

August 30, 2002

Ms. Linda Murphy  
Director, Office of Ecosystem Protection  
U.S. Environmental Protection Agency New England  
P.O. Box 8127  
Boston, MA 02114

Mr. Glenn Haas  
Acting Assistant Commissioner  
Bureau of Resource Protection  
Department of Environmental Protection  
One Winter Street  
Boston, MA 02108

RE: Massachusetts Water Resources Authority Permit Number MA0103284

Dear Ms. Murphy and Mr. Haas:

In compliance with the requirements of MWRA's NPDES Permit MA0103284 - Part I, Item 18.bb (ii) "Infiltration/Inflow" (page 28 of 32), please find the enclosed Attachments:

[Attachment 1 – An update on MWRA's Regional Infiltration/Inflow \(I/I\) Reduction Plan \(page 1 and 2\);](#)

[Attachment 2 – A list of actions take by the Authority in the past fiscal year \(FY02 July 2001-June 2002\) to reduce I/I tributary to the MWRA-owned regional interceptor system \(pages 3 and 4\);](#)

[Attachment 3 – A summary report on the status of I/I Reduction within each MWRA member sewer community \(pages 5-31\);](#)

[Attachment 4 – Estimates of MWRA member sewer community wastewater flow components that are compiled in a spreadsheet "2001 MWRA Community Wastewater Flow Component Estimates" \(page 32\).](#)

Should you require additional information, please contact Carl H. Leone, Senior Program Manager, Community Support Program at (617) 788-4356.

Sincerely,

Michael J. Hornbrook  
Chief Operating Officer

cc: Eric Hall, US EPA  
DEP – NERO, Wilmington  
Richard Chretien, DEP, NERO  
Carl H. Leone, Community Support Program

DEP-Regulatory Branch, Boston  
Steven Lipman, DEP, Boston Harbor Coordinator  
Grace Bigornia-Vitale, NPDES Coordinator

## ATTACHMENT 1

### MWRA REGIONAL I/I REDUCTION PLAN Reporting Period: July 2001 through June 2002

The MWRA Board of Directors approved the Regional Infiltration/Inflow (I/I) Reduction Plan on May 23, 2001 and authorized staff to submit the Plan to EPA and DEP as required under MWRA's NPDES Permit. The plan was submitted to EPA and DEP under cover letter dated June 29, 2001. The updated Regional I/I Reduction Plan combines recommendations from the I/I Task Force Report (March 2001) with ongoing MWRA I/I reduction initiatives. The updated plan replaces the Authority's 1990 I/I Reduction Policy. Implementation of the Regional I/I Reduction Plan focuses on the cooperative efforts of member communities, DEP, EPA and MWRA to develop and implement I/I reduction and sewer system rehabilitation projects. MWRA received EPA and DEP comments on the Regional I/I Reduction Plan in separate letters dated April 26, 2002 and January 30, 2002, respectively. MWRA responded to these comments in separate letters dated June 7, 2002.

Under the plan, MWRA has full legal and fiscal responsibility for implementation of operation, maintenance, and I/I reduction programs for the MWRA-owned interceptor system. Each member community retains full legal and fiscal responsibility for implementation of operation, maintenance and I/I reduction programs for community-owned sewers. MWRA will provide technical and financial assistance to member communities and work cooperatively with DEP, EPA and other stakeholders to help solve local and regional sewer problems. MWRA's Regional I/I Reduction Plan is organized into five major goals:

1. MWRA will continue its current operation and maintenance program for the MWRA-owned interceptor system leading to the identification, prioritization and rehabilitation of structural and I/I problems.
2. MWRA will work cooperatively with member communities, DEP and EPA to eliminate sewer system backups into homes and other buildings and to minimize health and environmental impacts of SSOs related to I/I.
3. MWRA will work cooperatively with member communities, DEP and EPA to reduce I/I in the regional collection system with emphasis on the following: (1) inflow reduction in areas tributary to sewer backups and SSOs, (2) private source inflow reduction, (3) infiltration that may impact groundwater or surface water resources, and (4) excessive infiltration as defined in DEP regulations or guidance documents.
4. MWRA will work cooperatively with member communities, DEP and EPA to expand existing efforts to educate and involve the public regarding regional sewer backup, SSO and I/I reduction issues.

5. MWRA will provide technical assistance and work cooperatively with member communities, DEP and EPA regarding guidance on local operation and maintenance and capital improvement programs intended to provide a reasonable level of sewer service to local sewer users/ratepayers.

Details of each of the five goals and implementation schedules are presented in the updated Regional I/I Reduction Plan – Interim Final, June 2001.

## ATTACHMENT 2

### MWRA ACTIONS TAKEN TO REDUCE I/I Reporting Period – July 2001 Through June 2002

The MWRA Field Operations Department's Technical Inspection program staff have internally inspected approximately 53 miles of Authority-owned interceptors and approximately 7 miles of community-owned sewers, and physically inspected about 718 sewer manholes during the past twelve months. During the internal inspection process, problems such as physical defects, infiltration, sediment, grease deposits, etc. are noted and stored in MWRA's electronic maintenance database. Problems identified during TV inspection of pipelines and physical inspection of manholes are referred to engineering staff for follow-up review. Significant physical defects and infiltration/inflow sources found through pipeline and manhole inspections are reviewed for cost-effective repair. Also during FY02, over 2200 manholes were located using MWRA's global positioning system (GPS) equipment. This information has been added to the collection system electronic database.

The MWRA is undertaking a number of projects to rehabilitate portions of Authority-owned interceptors. Updates on these projects are included below.

1. MWRA's Section 17.5 Sewer Rehabilitation Contract in Everett has been completed. Rehabilitation of 125 feet of 56 x 62-inch brick sewer was completed in August 2001. The project provided a spot repair to replace a section of pipeline with severe physical defects and significant infiltration.
2. MWRA's Wellesley Extension Sewer Replacement (WESR) Project (Contract 8) will provide for the relining of about 5.5 miles of 54 and 60-inch reinforced concrete pipe in Needham and Dedham. This \$20 million project is in the preliminary design stage and is primarily intended to minimize future sewer corrosion.
3. MWRA's Framingham Extension Relief Sewer Project (Contract 5) will provide for the rehabilitation of about 3 miles of 42 and 48-inch concrete pipe within the Framingham Extension Sewer (FES) in Natick and Dover. This \$12 million project began construction in October 2000 with an anticipated completion date of September 2002. This work will reduce infiltration entering the FES system and will minimize future sewer corrosion.
4. A contract has been awarded for the rehabilitation of the West Roxbury Tunnel which involves sliplining of approximately 1000 feet of 84-inch pipe (Sewer Section 138) and rebuilding of the drop chamber (Sewer Section 137). Construction of this \$12 million project began in June 2001 and will continue into 2005.
5. MWRA's \$215 million Braintree/Weymouth Relief Facilities Project includes rehabilitation of approximately 2000 feet of 60 x 57-inch interceptor within Section 124 in Weymouth. This portion of sewer is severely deteriorated and contributes significant infiltration. This \$12 million project is expected to begin construction in 2003.

6. MWRA's \$20 million Upper Neponset Valley Sewer Project is intended to provide hydraulic relief to about four miles of Sewer Sections 526, 527, 528, 529, and 530 located in Newton and West Roxbury. These sewers, constructed in 1896 to 1902, receive flow from West Roxbury, Newton, Brookline and Dedham. As an outcome of this project, I/I and periodic sewer system overflows will be reduced. This project is in the design stage.
7. MWRA's \$6 million Cummingsville Replacement Sewer Project is intended to provide hydraulic relief through replacement of about one mile of Sewer Section 47, constructed in the 1890's and rehabilitation of about one mile of Sewer Section 86, constructed in 1952, in Winchester. As an outcome of this project, I/I and periodic sewer system overflows will be reduced. This project is on hold pending resolution of issues raised by the Town of Winchester.
8. MWRA's \$34 million Chelsea Branch Sewer and Revere Extension Sewer Rehabilitation Project (Contract 6370) will provide for the rehabilitation of approximately 9270 feet of 30 to 54-inch sewer interceptor. Located in Chelsea, the interceptor serves the communities of Everett, Chelsea and Revere. Bids were received in May 2001. The contract was awarded in August 2001 and construction is ongoing.
9. MWRA's \$1 million Mill Brook Relief Sewer Project includes rehabilitation of approximately 4,125 feet of sewer section 93A in Lexington. The sewer serves Lexington and Bedford. As an outcome of this project, I/I will be reduced. This project is in the conceptual design stage. A notice to proceed is scheduled for May 2003.
10. MWRA's \$30 million East Boston Branch Sewer Relief Project will provide for the replacement or rehabilitation of approximately 24,750 feet of existing sewer in East Boston. The Design Phase Notice to Proceed was issued in March 2000. Construction is scheduled to begin March 2003.
11. MWRA's South Charles River Valley Sewer Project will provide for the rehabilitation of 5,150 feet of 54 x 61.5-inch brick sewer. The pipe will be rehabilitated using a cured-in-place pipe liner. The project is in construction and sewer rehabilitation is expected to be completed in the Fall 2002.
12. MWRA's Combine Sewer Overflows (CSO) Program includes a number of projects that will provide for the separation of sanitary sewer and stormwater flows. These projects will reduce stormwater inflow to the collection system. Details of MWRA's CSO Control Plan are reported under the requirements of NPDES Permit – Part I, Item 19. Long-term CSO Control Plan.

## ATTACHMENT 3

### MWRA NPDES PERMIT - I/I STATUS UPDATE FOR MEMBER COMMUNITIES REPORTING PERIOD: 7/01 THROUGH 6/02

The MWRA is working cooperatively with member communities to develop phased I/I reduction programs throughout the service area. The Authority will encourage continuing community efforts in I/I reduction as detailed in the MWRA Regional I/I Reduction Plan. Many community I/I projects are funded through MWRA's I/I Local Financial Assistance Program. The program was established to provide funding to sewer communities to perform I/I reduction and sewer system rehabilitation projects within their locally-owned collection systems. Following recommendations from the Advisory Board, the Board of Directors has approved a total program budget of \$140.75 million. The funds are allocated among the 43 MWRA sewer communities based on respective shares of overall MWRA wholesale sewer charges. Phase 1 and 2 funds (total of \$63.75 million) were distributed for approved projects as a 25 percent grant and a 75 percent interest-free loan. The grant/loan split was revised for distribution of the Phase 3 and 4 funds (total of \$77 million) to a 45 percent grant and a 55 percent interest-free loan. The loan portion is repaid to MWRA over a five-year period beginning one year after the date the funds are distributed. Through FY02, MWRA has distributed \$78 million to fund local I/I reduction and sewer system rehabilitation projects.

The Authority has instituted a computer-based questionnaire format for communities to comply with required annual I/I reduction program status reporting. All 43 member sewer communities have submitted the latest I/I status report, which have been summarized in the following paragraphs.

## **1. ARLINGTON: North System**

### Background Information:

- Miles of Sewer: 104 Sewered
- Population: 42,347
- Three Year ('99-'01) Annual Average I/I: 2.96 mgd
- Massachusetts DEP Administrative Order: None

Latest I/I or SSES Report: Grove/Brattle St. Area I/I Reduction Study

Private Source Inflow Removal Program: East End Sewer Study metering identified areas that will require additional study to identify possible sump pump/drain leader connections.

I/I Rehabilitation Projects in Design or Construction: Main line inspections performed in utility construction and roadway rehabilitation areas. Ongoing service line CCTV inspections in suspected problem areas.

Reporting Period Activity: Cleaned sediment from 300 feet of sewer main on Mystic Street and siphon under Mill Brook. Cleaned 400 feet of 12-inch sewer on Grove Street and 300 feet of 12-inch sewer on Brattle Court. Replaced approximately 300 feet of 15-inch sewer on Summer Street.

MWRA I/I Local Financial Assistance Program: The community has financed seven (7) I/I reduction projects through the Authority's funding assistance program. Of the \$2,701,000 allotted through the Program's Phases 1-4, the community has \$1,423,800 remaining in funding assistance. The community also used the MMDT accrued interest (approximately \$75,000) to partially fund the Summer Street sewer rehabilitation project.

## **2. ASHLAND: South System**

### Background Information:

- Miles of Sewer: 42 Sewered
- Population: 9,685
- Three Year ('99-'01) Annual Average I/I: 0.39 mgd
- Massachusetts DEP Administrative Order: None

Latest I/I or SSES Report: I/I Investigation and Repair 2001 (Sub-Basins I & II)

Private Source Inflow Removal Program: The town will be performing I/I removal from homes and businesses in Sub-Basin I this calendar year.

I/I Rehabilitation Projects in Design or Construction: Both the Douglas Road and Metcalf Avenue sewer rehabilitation projects have been completed with an estimated I/I removal of 60,000 gallons. 1560 linear feet of 18-inch sewer and a siphon in Framingham are to be replaced.

Reporting Period Activity: In the last year, 160,000 gallons of I/I have been removed by the Developer Flow Reduction Program. Chestnut Street Pump Station rehabilitation/upgrade construction began Spring 2000 and was completed in December 2001. Fiske Hill Estates, Harvard Estates, Workman's Circle, Apple Ridge, Oregon Heights, Signature Estates, Orchard II and Cookingham/Green sub-divisions are all under construction.

MWRA I/I Local Financial Assistance Program: The community has financed three (3) I/I reduction projects through the Authority's funding assistance program. Of the \$550,500 allotted through the Program's Phases 1-4, the community has \$193,000 remaining in funding assistance.

### **3. BEDFORD: North System**

Background Information:

- Miles of Sewer: 68
- Sewered Population: 11,084
- Three Year ('99-'01) Annual Average I/I: 1.67 mgd
- Massachusetts DEP Administrative Order: None

Latest I/I or SSES Report: I/I Study, May 2000

Private Source Inflow Removal Program: No additional inspections were reported this period.

I/I Rehabilitation Projects in Design or Construction: Sanitary Sewer Investigation and Preliminary Rehabilitation Design for sewers in Harvard Drive, Evergreen Avenue and Wiggins Avenue were postponed until Spring 2003. Hartwell Road Sewer Replacement is under construction.

Reporting Period Activity: Removal of an estimated 14,400 gpd of peak infiltration at a manhole located on Norma Road. Removal of an estimated 170,000 gpd of peak inflow by plugging a drainage pipe which had been flowing into the sanitary sewer.

MWRA I/I Local Financial Assistance Program: The community has financed two (2) I/I reduction projects through the Authority's funding assistance program. Of the \$1,079,600 allotted through the Program's Phases 1-4, the community has \$530,300 remaining in funding assistance.

### **4. BELMONT: North System**

Background Information:

- Miles of Sewer: 77
- Sewered Population: 23,686
- Three Year ('99-'01) Annual Average I/I: 2.42 mgd
- Massachusetts DEP Administrative Order: None

Latest I/I or SSES Report: SSES, Phase II Final, April 1988



Private Source Inflow Removal Program: FS&T is performing home inspections on over 300 properties to determine the extent of sump pump connections to the Town's sanitary sewer system.

I/I Rehabilitation Projects in Design or Construction: FS&T is preparing final design plans for connecting homes to the town's storm drain system and anticipates advertising for bids in the fall. This project will remove approximately 1,165,000 gpd of peak daily inflow from the existing sewer.

Reporting Period Activity: The town has developed, and is working to implement, a program where developers would either remove I/I at a rate of 5:1 or make a one time payment to the town to fund I/I removal work by the town. The three developers at the McLean Hospital site have formally agreed to participate in this program. The developer of the Belmont Uplands has agreed to the 5:1 I/I removal rate.

MWRA I/I Local Financial Assistance Program: The community has financed two (2) I/I reduction projects through the Authority's funding assistance program. Of the \$1,664,100 allotted through the Program's Phases 1-4, the community has \$496,700 remaining in funding assistance.

## **5. BOSTON: North and South Systems**

Background Information:

- Miles of Sewer: 858
- Sewered Population: 562,370
- Three Year ('99-'01) Annual Average I/I: 41.0 mgd
- Massachusetts DEP Administrative Order: None (Cooperative agreement exists)

Latest I/I or SSES Report: Ward Street Headworks SSES, February 2000

Private Source Inflow Removal Program: A Private Sector Inflow Survey has recently been completed in West Roxbury/Roslindale in six areas tributary to the Roslindale Interceptor involving approximately 5,000 buildings.

I/I Rehabilitation Projects in Design or Construction: BWSC has both completed and is currently working on a wide variety of separation and I/I rehabilitation projects. To date, thirty-four (34) projects have received funding through the MWRA I/I Local Financial Assistance Program. BWSC is currently conducting a Downspout Disconnection Program. In CY02, 2,000 downspouts on 962 buildings were disconnected in Dorchester, West Roxbury, and Roslindale.

BWSC entered into an I/I reduction agreement with the Massachusetts DEP in January 1986. As provided in the agreement, BWSC has performed a Phase II SSES on separated sewer areas within the City. BWSC also has an ongoing tide gate/regulator inspection and repair program and performs separation projects on pockets of combined sewers tributary to separated sewer areas.

Boston is one of MWRA's four combined sewer service communities. As part of the MWRA CSO Facilities Upgrade Project, Boston's flows are being evaluated for volume and discharge locations.

Reporting Period Activity: BWSC is required to report to the EPA on I/I reduction measures under their NPDES permit. This reporting requirement coincides with the MWRA's required submittal dates; therefore, please refer to the BWSC NPDES report for a summary of activities over this period.

MWRA I/I Local Financial Assistance Program: The community has financed thirty-four (34) I/I reduction projects through the Authority's funding assistance program. Of the \$40,170,200 allotted through the Program's Phases 1-4, the community has \$24,580,126 remaining in funding assistance.

## **6. BRAINTREE: South System**

Background Information:

- Miles of Sewer: 134
- Sewered Population: 33,794
- Three Year ('99-'01) Annual Average I/I: 4.32 mgd
- Massachusetts DEP Administrative Order: No. 546, issued on April 1, 1985.

Latest I/I or SSES Report: Long-Term Flow Monitoring Program, November 2001. Allen St. and Howard St. Interceptor I/I Study, December 2001. Wastewater Collection System O&M Manual, March 2002. Flow Isolation and TV Inspection in Sub-area HC-1, June 2002.

Private Source Inflow Removal Program: Two Private Sump Pump Redirect projects that redirected 62 sump pumps. Developer Flow Reduction is now 6:1 per DEP ACO.

I/I Rehabilitation Projects in Design or Construction: Infiltration work on 41 house connections and work identified from MWRA TV inspection work is complete. The lining in the Allen Street interceptor and infiltration work in sub-areas HC-2 and M-2 is complete.

Reporting Period Activity: Inflow investigations were completed in Sub-areas HC2 and M2.

MWRA I/I Local Financial Assistance Program: The community has financed two (2) I/I reduction projects through the Authority's funding assistance program. Of the \$2,373,000 allotted through the Program's Phases 1-4, the community has \$1,355,900 remaining in funding assistance.

## **7. BROOKLINE: North and South Systems**

Background Information:

- Miles of Sewer: 100
- Sewered Population: 56,536
- Three Year ('99-'01) Annual Average I/I: 6.20 mgd
- Massachusetts DEP Administrative Order: None

Latest I/I or SSES Report: Wastewater System Master Plan, November 1999

Private Source Inflow Removal Program: No additional inspections were reported during this period.

I/I Rehabilitation Projects in Design or Construction: The Town of Brookline completed the installation of 4,500 feet of sewer involved in a sewer separation project including Emerson Street, Davis Street, and Elm Street.

Reporting Period Activity: I/I Reduction Project No. 1 including the investigation and rehabilitation of Sub-area NI-1 and NI-2 is ongoing.

MWRA I/I Local Financial Assistance Program: The community has financed three (3) I/I reduction projects through the Authority's funding assistance program. Of the \$3,980,200 allotted through the Program's Phases 1-4, the community has \$1,191,700 remaining in funding assistance.

## **8. BURLINGTON: North System**

Background Information:

- Miles of Sewer: 115
- Sewered Population: 21,995
- Three Year ('99-'01) Annual Average I/I: 1.98 mgd
- Massachusetts DEP Administrative Order: No. 618, issued (as revised) on May 12, 1986 and updated in 2001.

Latest I/I or SSES Report: System-wide I/I study is ongoing

Private Source Inflow Removal Program: 268 house-to-house inspections have been conducted.

I/I Rehabilitation Projects in Design or Construction: Developer flow reduction has removed 97,500 gpd of inflow from the system.

Reporting Period Activity: Two sump pumps have been redirected and inflow has been removed based on Metcalf & Eddy's preliminary report. I/I study is approaching completion.

MWRA I/I Local Financial Assistance Program: The community has financed three (3) I/I reduction projects through the Authority's funding assistance program. Of the \$1,517,800 allotted through the Program's Phases 1-4, the community has \$894,960 remaining in funding assistance.

## **9. CAMBRIDGE: North System**

Background Information:

- Miles of Sewer: 163
- Sewered Population: 101,254
- Three Year ('99-'01) Annual Average I/I: 9.45 mgd

- Massachusetts DEP Administrative Order: None

Latest I/I or SSES Report: I/I and SSES – Phase I dated February 2001

Private Source Inflow Removal Program: Fawcett Street area building inspections complete. May Street area building inspections to begin August 2002.

I/I Rehabilitation Projects in Design or Construction: The City continues its implementation of Storm Water Management Program. DPW continues to require developers to handle as much storm water as possible on their sites by using dry wells and other storm water retention/detention devices.

Reporting Period Activity: Common Manhole Contract No.2 is complete with 48 manholes separated from the system. Common Manhole Contract No.3 will be advertised for bid in September 2002. Phase VI - Contract 2B and 3B sewerage and drainage improvements, are ongoing. South Massachusetts Avenue sewerage and drainage improvements is ongoing. Design and permitting are ongoing for the Willard Street Outfall and Beacon Street Flood Alleviation projects. Cambridgeport and Myrtle/Magnolia improvements are in design and permitting stage. South Massachusetts Avenue Sanitary Sewer Rehabilitation is in the design and permit stage.

MWRA I/I Local Financial Assistance Program: The community has financed three (3) I/I reduction projects through the Authority's funding assistance program. Of the \$7,315,100 allotted through the Program's Phases 1-4, the community has \$2,395,245 remaining in funding assistance.

## **10. CANTON: South System**

Background Information:

- Miles of Sewer: 63
- Sewered Population: 16,620
- Three Year ('99-'01) Annual Average I/I: 2.07 mgd
- Massachusetts DEP Administrative Order: No. 537 Issued on April 3, 1984.

Latest I/I or SSES Report: Additional Investigations based on 1994 SSES are ongoing.

Private Source Inflow Removal Program: No additional inspections were reported during this period.

I/I Rehabilitation Projects in Design or Construction: The Additional Investigations Project based on the 1994 SSES is progressing. Plans and Specifications for Phase III Sewer Rehabilitation have been prepared.

Reporting Period Activity: Constructed 850 feet of 8-inch gravity sewer. Decommissioned Estey Way Pump Station. Replacement of Trayer Road Pump Station bid August 2002.

MWRA I/I Local Financial Assistance Program: The community has financed four (4) I/I reduction projects through the Authority's funding assistance program. The community has spent its entire \$1,281,900 of funding assistance.

## **11. CHELSEA: North System**

Background Information:

- Miles of Sewer: 41
- Sewered Population: 35,080
- Three Year ('99-'01) Annual Average I/I: 2.0 mgd
- Massachusetts DEP Administrative Order: None

Latest I/I or SSES Report: Television inspection of sewers and drains is ongoing.

Private Source Inflow Removal Program: Private inflow source identification is complete for CHE-007 tributary areas.

I/I Rehabilitation Projects in Design or Construction: Sewer replacement on Chestnut Street includes approximately 1,200 feet of 8 – 12-inch sewers. Design is ongoing and construction planned for FY2003-2004. Planning of I/I rehabilitation and sewer separation in the tributary to CSO CHE-008 is ongoing.

Chelsea is one of MWRA's combined sewer service communities. As part of the MWRA CSO Facilities Upgrade Project, Chelsea's flows are being evaluated for volume and discharge locations.

Reporting Period Activity: Construction of Crescent Avenue Sewer Project consists of 1,025 feet of 18-inch PVC sewer line with grout support system, redirection of 10 catch basins from sewer to drain, installation of an overflow regulator structure to maintain sanitary flows. Construction of the sewer and drain improvements on Fifth, Willow and Springvale Streets are complete. Construction for sewer and drain improvements in Garfield, Murray and Garland Streets is also complete. Construction is ongoing for the rehabilitation of the Carter Street drainage Pump Station.

MWRA I/I Local Financial Assistance Program: The community has financed seven (7) I/I reduction projects through the Authority's funding assistance program. Of the \$1,901,100 allotted through the Program's Phases 1-4, the community has \$676,236 remaining in funding assistance.

## **12. DEDHAM: South System**

Background Information:

- Miles of Sewer: 82
- Sewered Population: 22,056
- Three Year ('99-'01) Annual Average I/I: 3.67 mgd
- Massachusetts DEP Administrative Order: No. 547 Issued on October 1, 1985.

Latest I/I or SSES Report: TV Inspection of Sewers, January 2000

Private Source Inflow Removal Program: The Town will be reviewing past inspections and performing smoke testing to further identify private inflow sources.

I/I Rehabilitation Projects in Design or Construction: The Town has completed the design of a replacement sewer on Nelson Drive. A private developer finished the replacement and relocation of approximately 1,200 feet of cross-country sewer between Elm Street and Rustcraft Road. The construction of Sewer Pipeline Rehabilitation Contract 2001-1 was completed in the Spring 2002. The field work for the Manor Study was completed in 2001.

Reporting Period Activity: The Town is currently finalizing a design for a 1,100-foot sewer replacement and extension on Wentworth Street and the Endicott Estate property. Due to schedule concerns, the town decided to postpone construction until Spring 2002. The town is still in the process of developing a grease control program to help reduce the amount of grease that is entering the sewers causing backups and SSOs.

MWRA I/I Local Financial Assistance Program: The community has financed six (6) I/I reduction projects through the Authority's funding assistance program. The community has spent its entire \$1,833,000 of funding assistance.

### **13. EVERETT: North System**

Background Information:

- Miles of Sewer: 52
- Sewered Population: 37,999
- Three Year ('99-'01) Annual Average I/I: 3.67 mgd
- Massachusetts DEP Administrative Order: None

Latest I/I or SSES Report: SSES - Final, December 1990.

Private Source Inflow Removal Program: No additional inspections were reported during this period.

I/I Rehabilitation Projects in Design or Construction: The City is in the process of designing a construction contract based upon smoke testing and TV inspection performed during Fall 1999.

Reporting Period Activity: The town continues with their sewer system separation and rehabilitation. The separation work consists of the redirection of six catch basins from the sewer system to the drainage system on Hamilton Street, Hoyt Street, Perry Place and Silver Street. The sewer rehabilitation work will consist of the replacement of complete sewer segments and small spot repairs in Sewer Area 3 of the City.

MWRA I/I Local Financial Assistance Program: The community has financed six (6) I/I reduction projects through the Authority's funding assistance program. The community has spent the entire \$2,425,500 of funding assistance.

## **14. FRAMINGHAM: South System**

### Background Information:

- Miles of Sewer: 275
- Sewered Population: 62,226
- Three Year ('99-'01) Annual Average I/I: 2.81 mgd
- Massachusetts DEP Administrative Order: No. 592 Issued on January 8, 1986.

Latest I/I or SSES Report: Mini-SSES (Sudbury River Interceptor) - Final review is ongoing

Private Source Inflow Removal Program: Advertising for excavation contractor.

I/I Rehabilitation Projects in Design or Construction: The Sudbury River Interceptor Rehabilitation project was bid in April 2002. The notice to proceed was given in June 2002. Rehabilitation will be completed in November 2002.

Reporting Period Activity: The Town's Developer Flow Reduction program has removed 16,628 gpd in town and 36,080 gpd out of town.

MWRA I/I Local Financial Assistance Program: The community has financed three (3) I/I reduction projects through the Authority's funding assistance program. Of the \$3,943,000 allotted through the Program's Phases 1-4, the community has \$2,660,605 remaining in funding assistance.

## **15. HINGHAM: South System**

### Background Information:

- Miles of Sewer: 31
- Sewered Population: 6,124
- Three Year ('99-'01) Annual Average I/I: 0.79 mgd
- Massachusetts DEP Administrative Order: No. 536 Issued on November 15, 1985.

Latest I/I or SSES Report: TV Inspection, October 1987.

Private Source Inflow Removal Program: The door-to-door sump pump inspection program continues; 451 houses on 23 streets have been inspected to date. Based on these inspections, 62 sump pumps were located with 18 of them confirmed connected to the sewer. Two plumbers have been engaged to complete the redirection of these pumps.

I/I Rehabilitation Projects in Design or Construction: Miscellaneous repairs including manhole and pipe replacements have been carried out. Planning is underway for major renovations of sewers in the central portion of the sewer district involving chimney replacements.

Reporting Period Activity: Instantaneous flow monitoring and manhole inspections were performed to identify sewer segments contributing excessive infiltration. The primary area of focus was the cross-country section of sewer along the beach immediately upstream of the Belair Pump Station, where approximately 100,000 gpd of I/I was identified. Flow monitoring was also

performed in the area tributary to the Malcolm Street Pump Station. Approximately 29,000 gpd of I/I was found to be tributary to this station. The Developer Flow Reduction Program has new connection fees based on a 4:1 reduction ratio that are being collected for the sole use of I/I removal.

MWRA I/I Local Financial Assistance Program: The community has financed two (2) I/I reduction projects through the Authority's funding assistance program. Of the \$445,500 allotted through the Program's Phases 1-4, the community has \$340,600 remaining in funding assistance.

## **16. HOLBROOK: South System**

Background Information:

- Miles of Sewer: 36
- Sewered Population: 8,326
- Three Year ('99-'01) Annual Average I/I: 0.46 mgd
- Massachusetts DEP Administrative Order: None

Latest I/I or SSES Report: Facilities Plan, November 1985.

Private Source Inflow Removal Program: Public Works Supervisors inspected properties connected to the municipal system. New homes were inspected during the installation of water meters. Some commercial establishments were revisited to monitor possible inflow connections.

I/I Rehabilitation Projects in Design or Construction: Various areas of main trunk sewers were flushed during the year.

Holbrook's collection system is relatively new (post 1976). The Town has proposed to hold off on a SSES until additional sewer contracts will have been constructed. The Holbrook collection system is being extended under the present Phase II Construction Project.

Reporting Period Activity: The Town has completed its yearly check of all cross-country sewer manholes.

MWRA I/I Local Financial Assistance Program: The community has financed one (1) I/I reduction project through the Authority's funding assistance program. The community has spent the entire \$496,600 of funding assistance.

## **17. LEXINGTON: North System**

Background Information:

- Miles of Sewer: 153
- Sewered Population: 28,625
- Three Year ('99-'01) Annual Average I/I: 2.86 mgd
- Massachusetts DEP Administrative Order: None

Latest I/I or SSES Report: Sewer System GPS Mapping, April 2002.



Private Source Inflow Removal Program: The Town is in the process of preparing a public education brochure.

I/I Rehabilitation Projects in Design or Construction: Sewer Rehabilitation Project #3 is complete. Relining of 1,000 feet of 21-inch interceptor sewer main will be bid in September 2002.

Reporting Period Activity: The town issued 70 new sewer connection permits. The extension of 2190 feet of sewer on Weston and Lincoln Streets and 530 feet of sewer on Westview and Maguire Road were completed.

MWRA I/I Local Financial Assistance Program: The community has financed four (4) I/I reduction projects through the Authority's funding assistance program. Of the \$2,175,300 allotted through the Program's Phases 1-4, the community has \$641,700 remaining in funding assistance.

## **18. MALDEN: North System**

Background Information:

- Miles of Sewer: 99
- Sewered Population: 56,284
- Three Year ('99-'01) Annual Average I/I: 5.37 mgd
- Massachusetts DEP Administrative Order: None

Latest I/I or SSES Report: I/I Analysis and SSES in Broadway II Sump Area, March 1996.

Private Source Inflow Removal Program: No additional inspections were reported during this period.

I/I Rehabilitation Projects in Design or Construction: Design is underway for sewer line improvements in the Edgeworth area based on recommendations from I/I studies done by FS&T.

Reporting Period Activity: Sewer extensions in the Mountain View and Lake Street Subdivisions totaled 4100 feet.

MWRA I/I Local Financial Assistance Program: The community has financed three (3) I/I reduction projects through the Authority's funding assistance program. Of the \$3,529,900 allotted through the Program's Phases 1-4, the community has \$1,540,903 remaining in funding assistance.

## **19. MEDFORD: North System**

Background Information:

- Miles of Sewer: 114
- Sewered Population: 55,709
- Three Year ('99-'01) Annual Average I/I: 4.81 mgd
- Massachusetts DEP Administrative Order: None

Latest I/I or SSES Report: SSES (Phase 1) was completed in June 2000, Phase 2 is ongoing.

Private Source Inflow Removal Program: No additional inspections were reported during this period.

I/I Rehabilitation Projects in Design or Construction: There have been no modifications or extensions to the collection system over the last 6 months.

Reporting Period Activity: Sewer Lining (Contract 99-1A) is complete except for the guarantee work. Manhole lining (Contract 00-1) and sewer rehabilitation (Contract 99-1B) were both completed in Spring 2001.

MWRA I/I Local Financial Assistance Program: The community has financed five (5) I/I reduction projects through the Authority's funding assistance program. Of the \$3,726,600 allotted through the Program's Phases 1-4, the community has \$1,070,500 remaining in funding assistance.

## **20. MELROSE: North System**

Background Information:

- Miles of Sewer: 74
- Sewered Population: 27,107
- Three Year ('99-'01) Annual Average I/I: 2.12 mgd
- Massachusetts DEP Administrative Order: None

Latest I/I or SSES Report: I/I Rehabilitation Project Recommendations, November 28, 2001

Private Source Inflow Removal Program: No additional inspections were reported during this period.

I/I Rehabilitation Projects in Design or Construction: None.

Reporting Period Activity: The City is continuing its public and private inflow source identification and removal program. In the past year, the City has raised 2 MWRA and 2 community sewer manholes at the Roosevelt School to elevations above flood stage to eliminate stormwater inflow. The City issued a special permit to a large mixed-use development with a special condition to remove 115,175 gpd of I/I.

MWRA I/I Local Financial Assistance Program: The community has financed three (3) I/I reduction projects through the Authority's funding assistance program. Of the \$1,769,300 allotted through the Program's Phases 1-4, the community has \$1,189,500 remaining in funding assistance.

## **21. MILTON: South System (Small Portion Tributary to the North System).**

### Background Information:

- Miles of Sewer: 83
- Sewered Population: 24,498
- Three Year ('99-'01) Annual Average I/I: 2.85 mgd
- Massachusetts DEP Administrative Order: No. 580, issued on June 13, 1985.

Latest I/I or SSES Report: Town-Wide Sewer System Evaluation, June 2002.

Private Source Inflow Removal Program: The Town is continuing to pursue the removal of sump pumps and other private inflow sources identified through a previously completed building inspection program.

I/I Rehabilitation Projects in Design or Construction: In March 2002, a sewer rehabilitation project was completed that removed an estimated 0.254 mgd of peak infiltration. During CY01/02, miscellaneous inflow sources were redirected removing 231,300 gpd from the system. The community Developer Flow Reduction Program has removed 20,000 gpd in the past year (4:1 reduction ratio is used).

Reporting Period Activity: In June 2002, emergency sewer repairs were made on Thacher Street and Granite Avenue. The Thacher Street repair was conducted to remove excessive root intrusion. The Granite Avenue repair was conducted to correct a previous repair that was installed incorrectly.

MWRA I/I Local Financial Assistance Program: The community has financed twelve (12) I/I reduction projects through the Authority's funding assistance program. The community has spent its entire \$1,799,500 of funding assistance.

## **22. NATICK: South System**

### Background Information:

- Miles of Sewer: 105
- Sewered Population: 26,798
- Three Year ('99-'01) Annual Average I/I: 1.50 mgd
- Massachusetts DEP Administrative Order: No. 593, issued on November 15, 1985.

Latest I/I or SSES Report: I/I Study, 2002/2003

Private Source Inflow Removal Program: No additional inspections were reported during this period.

I/I Rehabilitation Projects in Design or Construction: The Town has completed Sewer System Rehabilitation Contract No. S-82. This work was partially funded through the MWRA Phase 2 I/I Local Financial Assistance Program (MWRA Project No. WRA-P2-22-3-206). The Town is scheduled to conduct private inflow inspections of all houses in the next three years.

Reporting Period Activity: Boden Lane Pump Station flow diversion construction is complete. This pump station was eliminated via a new gravity sewer connected to the MWRA Framingham Extension Sewer. New local sewer installations have been completed at Leach Lane and Eliot Street.

MWRA I/I Local Financial Assistance Program: The community has financed three (3) I/I reduction projects through the Authority's funding assistance program. Of the \$1,782,600 allotted through the Program's Phases 1-4, the community has \$625,600 remaining in funding assistance.

### **23. NEEDHAM: South System**

Background Information:

- Miles of Sewer: 123
- Sewered Population: 26,887
- Three Year ('99-'01) Annual Average I/I: 3.39 mgd
- Massachusetts DEP Administrative Order: No. 549, issued on November 21, 1984.

Latest I/I or SSES Report: Smoke Testing Report

Private Source Inflow Removal Program: The Town performed follow-up house-to-house inspections within Needham Sub-Area 19-1.

I/I Rehabilitation Projects in Design or Construction: The Mackintosh Avenue sewer and manhole rehabilitation project is complete. Replacement of four manholes on Richardson Drive was completed in Spring 2002.

Reporting Period Activity: Carol Road and Frank Street sewer system rehabilitation is complete. The Town has completed 3,800 feet of sewer extensions at Olin College.

MWRA I/I Local Financial Assistance Program: The community has financed two (2) I/I reduction projects through the Authority's funding assistance program. Of the \$2,038,600 allotted through the Program's Phases 1-4, the community has \$560,300 remaining in funding assistance.

### **24. NEWTON: North and South Systems**

Background Information:

- Miles of Sewer: 268
- Sewered Population: 82,152
- Three Year ('99-'01) Annual Average I/I: 9.80 mgd
- Massachusetts DEP Administrative Order: None

Latest I/I or SSES Report: Concord Street/Albermarle Road Interceptor Investigations are ongoing.

Private Source Inflow Removal Program: The City continues home inspections for illicit connections to the sanitary sewer collection system. External inspections were performed on 27 homes and internal inspections were performed at 6 homes on Longfellow Road in September 2001.

I/I Rehabilitation Projects in Design or Construction: The Quinobequin Road I/I investigation and design is scheduled to go to bid September 2002.

Reporting Period Activity: The City added four new sewer connections to the sanitary system. I/I flow evaluations continue. The Watertown Street Sewer and Underdrain Point Repair Project was completed in May 2002. The Longfellow Road and Jasset Street area construction project is scheduled to be complete September 2002. The Newton Sanitary Sewer and Underdrain Separation Project is scheduled to be complete in August 2002.

MWRA I/I Local Financial Assistance Program: The community has financed nine (9) I/I reduction projects through the Authority's funding assistance program. Of the \$6,517,400 allotted through the Program's Phases 1-4, the community has \$3,106,500 remaining in funding assistance.

## **25. NORWOOD: South System**

Background Information:

- Miles of Sewer: 88
- Sewered Population: 28,558
- Three Year ('99-'01) Annual Average I/I: 3.57 mgd
- Massachusetts DEP Administrative Order: No. 534, issued on July 25, 1983.

Latest I/I or SSES Report: The Inflow Identification Program is ongoing.

Private Source Inflow Removal Program: An additional 414 buildings were inspected, 23 illegal sump pump connections were identified, and three illegal connections have been removed.

I/I Rehabilitation Projects in Design or Construction: The Hawes Brook Basin I/I Identification Project is ongoing. The Meadowbrook Basin project to identify sewer system I/I, as well as sources of wastewater pollution in storm drains, is ongoing.

Reporting Period Activity: The Norwood Commerce Center, Phase II Sewer System Improvements project is ongoing.

MWRA I/I Local Financial Assistance Program: The community has financed eight (8) I/I reduction projects through the Authority's funding assistance program. Of the \$2,091,400 allotted through the Program's Phases 1-4, the community has \$386,800 remaining in funding assistance.

## **26. QUINCY: South System**

### Background Information:

- Miles of Sewer: 221
- Sewered Population: 87,937
- Three Year ('99-'01) Annual Average I/I: 9.30 mgd
- Massachusetts DEP Administrative Order: No. 644, issued on October 22, 1986.

Latest I/I or SSES Report: Houghs Neck Collection System/Sea Street Interceptor Evaluation. (March 2002).

Private Source Inflow Removal Program: No additional inspections were reported during this period.

I/I Rehabilitation Projects in Design or Construction: The North Quincy Sewer Interceptor Improvements (Phase II) have been completed.

Reporting Period Activity: Area 7 Sewer and Water Improvements Project, North Quincy Lateral Sewer Improvements Project (Phase I), and Quincy Shore Drive Sewer Improvement Project (Phase I) are ongoing. Estimated annual I/I reduction totals 0.20 mgd.

MWRA I/I Local Financial Assistance Program: The community has financed five (5) I/I reduction projects through the Authority's funding assistance program. Of the \$5,985,000 allotted through the Program's Phases 1-4, the community has \$1,750,000 remaining in funding assistance.

## **27. RANDOLPH: South System**

### Background Information:

- Miles of Sewer: 110
- Sewered Population: 30,715
- Three Year ('99-'01) Annual Average I/I: 1.82 mgd
- Massachusetts DEP Administrative Order: No. 548, issued on July 29, 1985.

Latest I/I or SSES Report: Narrowway Brook I/I Investigation (December 2000)

Private Source Inflow Removal Program: No additional inspections were reported during this period.

I/I Rehabilitation Projects in Design or Construction: The Phase 2 SSES report within Sub-Areas 1, 2, 3, 4, and 8 has been completed. The Developer Flow Reduction program was increased to a 4:1 reduction ratio.

Reporting Period Activity: Sewer Rehabilitation Project 00-S3 was completed in February 2002. Estimated infiltration removed is 0.28 MGD.

MWRA I/I Local Financial Assistance Program: The community has financed four (4) I/I reduction projects through the Authority's funding assistance program. Of the \$1,850,800 allotted through the Program's Phases 1-4, the community has \$519,900 remaining in funding assistance.

## **28. READING: North System**

Background Information:

- Miles of Sewer: 96
- Sewered Population: 22,262
- Three Year ('99-'01) Annual Average I/I: 1.20 mgd
- Massachusetts DEP Administrative Order: None

Latest I/I or SSES Report: Wastewater Collection System Facilities Planning Report (October 1996).

Private Source Inflow Removal Program: Completed Phase 1 of the house-to-house inspection program. The project inspected 837 buildings and found 26 sump pumps connected to the sewer. Work is beginning on removing the sump pumps from the system.

I/I Rehabilitation Projects in Design or Construction: The Town rehabilitated 17 sewer manholes, performed spot repairs in 10 locations, performed cured-in-place spot repairs in 12 locations, replaced 900 feet of sewer main, and 3 sewer manholes. About 12,400 feet of sewers were cleaned and TV inspected. The sewer replacement project in the Walkers Brook Drive Area is reaching completion.

Reporting Period Activity: Completed sewer extensions including Fanta Road sewer extension (100 feet of 8-inch PVC sewer) and Pondview Lane sewer extension (500 feet of 8-inch PVC sewer).

MWRA I/I Local Financial Assistance Program: The community has financed one (1) I/I reduction project through the Authority's funding assistance program. Of the \$1,356,100 allotted through the Program's Phases 1-4, the community has \$380,700 remaining in funding assistance.

## **29. REVERE: North System**

Background Information:

- Miles of Sewer: 78
- Sewered Population: 41,047
- Three Year ('99-'01) Annual Average I/I: 4.37 mgd
- Massachusetts DEP Administrative Order: No. 837, issued on April 21, 1991.

Latest I/I or SSES Report: SSES Phase 3, August 1999.

Private Source Inflow Removal Program: No additional inspections were reported during this period.

I/I Rehabilitation Projects in Design or Construction: The city lined sewers on 16 street totaling 7065 feet.

Reporting Period Activity: No additional modifications and/or extensions of the collection system over the past year.

MWRA I/I Local Financial Assistance Program: The community has financed four (4) I/I reduction projects through the Authority's funding assistance program. Of the \$2,902,900 allotted through the Program's Phases 1-4, the community has \$1,571,400 remaining in funding assistance.

### **30. SOMERVILLE: North System**

Background Information:

- Miles of Sewer: 107
- Sewered Population: 77,401
- Three Year ('99-'01) Annual Average I/I: 6.99 mgd
- Massachusetts DEP Administrative Order: No. NON-NE-00-1006 Issued January 21, 2000.

Latest I/I or SSES Report: Sewer System Rehabilitation Design (Final), April 2002.

Private Source Inflow Removal Program: Approximately 40 additional homes were inspected, no illegal connections were found.

I/I Rehabilitation Projects in Design or Construction: The City is continuing with the ongoing maintenance program repairing catch basins, manholes, and sewer segments. The community has spent approximately \$893,000 in the last 12 months on this program with an estimated I/I reduction of 3,000 gpd.

Somerville is one of MWRA's combined sewer service communities. As part of the MWRA CSO Facilities Upgrade Project, Somerville's flows are being evaluated for volume and discharge locations.

Reporting Period Activity: Developers are now required to meet a 4:1 I/I removal ratio for new sewer projects.

MWRA I/I Local Financial Assistance Program: The community has financed two (2) I/I reduction projects through the Authority's funding assistance program. Of the \$4,823,800 allotted through the Program's Phases 1-4, the community has \$3,934,100 remaining in funding assistance.



### **31. STONEHAM: North System**

Background Information:

- Miles of Sewer: 63
- Sewered Population: 21,664
- Three Year ('99-'01) Annual Average I/I: 2.08 mgd
- Massachusetts DEP Administrative Order: None

Latest I/I or SSES Report: Infrastructure Maintenance Management Program Phase 2, January 1999.

Private Source Inflow Removal Program: No additional inspections were reported during this period.

I/I Rehabilitation Projects in Design or Construction: Phase 3 work orders were completed. The smoke testing/detection program was completed. Flow monitoring is continuing. The Phase 6 TV inspection began on July 1, 2002 using aqua-zoom to film manholes and line segments to pinpoint locations for follow-up in-line camera work. On July 1, 2002, a project was initiated to totally replace sewers, manholes, and service connections on Summer Street.

Reporting Period Activity: The East Side Pumping Station (Rita Road) had a new pump and channel grinder installed with a second pump to be installed in the fall. New channel grinders are scheduled to be installed at the North Street and Upland Road Pump Stations next year.

MWRA I/I Local Financial Assistance Program: The community has financed three (3) I/I reduction projects through the Authority's funding assistance program. Of the \$1,635,900 allotted through the Program's Phases 1-4, the community has \$478,900 remaining in funding assistance.

### **32. STOUGHTON: South System**

Background Information:

- Miles of Sewer: 60
- Sewered Population: 17,375
- Three Year ('99-'01) Annual Average I/I: 2.30 mgd
- Massachusetts DEP Administrative Order: No. 538, issued on June 17, 1984.

Latest I/I or SSES Report: Phase 5 I/I Reduction Report, October 2000.

Private Source Inflow Removal Program: Sub-area TV inspection of service connections is ongoing.

I/I Rehabilitation Projects in Design or Construction: Phase 5 rehabilitation construction has commenced.

Reporting Period Activity: Phase 5 rehabilitation construction is ongoing and the York Street Pump Station rehabilitation is complete.

MWRA I/I Local Financial Assistance Program: The community has financed four (4) I/I reduction projects through the Authority's funding assistance program. The community has spent its entire \$1,436,900 of funding assistance.

### **33. WAKEFIELD: North System**

Background Information:

- Miles of Sewer: 90
- Sewered Population: 23,745
- Three Year ('99-'01) Annual Average I/I: 3.18 mgd
- Massachusetts DEP Administrative Order: None

Latest I/I or SSES Report: Assessment of Sub-Area 6, July 2002.

Private Source Inflow Removal Program: During this period, the Town investigated and eliminated 13 private inflow sources on Gould Street.

I/I Rehabilitation Projects in Design or Construction: The Subarea 3 - Sanitary Sewer Rehabilitation Project (approximately 7,200 feet of sewer) was completed in October 2001. Flow isolation studies indicated an estimated 158,500 gpd of infiltration was removed. Additional rehabilitation of approximately 1,400 feet of sewer was completed in August 2002 and removed an estimated 5,400 gpd of infiltration.

Reporting Period Activity: Upgrading of the West Park Drive and Farm Street Pump Stations was completed and the sewer main next to the Mill Brook was rehabilitated.

MWRA I/I Local Financial Assistance Program: The community has financed seven (7) I/I reduction projects through the Authority's funding assistance program. Of the \$1,824,900 allotted through the Program's Phases 1-4, the community has \$488,800 remaining in funding assistance.

### **34. WALPOLE: South System**

Background Information:

- Miles of Sewer: 64
- Sewered Population: 14,607
- Three Year ('99-'01) Annual Average I/I: 1.39 mgd
- Massachusetts DEP Administrative Order: None

Latest I/I or SSES Report: SSES Phases 1 and 2, June 2002.

Private Source Inflow Removal Program: To date, no removal of private inflow sources discovered during the July 1996 smoke testing program.

I/I Rehabilitation Projects in Design or Construction: The Diamond Brook Sewer/Drain Separation removed approximately 14,400 gpd of I/I. Developers continue to remove infiltration as part of the ongoing 2:1 ratio I/I removal program.

Reporting Period Activity: Phase 1 sewer rehabilitation is complete. The project removed approximately 429,000 gpd of I/I.

MWRA I/I Local Financial Assistance Program: The community has financed three (3) I/I reduction projects through the Authority's funding assistance program. The community has spent its entire \$1,139,000 of funding assistance.

### **35. WALTHAM: North System**

Background Information:

- Miles of Sewer: 138
- Sewered Population: 59,167
- Three Year ('99-'01) Annual Average I/I: 6.63 mgd
- Massachusetts DEP Administrative Order: None

Latest I/I or SSES Report: The SSES Program and additional metering are ongoing. An I/I Analysis was completed in June 1999.

Private Source Inflow Removal Program: No additional inspections were reported during this period.

I/I Rehabilitation Projects in Design or Construction: Sewer Replacement and Rehabilitation (Contract 01-1) has been substantially completed and is awaiting closeout. The project repaired existing sewers that showed evidence of infiltration and cross-connections into the drainage system. The project included 2,000 feet of sewer replacement on Forest Street with spot repairs.

Reporting Period Activity: Sewer System Rehabilitation (Contract 01-2) was completed and 58 spot repairs were made to the system.

MWRA I/I Local Financial Assistance Program: The community has financed five (5) I/I reduction projects through the Authority's funding assistance program. The community has spent its entire \$4,212,400 of funding assistance.

### **36. WATERTOWN: North System**

Background Information:

- Miles of Sewer: 75
- Sewered Population: 32,986
- Three Year ('99-'01) Annual Average I/I: 2.09 mgd
- Massachusetts DEP Administrative Order: ACOP-NE-97-5004

Latest I/I or SSES Report: I/I Analysis Draft Report dated September 2000.

Private Source Inflow Removal Program: TV inspections, smoke and dye testing are ongoing. The Town has identified 13 storm drain cross-connections issues with the sanitary sewer.

I/I Rehabilitation Projects in Design or Construction: The Town has repaired 19 separate sewer mains and sewer laterals, replaced 300 feet of 18-inch sanitary sewer on Arlington Street, and replaced 250 feet of 12-inch sewer main on Parker Street.

Reporting Period Activity: Watertown is moving forward with the drain improvements and sewer replacements in the Parker Street and Falmouth Road areas. Over the past year, 32 catch basins have been rebuilt, two storm drain lined have been replaced, and one storm drain line was extended.

MWRA I/I Local Financial Assistance Program: The community has financed one (1) I/I reduction project through the Authority's funding assistance program. Of the \$2,041,800 allotted through the Program's Phases 1-4, the community has \$1,719,235 remaining in funding assistance.

### **37. WELLESLEY: South System**

Background Information:

- Miles of Sewer: 130
- Sewered Population: 25,309
- Three Year ('99-'01) Annual Average I/I: 2.28 mgd
- Massachusetts DEP Administrative Order: No. 579, issued on May 23, 1985.

Latest I/I or SSES Report: Phase 2 SSES, November 1994.

Private Source Inflow Removal Program: The Town is preparing for a sump pump removal program by first identifying existing drainage facilities.

I/I Rehabilitation Projects in Design or Construction: Contract No. 02C-50-20 Sewer Rehabilitation in the Cliff Estates Area is ongoing. The purpose of this project is to determine the structural condition of the sewer, test all sewer pipe joints, and inspect all sewer manholes in the area. The project will include sealing all joints and manhole leaks that do not meet pressure test criteria.

Reporting Period Activity: The Town of Wellesley is nearing completion on the construction of approximately 600 feet of 8-inch PVC sanitary sewer on Schaller Street.

MWRA I/I Local Financial Assistance Program: The community has financed three (3) I/I reduction projects through the Authority's funding assistance program. Of the \$1,751,700 allotted through the Program's Phases 1-4, the community has \$1,449,200 remaining in funding assistance.

### **38. WESTWOOD: South System**

Background Information:

- Miles of Sewer: 81
- Sewered Population: 12,490
- Three Year ('99-'01) Annual Average I/I: 1.09 mgd
- Massachusetts DEP Administrative Order: No. 578, issued on May 23, 1985.

Latest I/I or SSES Report: SSES Phases 1 and 2, January 1991.

Private Source Inflow Removal Program: No additional inspections were reported during this period. FY03 Annual Program will include house surveys to locate illicit connections and inflow sources.

I/I Rehabilitation Projects in Design or Construction: The Annual Sewer System Maintenance Program will commence in August. The program was delayed due to low groundwater conditions. The program will include TV inspection of 5 miles of sewer, sewer manhole sealing, and house inspections for illicit connections.

Reporting Period Activity: The construction of 5,735 feet of new sewer laterals is complete. The completion of an additional 1,700 feet of 8-inch lateral sewer is pending.

MWRA I/I Local Financial Assistance Program: The community has financed four (4) I/I reduction projects through the Authority's funding assistance program. The community has spent its entire \$733,300 of funding assistance.

### **39. WEYMOUTH: South System**

Background Information:

- Miles of Sewer: 240
- Sewered Population: 50,859
- Three Year ('99-'01) Annual Average I/I: 4.98 mgd
- Massachusetts DEP Administrative Order: No. 543, issued on November 14, 1984.  
A new ACO was signed in 1999.

Latest I/I or SSES Report: Sanitary Sewer System Assessment Report, March 2000.

Private Source Inflow Removal Program: 283 sump pumps were redirected for an estimated total of 141,500 gpd of I/I removal.

I/I Rehabilitation Projects in Design or Construction: Rehabilitation of the Swan Avenue Ejector Station is complete. The Town has completed 1,400 manhole inspections and performing flow isolation in the North Weymouth and Mill River area. Flow isolation and smoke testing in North Weymouth and Mill River is in the planning phase. Project 00-1 Rehabilitation Construction is complete.

Reporting Period Activity: The Town has enacted a Water Conservation Program and reduced 119,850 gpd during this reporting period. The Town completed flow isolation in the Southeast and Landing sub-basins and started sealing lines within the Old Swamp and Lower Central sub-basins. The Town completed the IBTA application. Planning and design of 5 CIP projects are underway. Television inspection for Lower Central and Old Swamp sub-basins is in the planning stage. The Town has replaced 10,618 feet of 8-inch sewer in the past year.

MWRA I/I Local Financial Assistance Program: The community has financed ten (10) I/I reduction projects through the Authority's funding assistance program. Of the \$3,517,900 allotted through the Program's Phases 1-4, the community has \$310,959 remaining in funding assistance.

#### **40. WILMINGTON: North System**

Background Information:

- Miles of Sewer: 20
- Sewered Population: 3,832
- Three Year ('99-'01) Annual Average I/I: 0.78 mgd
- Massachusetts DEP Administrative Order: None

Latest I/I or SSES Report: Infrastructure Maintenance & Management Program (IMMP) 2001.

Private Source Inflow Removal Program: No additional inspections were reported during this period.

I/I Rehabilitation Projects in Design or Construction: Bid documents for a multi-year sewer rehabilitation contract are complete and the project will be bid in September 2002. Rehabilitation is based on the IMMP and Aqua Zoom inspection results.

Reporting Period Activity: To date, 23,000 feet of pipeline has been cleaned and CCTV inspected since the start of the Infrastructure Maintenance and Management Program. The Town completed the installation of 2,200 feet of 8-inch PVC sewer.

MWRA I/I Local Financial Assistance Program: The community has financed two (2) I/I reduction projects through the Authority's funding assistance program. Of the \$740,000 allotted through the Program's Phases 1-4, the community has \$217,000 remaining in funding assistance.

#### **41. WINCHESTER: North System**

Background Information:

- Miles of Sewer: 83
- Sewered Population: 20,789
- Three Year ('99-'01) Annual Average I/I: 1.62 mgd
- Massachusetts DEP Administrative Order: ACO proposed in 2001.

Latest I/I or SSES Report: I/I Removal Report, April 1994.

Private Source Inflow Removal Program: Approximately 109 private inflow sources have been disconnected to date.

I/I Rehabilitation Projects in Design or Construction: Severn Trent Environmental Services was awarded a contract to clean, TV inspect, and seal approximately 44,000 feet of sewer lines.

Reporting Period Activity: The private inflow sources mentioned above were disconnected.

MWRA I/I Local Financial Assistance Program: The community has financed two (2) I/I reduction projects through the Authority's funding assistance program. Of the \$1,324,000 allotted through the Program's Phases 1-4, the community has \$371,700 remaining in funding assistance.

## **42. WINTHROP: North System**

Background Information:

- Miles of Sewer: 34
- Sewered Population: 18,303
- Three Year ('99-'01) Annual Average I/I: 1.13 mgd
- Massachusetts DEP Administrative Order: None

Latest I/I or SSES Report: SSES Part 2 is ongoing.

Private Source Inflow Removal Program: No additional inspections were reported during this period.

I/I Rehabilitation Projects in Design or Construction: The Town has recently completed a Phase 2 SSES. This work, funded through the MWRA I/I Local Financial Assistance Program, includes rainfall simulation, house-to-house inspections, and flow data analysis.

Reporting Period Activity: The Town is preparing a construction contract to eliminate cost-effective inflow sources.

MWRA I/I Local Financial Assistance Program: The community has financed three (3) I/I reduction projects through the Authority's funding assistance program. Of the \$1,062,400 allotted through the Program's Phases 1-4, the community has \$775,300 remaining in funding assistance.

### **43. WOBURN: North System**

#### Background Information:

- Miles of Sewer: 138
- Sewered Population: 36,327
- Three Year ('99-'01) Annual Average I/I: 4.91 mgd
- Massachusetts DEP Administrative Order: ACO-NE-01-1005, dated August 16, 2001

Latest I/I or SSES Report: Long Term Flow Monitoring of the Horn Pond Sewer, May 1999.

Private Source Inflow Removal Program: A developer has implemented a private source inflow removal program in the downtown section of the city. To date, nine sources of private inflow have been confirmed totaling in excess of 60,000 gpd. Construction began in November 2001 on the removal of these 9 sources of private inflow. The work was completed in January 2002 with an estimated 815,000 gpd of flow removed from the system.

I/I Rehabilitation Projects in Design or Construction: The City has started preparing a program to remove illegal connections to its sanitary sewer system. The City continues working on this pilot project and will eventually develop a citywide program.

Reporting Period Activity: Many projects are in the planning/funding stages and will be performed during the upcoming year.

MWRA I/I Local Financial Assistance Program: The community has financed three (3) I/I reduction projects through the Authority's funding assistance program. Of the \$3,322,500 allotted through the Program's Phases 1-4, the community has \$2,406,100 remaining in funding assistance.



2001 MWRA COMMUNITY WASTEWATER FLOW COMPONENT ESTIMATES (CY01 -12 MONTHS)

COMMUNITY	2001 Averages (1)					Components of Average Daily Flow (Estimated) (2)						Peak Month ADF (MGD)	Percent Peak Month ADF (6)			
	Community Demographics		No. of Connects to MWRA System	Miles of Local Sewers (3)	No. of Meters for Permanent System	Average Daily Flow ADF (MGD)	Percent Average Daily Flow (6)	Selected Dry Day ADF (MGD)	Average Daily Infiltration (MGD)	Infiltration As a % of Average Daily Flow	Average Sanitary Flow (MGD)			Sanitary As a % of Average Daily Flow	Average Daily Inflow (4) (MGD)	Inflow As a % of Average Daily Flow
	Total Population	Sewered Population														
Arlington	42,389	42,347	321	106	7	5.79	1.76%	5.31	2.70	46.6%	2.61	45.1%	0.48	8.3%	11.54	2.04%
Ashland	14,674	9,685	2	43	2	1.05	0.32%	0.94	0.34	32.4%	0.60	57.1%	0.11	10.5%	1.68	0.30%
Bedford	12,595	11,084	2	68	2	3.09	0.94%	2.89	1.64	53.1%	1.25	40.5%	0.20	6.5%	4.90	0.87%
Belmont	24,194	23,686	2	78	2	3.40	1.04%	3.01	1.58	46.5%	1.43	42.1%	0.38	11.2%	7.60	1.34%
BWSC (5)	589,141	553,793	234	840	33	94.73	28.84%	79.56	27.34	28.9%	52.22	55.1%	15.16	16.0%	154.60	27.34%
Braintree	33,828	33,794	15	133	7	6.30	1.92%	5.69	3.40	54.0%	2.29	36.3%	0.61	9.7%	9.02	1.59%
Brookline	57,107	56,536	9	102	12	9.38	2.86%	8.66	4.77	50.9%	3.88	41.4%	0.73	7.8%	15.40	2.72%
Burlington	22,876	21,995	0	115	1	3.35	1.02%	3.16	1.74	51.9%	1.42	42.4%	0.19	5.7%	5.57	0.98%
Cambridge (5)	101,355	101,254	116	150	9	17.99	5.48%	15.55	7.19	40.0%	8.36	46.5%	2.45	13.6%	24.29	4.29%
Canton	20,775	16,620	63	62	6	3.14	0.96%	2.75	1.61	51.3%	1.14	36.3%	0.38	12.1%	5.07	0.90%
Chelsea (5)	35,080	35,080	40	41	5	4.57	1.39%	3.87	1.31	28.7%	2.56	56.0%	0.70	15.3%	7.15	1.26%
Dedham	23,464	22,056	25	76	6	5.02	1.53%	4.09	2.59	51.6%	1.50	29.9%	0.93	18.5%	10.05	1.78%
Everett	38,037	37,999	20	57	7	6.04	1.84%	5.49	3.07	50.8%	2.42	40.1%	0.55	9.1%	10.02	1.77%
Framingham	66,910	62,226	4	275	4	6.98	2.13%	6.38	2.01	28.8%	4.37	62.6%	0.60	8.6%	11.50	2.03%
Hingham	6,782	6,124	1	31	1	1.15	0.35%	1.00	0.57	49.6%	0.43	37.4%	0.15	13.0%	2.58	0.46%
Holbrook	10,785	8,326	2	31	2	0.88	0.27%	0.83	0.38	43.2%	0.45	51.1%	0.05	5.7%	1.43	0.25%
Lexington	30,355	28,625	17	151	4	5.38	1.64%	4.79	2.33	43.3%	2.46	45.7%	0.59	11.0%	10.96	1.94%
Malden	56,340	56,284	242	99	6	8.60	2.62%	7.95	4.92	57.2%	3.03	35.2%	0.65	7.6%	13.34	2.36%
Medford	55,765	55,709	71	113	6	8.75	2.66%	7.74	3.85	44.0%	3.89	44.5%	1.00	11.4%	17.07	3.02%
Melrose	27,134	27,107	187	74	5	3.94	1.20%	3.22	1.53	38.8%	1.69	42.9%	0.72	18.3%	9.39	1.66%
Milton	26,062	24,498	45	83	14	4.04	1.23%	3.32	1.85	45.8%	1.47	36.4%	0.72	17.8%	9.43	1.67%
Natick	32,170	26,798	27	107	4	3.21	0.98%	2.73	0.97	30.2%	1.76	54.8%	0.48	15.0%	5.24	0.93%
Needham	28,911	26,887	21	115	2	5.27	1.60%	4.49	2.69	51.0%	1.80	34.2%	0.78	14.8%	9.87	1.75%
Newton	83,829	82,152	51	271	7	15.37	4.68%	14.07	7.41	48.2%	6.66	43.3%	1.30	8.5%	28.74	5.08%
Norwood	28,587	28,558	30	83	6	5.26	1.60%	4.46	2.61	49.6%	1.85	35.2%	0.80	15.2%	9.07	1.60%
Quincy	88,025	87,937	56	202	6	14.23	4.33%	12.61	7.15	50.2%	5.46	38.4%	1.61	11.3%	23.18	4.10%
Randolph	30,963	30,715	2	101	2	3.48	1.06%	3.13	1.29	37.1%	1.84	52.9%	0.34	9.8%	6.80	1.20%
Reading	23,708	22,262	2	86	2	2.69	0.82%	2.49	0.99	36.8%	1.50	55.8%	0.20	7.4%	4.96	0.88%
Revere	47,283	47,047	3	78	1	6.16	1.88%	5.64	3.13	50.8%	2.51	40.7%	0.52	8.4%	9.90	1.75%
Somerville (5)	77,478	77,401	43	107	7	11.02	3.36%	8.85	4.97	45.1%	3.88	35.2%	2.17	19.7%	20.13	3.56%
Stoneham	22,219	21,664	23	63	7	3.28	1.00%	2.98	1.04	31.7%	1.94	59.1%	0.29	8.8%	5.18	0.92%
Stoughton	27,149	17,375	1	60	2	3.15	0.96%	2.80	1.74	55.2%	1.06	33.7%	0.35	11.1%	6.05	1.07%
Wakefield	24,804	23,745	10	82	2	4.96	1.51%	4.44	2.75	55.4%	1.69	34.1%	0.53	10.7%	10.56	1.87%
Walpole	22,824	14,607	1	56	2	2.23	0.68%	1.84	0.93	41.7%	0.91	40.8%	0.39	17.5%	3.83	0.68%
Waltham	59,226	59,167	3	138	3	10.34	3.15%	9.59	5.63	54.4%	3.96	38.3%	0.75	7.3%	17.18	3.04%
Watertown	32,986	32,986	14	75	3	4.21	1.28%	3.86	1.79	42.5%	2.07	49.2%	0.35	8.3%	8.34	1.47%
Wellesley	26,613	25,309	2	130	3	3.95	1.20%	3.31	1.69	42.8%	1.62	41.0%	0.64	16.2%	8.27	1.46%
Westwood	14,117	12,282	3	77	3	1.88	0.57%	1.65	0.95	50.5%	0.70	37.2%	0.23	12.2%	3.67	0.65%
Weymouth	53,988	50,749	17	238	4	7.78	2.37%	7.15	3.97	51.0%	3.18	40.9%	0.64	8.2%	14.22	2.51%
Wilmington	21,363	3,632	2	19	1	1.77	0.54%	1.69	0.79	44.6%	0.90	50.8%	0.08	4.5%	2.32	0.41%
Winchester	20,810	20,789	72	83	7	3.01	0.92%	2.76	1.50	49.8%	1.26	41.9%	0.25	8.3%	5.75	1.02%
Winthrop	18,303	18,303	21	36	6	1.81	0.55%	1.59	0.75	41.4%	0.84	46.4%	0.22	12.2%	2.40	0.42%
Woburn	37,258	36,327	18	141	13	9.83	2.99%	9.01	4.82	49.0%	4.19	42.6%	0.82	8.3%	17.30	3.06%
<b>Totals/Averages</b>	<b>2,118,262</b>	<b>2,001,517</b>	<b>1,840</b>	<b>5,076</b>	<b>234</b>	<b>328.46</b>	<b>100.00%</b>	<b>287.34</b>	<b>136.28</b>	<b>41.5%</b>	<b>151.05</b>	<b>46.0%</b>	<b>41.09</b>	<b>12.5%</b>	<b>565.55</b>	<b>100.00%</b>

FOOTNOTES:

- (1) Figures tabulated using data from the MWRA Wastewater Metering System for Calendar Year 2001.
- (2) Wastewater flow components are estimated through engineering analysis by MWRA staff.
- (3) Miles of Local Sewers are from MWRA's regional collection system database or as reported by the Community and do not include service laterals.
- (4) Average Daily Inflow is calculated as a total inflow over the period of January through December 2001 divided by 365 days. Actual inflow during a specific storm event must be calculated separately.
- (5) Community with combined sewers. Inflow figures include combined flow during storm events tributary to MWRA's WWTP.
- (6) Percent average Daily Flow and Percent Peak Month ADF are the two flow-based components of MWRA's Wholesale Sewer Rate Methodology.

Column Summations: Average Daily Flow (ADF) Column F = I+K+M Average Dry Day Flow Column H = I+K