service a greater density of restaurants or other food establishments. This pro-active effort mitigates grease or detritus build-ups that contribute to potential contaminant introduction to the CSS. Further details on this program are provided in Section 3.

In order to ensure that the MILs for this control measure are achieved, the City has created routine inspection form templates that obligate trained inspectors to complete all required permit reporting data fields. A copy of the modified CSO inspection form template has been provided in **Appendix B**. The City’s work order system can automatically generate work orders for monthly inspections, institutionalizing the procedures and contributing to the pro-active system management the City has pursued. This will ensure that unintended lapses exceeding one month will be eliminated and allocate appropriate resources to the task. See Section 1.3.4 below for further information on the Work Order System.

Finally, the City has completely revised and updated its Wastewater and Stormwater Use Regulations and Ordinance and has developed new Land Disturbance Regulations, specifically to address requirements of the City’s MS4 permit. These regulations are applicable throughout the City including the CSS. These regulations and ordinance empowers the City to better control discharges and to properly enforce its regulations with regard to the CSS. The regulations and ordinance are provided in **Appendix O**.

1.3 Inventory/Data Updates

1.3.1 Definitions

The following definitions from the City’s Wastewater and Stormwater Use Regulations classify the several different types of sewer collection systems that are currently in the City:

Term	Definition
Combined Sewer	“Combined Sewer” shall mean a sewer designed to receive both wastewater and stormwater
Private Combined Sewer	“Private Combined Sewer” shall mean a combined sewer which is not owned by the City, DCR or the MWRA. Private combined sewers include, but are not limited to, building Drains (wastewater), building combined sewer laterals and manholes located on private property and not located within an easement held by the City or other public agencies. The owner of the private combined sewer is also responsible for the connection from a private sewer to the public wastewater system.

Term	Definition
Private Sewer	"Private Sewer" shall mean a sewer that is not owned by the City, DCR or the MWRA. Private sewers include, but are not limited to building Drains (wastewater), building sewer laterals and manholes located on private property and not located within an easement held by the City or other public agencies. The owner of the private sewer is also responsible for the connection from a private sewer to the public wastewater system.
Private Stormwater Drain	"Private Stormwater Drain" shall mean a stormwater Drain that is not owned by the City or the DCR. Private Stormwater Drains include, but are not limited to, building Drains (stormwater), building stormwater Drain laterals, catch basins and manholes located on private property and not located within an easement held by the City and other public agencies. The owner of the private stormwater Drain is also responsible for the connection from a private stormwater Drain to the public stormwater.
Public Combined Sewer	"Public Combined Sewer" shall mean a combined sewer that is owned by the City, DCR, or the MWRA
Public Sewer	"Public Sewer" means a sewer which is owned by the City, DCR or the MWRA or any of their successors.
Sanitary Sewer	"Sanitary Sewer" means a sewer designed to carry sewage.
Sewage	"Sewage" means the spent water of a community, which may be a combination of liquid and water-carried wastes from residences, commercial buildings, institutions and industrial facilities, together with leachate and construction site dewatering, and exclusive of groundwater, surface water, and/or stormwater.
Sewer	"Sewer" means a pipe or conduit for carrying sewage.
Stormwater	"Stormwater" shall mean any water resulting from rainfall or other precipitation that runs off surfaces during or after a storm.
Stormwater Drain	"Stormwater Drain" means a pipe or conduit that carries surface water, stormwater and groundwater or runoff and is exclusive of sewage.
Stormwater Drainage System	"Stormwater Drainage System" means pipes, conduits, pumping stations and appurtenances, including tidegates, catch basins, and manholes used in the collection and transport of stormwater, groundwater and runoff.
Wastewater	"Wastewater" shall mean Sewage, together with any Groundwater, Stormwater and surface water that may be present.
Wastewater System	"Wastewater System" shall mean totality of the devices, equipment or works used in transportation, pumping, storage, treatment, recycling, or reclamation of Wastewater or in the disposal of the effluent.

1.3.2 Infrastructure Inventory

Inventory of the Cambridge sewer/storm drain/combined sewer infrastructure system currently reflects the following major components:

Table 1-1
Inventory of Infrastructure Assets, March 2010

Type of Systems	Pipe Lengths (miles)
Sanitary Sewers (SS)	110
Storm Drains (SD)	93
Combined Sewers	39
Length of SS/SD served by Common Manholes	33.5
Manholes	Total No.
Sanitary Sewer	2,902
Storm Drain	2,979
Combined Sewer	845
Common Manholes	289

Data above has changed since the 1997 report. Some of the changes are due to completed and ongoing infrastructure improvements as documented in this report. It is also the result of a more accurate compilation of assets as recorded and managed through the City’s Geographic Information System (GIS) database which is routinely updated to reflect current conditions. The City’s current stormwater infrastructure is shown on **Figure 1- Common Manholes and Stormwater Catchment Areas**.

1.3.3 Combined Sewer Outfall Facilities

The City of Cambridge currently has 12 permitted Combined Sewer Overflows (CSOs) discharging combined sewer and drain overflow through 11 regulator structures to the Charles River and Alewife Brooks under wet weather conditions. Of the 12 permitted CSOs, nine are presently active and three are temporarily plugged. Recent field investigations have been completed to confirm details of these CSO structures, including weir heights, weir lengths, structure dimensions, presence of floatables control baffles, and dimension of outlet pipes. These results, along with proposed CSO improvements scheduled for construction in 2010 and 2011 under the Contract 4 Alewife Floatables Control Project, are presented for reference in the attached **Appendix C Table 1** – “Summary of Charles River and Alewife Brook CSO Characteristics.”

In conjunction with the summary table, **Appendix C** provides sketches, photos, and drawings depicting both the existing conditions in each structure, as well as the proposed design improvements to be completed in 2010/2011.

Alewife Brook CSOs

CAM 001: This CSO regulator structure is located at the intersection of Foch Street and Alewife Brook Parkway. Dry weather flows pass through a 12” diameter underflow to the MWRA 29” x 37” sewer, while overflows leave the regulator through a short 18” diameter brick connector into another structure, and from here to the Alewife Brook through a 15” VCP outfall.

The 18" connector includes a stainless steel bracket on the downstream end with a short weir plate bolted to this discharge at elevation 14.4-ft CCB. Historically, an additional wooden weir was bolted to this 18" discharge at elevation 15.2-ft CCB. The City is presently re-examining the efficacy of reinstalling this wooden system optimization program (SOP) weir, given level of service concerns within the community. It is expected that future 2011 conditions will allow for this weir discharge to once again be raised to 15.2-ft CCB.

CAM 002A/B: This CSO regulator structure is located at the intersection of Massachusetts Avenue and Alewife Brook Parkway. Dry weather flows currently pass through a 15" diameter underflow to 29" x 37" MWRA sewer, while overflows leave the regulator through a 36" x 40" brick outfall (CAM 002A) to the Alewife Brook after cresting an existing wooden weir at elevation 17.4-ft CCB. The CAM 002B overflow has been completely plugged with brick and mortar on the bottom half and a wooden plate on the top half of this 36" x 42" brick outlet. Future 2011 conditions calls for continued blockage of CAM 002B and a new overflow weir at CAM 002A equal to 17.3-ft CCB. CAM002B will be unplugged following the completion of the Long Term Combined Sewer Overflow Control Plan for Alewife Brook.

CAM 004: This CSO is now controlled by a regulator structure called Drain Vault 5 (DV5) located along Concord Avenue near the intersection with Wheeler Street at the Alewife Rotary. Dry weather sanitary flows are directed to the MWRA 48" sewer, via two (2) twenty four (24") pipes just upstream of the DV5 structure. During smaller storms, separated drainage flows from a 60" RCP drain (servicing the areas separated along Fresh Pond Parkway) through the structure and discharges to a 6' x 5' box culvert. During storms greater than a 3-month storm, additional flow from a 10' x 4' combined sewer box culvert spills over several weir walls in the structure and combines with the drain flows to discharge through the 6' x 5' box culvert discharging to the Alewife Brook. The lower weir is approximately 8-ft long at a crest elevation of 14.49-ft CCB and the higher weirs total approximately 17-ft long at an elevation of 15.16-ft CCB. This structure also includes a flushing chamber that can capture and store stormwater flows to later be released through a flushing gate to provide scouring of sediments within this downstream box culvert. The scouring takes place under dry weather conditions and the discharge is conveyed downstream of the box culvert to the sanitary sewer system.

CAM 400: This CSO regulator structure is located just off of Alewife Brook Parkway, adjacent to Harrison Avenue. Dry weather flows currently pass through a 10" diameter underflow to the 66" MWRA trunk sewer, while overflows spill over a high weir at elevation 14.9-ft CCB and discharge to the Alewife Brook through a 32" diameter brick and concrete outfall pipe. Future 2011 conditions show that this CSO regulator will be eliminated and the present CSO overflow pipeline will be converted to a storm drain outfall, following sewer separation of the CAM400 drainage area.

CAM 401A: This CSO regulator structure is located along Sherman Street, between Pemberton Street and the railroad tracks. Combined sewer flows currently enter the structure through a 45" x 45" combined sewer from the south and discharges on the north side into a 60"W x 66"H storm drain. Additional wet weather flow from a 48" diameter FRP pipe mixes with the combined sewerage at the structure inlet and can lead to surcharging of the regulator structure. When this happens, flow is diverted over the weir at elevation 14.8-ft CCB, equipped with a 32" diameter floatables control mechanical brush screen, and overflows continue into the existing 96"W x 76"H Sherman Street Drain culvert.

CAM 401B: This CSO regulator structure is located at the intersection of Massachusetts Avenue and Alewife Brook Parkway. Dry weather flows currently pass through a 10” diameter orifice underflow to the 66” MWRA trunk sewer, while overflows leave the regulator through a 30” reinforced concrete pipe outfall to the Alewife Brook. Future 2011 conditions will include a floatables control baffle installed upstream of this overflow pipe in a separate precast concrete structure.

Charles River CSOs

CAM 005: This CSO regulator structure is located on Mt. Auburn Street at the intersection with Lowell Street near Mt. Auburn Hospital. Dry weather flow comes into the regulator through a 54” RCP sewer and is diverted into a 42” RCP relief sewer. During storm conditions, overflows are directed under an existing floatables control baffle and over a 3.9-ft weir set at elevation 14.8-ft CCB, discharging into a 54” diameter RCP outfall to the Charles River. Several other sewers including a 30” DI and 24” x 28” brick sewer also may contribute to the overflows as these sewers also connect to the 42” relief. This regulator was reconstructed by the Massachusetts Water Resources Authority (MWRA) in 2003. The floatables control baffle was installed between two existing pipes that penetrate the structure, causing constraints to the ability for flows to surcharge over the baffle. Recent field investigations in the Charles River have confirmed that at the outlet in the Charles River appears to be almost completely plugged with river sediment settling immediately adjacent to the outfall. The City is presently examining the permitting necessary to relieve this outfall.

CAM 007: The CAM 007 CSO regulator is located within the path between Memorial Drive and the Charles River at the intersection with Hawthorne Street. Dry weather flow enters the regulator through a 42” RCP, a 48” RCP, and a 36” RCP combined sewer and discharges into a 60” RCP. During storm conditions, overflows are directed under a recently constructed floatables control baffle and over a 6.3-ft weir set at elevation 13.2-ft CCB, discharging through a 48” x 48” flap gate into a secondary structure, and then into a 56” x 56” outfall to the Charles River. It is noticed that during the months of September, October and November, that the Charles River is maintained at a higher elevation and this can cause backflows into this regulator.

CAM 009: This regulator is located near Memorial Drive just west of JFK Street. This overflow outfall was temporarily plugged in 2007 with a brick and mortar bulkhead such that combined sewer flows can no longer reach the Charles River at this location. This CSO is presently inactive and the city is continuing to monitor upstream service levels so as to make a final determination as to whether this combined sewer overflow can be plugged permanently.

CAM 011: This regulator is located near Memorial Drive and Plympton Street. This overflow outfall was temporarily plugged in 2007 with a brick and mortar bulkhead such that combined sewer flows can no longer reach the Charles River at this location. This CSO is presently inactive and the city is continuing to monitor upstream service levels so as to make a final determination as to whether this combined sewer overflow can be plugged permanently.

CAM 017: The CAM 017 CSO regulator is located within Land Blvd at the intersection with Binney Street. Dry weather flow approach through an 8’ x 8’-4” brick drain and are diverted to a 6’ x 5’ brick drain. During heavy storm events, overflows are directed under a recently constructed floatables control baffle and over a weir set at elevation 14.5-ft CCB, discharging

through an 84" x 84" flap gate into a secondary structure, and then into an 8' x 8'-4" outfall to the Charles River.

Changes to naming conventions and status of some facilities have resulted in minor changes to identified facilities subject to this permit. Current facilities for which this NMC update has been prepared are presented below in Table 1-2. The nomenclature and references are derived directly from the language of the permit with the exception that Attachment A and Attachment B of the permit (CSOs for the Charles River and Alewife Brook, respectively) have been combined into a single table. Footnotes have been re-numbered consecutively, but reflect the same information as provided in the permit.

Table 1-2
City of Cambridge Permitted CSO Outfalls

Receiving Water	Outfall Number	Discharge Location	Interim Effluent Limitations		Effluent Limitations	
			Annual Activation Frequency	Annual Volume (MM Gals)	Annual Activation Frequency	Annual Volume (MM Gals)
Charles River ¹	CAM-005	Lowell St. @Mt. Auburn	N/A		3	0.84
	CAM-007	Memorial Dr. @ Hawthorne St.	N/A		1	0.03
	CAM-009	Memorial Dr. @Old Murray Road	N/A		2 ²	0.01
	CAM-011	Plympton St.	N/A		0 ²	0
	CAM-017	Binney St. @ Land Blvd.	N/A		1	0.45
Alewife Brook ³	CAM-001	Foch St. @ Alewife Brook Pkwy	0	0.0	5	0.19
	CAM-002A ⁴ CAM-002B ⁴	Alewife Brook Pkwy @ Mass. Ave.	7	1.52	4	0.69
	CAM-004	Concord Ave. Rotary	14	7.69	0 ⁵	0
	CAM-400	Alewife Brook @ Harrison Ave. Ext.	10	0.78	0 ⁶	0
	CAM-401A	Sherman St. & Alewife Brook @ B&M RR	7	2.77	5	1.61

Receiving Water	Outfall Number	Discharge Location	Interim Effluent Limitations		Effluent Limitations	
			Annual Activation Frequency	Annual Volume (MM Gals)	Annual Activation Frequency	Annual Volume (MM Gals)
	CAM-401B	Alewife Brook Pkwy @ Mass. Ave.	25	10.7	7	2.15

¹ These discharges will be consistent with the performance of the Long Term Control Plan (LTCP), as defined in Exhibit B of the Second Stipulation incorporated into the Federal Court Order on April 27, 2006.

² Outfalls CAM-009 and CAM-011 have been temporarily sealed.

³ These discharges will be limited in accordance with the performance of the Revised Recommended Plan, as characterized in the Final Variance Report for Alewife Brook and the Upper Mystic River and supplemental letter report.

⁴ These two CSOs are at the same location and are associated with a single CSO regulator.

⁵ This CSO is scheduled to be closed.

⁶ CAM400 CSO scheduled to be closed but storm outfall will remain open after sewer separation.

The CSOs listed above are those specifically cited in the NPDES Permit No. MA0101974. This table differs from the CSO facilities originally identified in the 1997 NMC as follows:

- CAM-009 was not originally included in the 1997 NMC;
- CAM-002 was listed as a single outfall; current nomenclature includes CAM-002A and CAM-002B which are co-located individual outfalls associated with a single regulator;
- CAM-401 location was given as Alewife Brook @ B&M Railroad; current nomenclature refers to this outfall as CAM-401A;
- CAM-401B was not originally included in the 1997 NMC.
- CAM-004, while listed in 1997, has since been replaced by a complex weir system and structure and is scheduled to be closed when the Long Term Control Plan for the Alewife Brook is fully constructed.

1.3.4 Organizational Structure

An organization chart reflecting the current structure and personnel in the Department of Public Works has been provided as **Appendix D**.

1.3.5 Routine Maintenance Operating Protocols

As noted in Section 1.2, procedures relative to maintenance of system infrastructure have been organized and are managed in accordance with BMPs referenced in the DPW Good Housekeeping Manual. The manual is an extensively detailed guidance document and the basis for DPW operations relative both to the MS4 and the CSS. Details in Good Housekeeping Manual significantly improve upon the generalized descriptions of activity provided in the 1997 NMC. The Manual is provided as **Appendix A** of this NMC Plan and is also available for review at the DPW. Sanitary and Stormwater Pump Stations are maintained in accordance with customary procedures and standards and associated manufacturer operation and maintenance manuals. An example of a pump station O&M manual is provided in **Appendix E**.

In April 2005, the City of Cambridge DPW completed its transition from the Hansen Integrated Infrastructure Management System to a new software package called Remedy. This system is widely used at the Public Works Department to track work orders and manage assets. Since its inception, over 8033 sewer and storm water work orders have been entered into the system, as well as over 16,000 related assets.

The City of Cambridge has also just completed an extensive update to the sewer and storm water GIS layers. This data is used directly in the Remedy system. All sewer and stormwater work that is updated in the GIS system is incorporated in Remedy on a periodic basis. All updates to the GIS layers are also shown in Remedy. The Engineering Division at Public Works updates the GIS data on as-builts regularly, ensuring that the maps used by Public Works remain current and accurate.

The GIS layers are easily accessible through a new web viewer, which can either be launched through Remedy or opened independently. For example, City staff can open an online viewer in Remedy, select a CSO regulator structure, and review the work history and GIS attributes for that asset.

The Remedy system has been expanded to include all permit applications for excavation involving sewer and storm water repairs. More than 833 permits have been issued since the Remedy system was expanded. Required monthly inspections of all CSO structures are automatically generated via this system, which will hereafter provide the supporting documentation required. A copy of a typical work order request form and work sheet has been provided as **Appendix F**. As referenced above, a copy of a CSO inspection form template to be used by trained inspectors is provided as **Appendix B**.

2. MAXIMIZATION OF STORAGE IN THE COLLECTION SYSTEM

<p>Summary of 1997 NMC Content:</p> <ul style="list-style-type: none"> • Status of MWRA/City Program • Status of City System Optimization Program (SOP) as of 12/6/96
--

2.1 Evaluation Findings

- *MIL for this control measure includes a minimum of once per month inspection of each CSO structure/regulator, pumping station and/or tidegate within jurisdiction of the City of Cambridge. Future evaluation of the efficacy of this measure will include conformance with inspection requirements, and timeliness with which corrective measures are undertaken and documented.*
- 1997 NMC provided “project status” of current and proposed projects. The project listing in this updated Plan also provides a snap-shot inventory of project status.

2.2 Proposed Program Enhancements

The objective of the control measure is to maximize the use of the collection system for storage by making relatively simple modifications to the CSS to enable the system to store wet weather flows until downstream facilities can handle them. A narrative description of existing key components of each regulator structure with CSO discharge is provided in Section 1.3.3. As referenced previously, engineering drawings and a summary table of regulator characteristics are provided in **Appendix C**. Both the summary table and the plans/drawings include existing and proposed conditions at locations for which ongoing design and construction projects exist. Historical drawings or record/design drawings for each structure, where available, have been provided. This documentation has been integrated with the City’s GIS database (or is currently in process) and is available through the web viewer and/or the Remedy system as described previously.

The City has undertaken multiple projects that address sewer solids and collection system storage. This is a particularly complex problem for the City due to its flat topography. System storage optimization must be balanced against significant maintenance requirements associated with pipe systems with slopes that are frequently inadequate to generate necessary velocities for self cleansing. In addition, since both receiving water bodies are impounded by dams, the City system’s ability to convey adequate flows during significant events is compromised. Incorporation of added weir heights at CSO regulators is a continuing concern.

Appendix G provides a description of BMPs that have been incorporated into infrastructure improvement projects throughout the City. BMPs that specifically address system storage optimization include: integration of infiltration basins; sanitary and storm system flushing;

provision of storage tanks; installation of bending weirs; ongoing sewer separation; use of swales; and, implementation of a development ordinance that requires new developments to provide storage of excess runoff between the 2-year existing storm and the 25-year future storm event. The manner in which these BMPs have been employed, the areas of the City impacted and the specific CSOs which realize the benefits of the completed and/or proposed project are further detailed in **Appendix G**.

Annual Reports for future reporting periods will provide summary updates of modifications to existing structures, with a statement explaining purpose and benefit of the modification. A summary of major capital projects undertaken in conformance to the LTCP (since development of the 1997 NMC) is included in the Annual Report and provided here as **Appendix H**. In the future, performance efficacy will be based in part on continued improvement in water quality metrics employed and reported upon by the MWRA in their annual report on CSO abatement project progress. The City contributes to improved performance through implementation of stipulated CSO abatement projects.

2.3 Inventory/Data Updates

Please see appendices referenced above for updated data on existing CSO structures.

3. REVIEW AND MODIFICATION OF PRETREATMENT REQUIREMENTS

Summary of 1997 Content:

- | |
|---|
| <ul style="list-style-type: none"> • Inventory of Non Domestic Discharges to the Combined Sewer System • Assessment of Impact of Non Domestic Discharges to CSO's |
|---|

3.1 Evaluation Findings

- *MIL for this measure prohibits discharges to the CSS of septage, holding tank wastes or other material which may cause a visible oil sheen or containing floatable materials during wet weather when CSO discharges may be active.*
- The 1997 NMC references policies to be developed relative to grease. This updated Plan provides status of current efforts and administrative procedures for continuous evaluation of program effectiveness.
- The City of Cambridge is not authorized to administer its own pretreatment program for industrial dischargers. The MWRA administered the City's program in 1997 and still does.

3.2 Proposed Program Enhancements

The objective of the measure is to minimize the impacts of discharges from non-domestic sources during wet weather events and to minimize CSO occurrences by modifying inspection, reporting and oversight procedures within the approved pretreatment program.

As reported by the 1997 NMC, the City was in the process of developing a new program specifically targeting fats, oil and grease (FOG) discharges. That program has been completed and is currently administered by the DPW. In the past twelve months, DPW Compliance Officers reviewed plans or performed inspections at eight (8) new food facilities or facilities undergoing renovations (**Appendix I**). The City's Inspectional Services Department requires that the facilities notify DPW and submit kitchen and plumbing plans to DPW prior to obtaining signatures on building permits. This has been an effective method for ensuring that new and renovated facilities have properly sized grease traps or interceptors, and sampling location(s) where appropriate. In addition, the Plumbing Inspectors monitor for compliance with new State Plumbing Code revisions requiring any new kitchen floor drains to be connected to grease traps.

During 2009, DPW continued to perform inspections and sampling at existing food handling facilities, and expects to continue reviewing proposed new facility plans, and to inspect existing facilities undergoing renovations over the next reporting term. In addition, the City gave three (3) presentations on "Managing Food Wastes" to the managers of licensed liquor establishments,

including the managers of all the major restaurants and hotels at the mandatory annual liquor license renewal meeting held by the License Commission in November 2009. A copy of this presentation is included in **Appendix I**.

The City maintains a list of “problem areas” which it inspects on a routine basis. Fifty-five (55) locations are inspected every 2-3 weeks and remedial actions are taken if necessary. Another seven (7) locations are checked every three (3) months for FOG issues and biological agents are used to breakup any build up when necessary. A list of areas currently treated is included in **Appendix I**. This pro-active campaign to encourage businesses to manage grease and by-products appropriately, and maintain their sewer infrastructure regularly, has helped to reduce back-ups in the city infrastructure.

The City implements periodic sewer TV inspection and cleaning as part of its Sewer Maintenance Program. The Sewer Maintenance Routes and Maps are provided in **Appendix J**. City DPW crews are required to fill out daily worksheets on results of inspections and actions taken. This documentation is maintained by the Sewer Division for eight (8) years.

The City will continue to implement the programs as described above. Any modifications to the program, and descriptions of modification purpose, will be included in subsequent CSO annual reports.

3.3 *Inventory/Data Updates*

Spreadsheets detailing inspections performed are reported annually and retained by the DPW. The spreadsheet detailing plan reviews and inspections of pre-treatment facilities under the City’s FOG program for the 2009 calendar year is provided in **Appendix I**.

4. MAXIMIZATION OF FLOW TO THE POTW

Summary of 1997 Content:

- | |
|--|
| <ul style="list-style-type: none"> • Status of MWRA/City Program • City of Cambridge independent efforts |
|--|

4.1 Evaluation Findings

- *MIL for this control measure includes a minimum of once per month inspection of each CSO structure/regulator, pumping station and/or tidegate within jurisdiction of the City of Cambridge. Future evaluation of the efficacy of this measure will include conformance with inspection requirements, and timeliness with which corrective measures are undertaken and documented.*
- The 1997 NMC provided narrative description of the City's efforts to develop a control plan to reduce CSO discharges. Several of the programs have been modified and advanced. This Plan provides information on current projects and adopted BMPs.

4.2 Proposed Program Enhancements

The objective of this measure is to reduce the magnitude, frequency, and duration of CSOs that flow untreated into receiving waters. It complements NMC# 2, and the enhancements are as described in that Section. **Appendix G** is a detailed narrative of BMPs adopted by the City to achieve maximization of flow to the POTW. Specific BMPs that address flow include sanitary and storm system flushing, and integration of storage tanks to contain wet weather flows.

Capital improvements associated with the described in **Appendix H** are largely intended to ensure continued optimal flow to the POTW. The City engages remediation contractors annually to conduct television camera inspections, cleaning and remedial reconstruction or repair of portions of the sanitary sewers, combined sewers and MS4.

Routine and proactive inspection procedures that will continue to be practiced were described above in Sections 1, 2, and 3 and the inspection form provided in **Appendix B**.

4.3 Inventory/Data Updates

Please refer to the BMPs description and capital projects update provided in **Appendices G and H**.

5. PROHIBITION/ELIMINATION OF DRY WEATHER DISCHARGES

Summary of 1997 Content:
<ul style="list-style-type: none">• Correction of Dry Weather Overflows

5.1 *Evaluation Findings*

- *MIL for this measure prohibits dry weather overflows and requires reporting of all dry weather sanitary and/or industrial discharges from CSOs within 24 hours.*

5.2 *Proposed Program Enhancements*

The purpose of this measure is to eliminate CSO discharges during dry weather conditions. The City has implemented a significant long-term plan to control CSO discharges and has successfully eliminated discharges during dry weather conditions. No further actions, apart from those outlined through other control measures, are planned at this time.

5.3 *Inventory/Data Updates*

Not Applicable.

6. CONTROL OF SOLID AND FLOATABLE MATERIALS IN CSO'S

<p>Summary of 1997 Content:</p> <ul style="list-style-type: none"> • Considerations in removing floatables from the surface of receiving water bodies • Approach to address the floatable control issue
--

6.1 Evaluation Findings

- *MIL for this measure prohibits discharges to the CSS of septage, holding tank wastes or other material which may cause a visible oil sheen or containing floatable materials during wet weather when CSO discharges may be active.*
- The 1997 NMC reflected the current state of floatable control technology evaluation, although no final determinations had yet been made. This updated Plan provides clarification of final design for floatable control structures.
- The approach described was implemented by the City and resulted in the upgrades integrated into the capital improvements program spanning the past decade, details of which are provided in **Appendices G and H**.

6.2 Proposed Program Enhancements

The objective of this measure is to prevent, visible floatables and solids using relatively simple measures. The program has included considerable technical evaluation of alternatives, both in terms of capital costs and O&M considerations. Controls have been provided at those combined sewer regulators where activations are more frequent than one per year and the volume associated with such is deemed substantial, in accordance with the final condition of the MWRA CSO control plan.

A narrative description of BMPs adopted and recently completed projects that specifically address this measure has been provided in **Appendix G**. BMPs that specifically target control of solids and floatables include floatables control baffles and installation of floatables control brush screens. Baffles have been installed at CAM-401A, CAM-005, CAM-007, and CAM-017 regulator structures. Baffles within the CAM-001, CAM-002A and CAM-401B structures are scheduled for construction during 2010.

6.3 Inventory/Data Updates

Please refer to **Appendix C** for a summary of structural controls employed and as-built drawings of existing and near-future controls, and **Appendix G** for a narrative description of BMPs.

7. POLLUTION PREVENTION PROGRAMS TO REDUCE CONTAMINANTS IN CSO'S

Summary of 1997 Content:

- Street Cleaning
- Public Education Program
- Solid Waste Collection and Recycling
- Product Ban/Substitution
- Control of Products Use
- Illegal Dumping
- Bulk Refuse Disposal
- Hazardous Waste Collection
- Water Conservation
- Commercial/Industrial Pollution Prevention

7.1 Evaluation Findings

- *MIL for this measure prohibits discharges to the CSS of septage, holding tank wastes or other material which may cause a visible oil sheen or containing floatable materials during wet weather when CSO discharges may be active.*
- Pollution Prevention efforts detailed in the 1997 NMC Plan are primarily (although not exclusively) dedicated to public information campaigns or services provided to City residents and businesses by the DPW in an effort to minimize contaminants contributed by other than City-owned facilities and operations. The Good Housekeeping Manual updates all BMPs and operating protocols specific to DPW-related activities; updates on new or modified programs directed to residents is provided in this report.

7.2 Proposed Program Enhancements

The purpose of this NMC is to reduce, to the greatest extent possible, the amount of contaminants that enter the CSS. As described in Section 1, the DPW has developed a Good Housekeeping Manual that addresses operation and maintenance of City infrastructure, including the CSS. Implementation of the standard protocols documented in this manual will continue to improve City performance and reduce contaminants to storm water. In addition, the City has adopted an integrated pest management (IPM) approach for maintenance of passive and active recreation areas and open space. This policy will allow the City to reduce contributions of pesticides, fungicides and herbicides as well as fertilizers to stormwater run-off. A copy of the IPM policy in its entirety has been provided in **Appendix K**.

The City has aggressively instituted public information campaigns in the course of administering its MS4 program, which contributes to reduction in household use of potential contaminants. A

selection of brochures and other printed material distributed to residents and businesses as it relates to water quality protection and pollution prevention has been provided in **Appendix L**.

The City's effort to reduce potential surface water contaminants is also manifest in an aggressive recycling program, household hazardous waste drop-offs and street sweeping programs implemented by the Sanitation Department.

The recycling program is a well established program that is committed to assisting residents, businesses and public agencies to "consume less, reuse and donate materials, and recycle what cannot be eliminated or reused." The DPW has specific programs dedicated to residents, schools, and businesses that inform but also provide guidance on program implementation as well as regulatory obligations. The City's recycling website provides a valuable repository for this information: www.cambridgema.gov/TheWorks/departments/recycle. The City sponsors several household hazardous waste (HHW) collections each year, including April 24, June 19 and October 2 of 2010. That program is extensively described on the City's DPW web site, including detailed instructions regarding what may or may not be accepted at the drop-off and guidance on handling and safety tips.

The City's street sweeping program is frequently cited by other cities and towns as a model for other communities. The major street sweeping operation runs from April through December each year and covers residential streets and all City squares. During the months of April and December the City completes a tandem street sweeping operation combining a vacuum sweeping operation following along behind a mechanical sweeping operation. Approximately 11,000 street miles are cleaned each year while over 5,000 tons of street refuse is collected. At the end of each month, the sweepers also clean the industrial areas of the City. There are three street-cleaning crews working throughout the year. The City squares are cleaned seven days per week with both street sweepers and hand-cleaning crews. Copies of the City's 2009 street sweeping schedule and street sweeping map have been provided in **Appendix M**.

As previously described, **Appendix G** provides a narrative description of structural BMPs that have been adopted by the City to address a variety of control measures. Pollution prevention BMPs cited in the narrative include BMP catch basins (sumps and hoods) which entails replacement of shallow or no pump catch basins with catch basins constructed with a six-foot minimum sump. Other BMPs include sanitary and storm drain flushing to reduce "first flush" contaminant transport, installation of grit pits to provide additional solids capture, stormceptors to provide additional water quality treatment and integration of swales for greater infiltration and water quality benefits as well. Each of these is described in greater detail in **Appendix G**, including specific areas where BMPs have been employed, and respective CSOs effected.

7.3 Inventory/Data Updates

Copies of the City's 2009 street sweeping schedule and street sweeping map have been provided in **Appendix L**. The City intends to maintain a comparable cleaning schedule for 2010.

In 2009, the City collected a total of 1,909 tons of street sweepings and another 484 tons of catch basin debris. These are aggregated totals for City-wide cleaning operations. The City does not currently generate per catch basin, or per stormwater catchment area, volumes.

Please refer to cited Appendices for detailed data updates.

8. PUBLIC NOTIFICATION

<p>Summary of 1997 Content:</p> <ul style="list-style-type: none"> • Posting at Affected Use Areas • Posting at Selected Public Places • Long Term Program
--

8.1 Evaluation Findings

Minimum Implementation Levels:

- *MIL for this measure requires maintenance of identification signs for all CSO structures, readable from both the shore and from instream locations.*
- *In collaboration with the MWRA and the City of Somerville, the City shall maintain informational signs at John Wald Park and other public access locations identified by the MassDEP including the Community Sailing Program and local boathouses to advise the public of CSO discharges and potential health impacts and to provide contact information and website links.*
- *The City, in collaboration with MWRA and the City of Somerville, shall issue a joint press release by April 15 of each year which shall include a) general information on CSOs, b) their locations in the Alewife Brook/Mystic River watershed, and c) potential health risks.*
- *The City shall provide email notice to EPA, MassDEP, local health agents, and the Mystic River Watershed Association of CSO discharges in Alewife Brook within 24hrs from onset, using CAM401B activation as the trigger.*
- *The City shall update its website to include general information regarding CSOs, including their potential health impacts, locations, status of CSO abatement projects, weblinks to CSO communities and watershed advocacy groups, and most recent information on all CSO activations in the Charles River and Alewife Brook watersheds.*

8.2 Proposed Program Enhancements

The purpose of this measure is to inform the public of the location of CSO Outfalls, the actual occurrences of CSOs, the possible health and environmental effects of CSOs, and the recreational or commercial activities curtailed as a result of CSOs.

The City maintains identification signs for all CSO outfall structures. The signs are readable both from shore and from waterways. An example of a typical sign is provided in **Appendix N**. In collaboration with the MWRA and the City of Somerville, the City maintains an informational sign at John Wald Park (**Appendix N**). The City also collaborated with MWRA in the development of printed posters to be distributed to boat houses and other locations where residents access the Charles River. A copy of the notice that accompanied the poster is included in **Appendix N**.

The City collaborates with the MWRA and the City of Somerville to distribute an annual press release to stakeholders on information on CSOs within the Alewife. An example of the most recent letter is provided in **Appendix N**.

The City provides 24-hour email notice to the Board of Health, EPA, MassDEP, and watershed associations when CAM401B activates. The real time activation is triggered by SCADA monitoring. The City of Cambridge also provides notification of CSO activations at CAM-401B through the DPW Sewer Division website CSO page:

<http://www.cambridgema.gov/TheWorks/departments/swrMnt/csomonitor.html>

The CSO webpage also provides a map of CSO locations, and historical monitoring results of CSO activations.

Another web resource for public notification is the DPW's stormwater website:

<http://www.cambridgema.gov/TheWorks/stormwater/index.html> . This website provides links to reports on the status of CSO abatement projects, and links to watershed groups. The City provides health advisory information within its emailed notices and in warnings on the Sewer Division website in the event of a CSO activation. The City will be updating its website to include additional general information regarding the potential health impacts of CSOs.

8.3 *Inventory/Data Updates*

Refer to **Appendix N** and the web links above for updated information to address the MILs.

9. MONITORING TO CHARACTERIZE CSO IMPACTS AND EFFICACY OF CSO CONTROLS

<p>Summary of 1997 Content:</p> <ul style="list-style-type: none"> • Identification of CSO Locations in the CSS • Telephone Hotline Information
--

9.1 Evaluation Findings

- *MIL for this measure requires quantification and documentation of all discharges from CSOs and retention of records for minimum of eight (8) years.*
- In addition to telephone hotlines, the City has developed a web site that allows individuals to contact the City to report spills, odors or back-ups that allows for efficient and timely response to problems. This report provides further information regarding the City's efforts to publicize means by which the public may contact the City regarding conditions related to the CSS.
- The City has recently completed an analysis of the CSO monitoring procedures and recommended revisions to the CSO Monitoring Plan, as described below.

9.2 Proposed Program Enhancements

The objective of this measure is to provide an ongoing characterization of the CSS, and to collect and document information on overflow occurrences and related known water quality problems and incidents that reflect use impairments caused by CSO's. The NPDES CSO Permit requires an Annual Report in which all CSO activations are summarized. The 2009 Annual Report also provides an evaluation of the existing CSO Monitoring Plan, and recommendations for improvements relative to quantification of effluent volumes.

Please refer to Section 2 of the 2009 Annual Report for a complete description of the recommended CSO monitoring procedures.

9.3 Inventory/Data Updates

Refer to City of Cambridge 2009 Annual Report for CSO Monitoring Plan results which document and report events for the 2009 calendar year.