



# Update on MWRA's Community Support Program

Carl Leone  
October 6, 2017



# MWRA I/I Local Financial Assistance Program Contacts

## SEWER SYSTEM TOPICS



### **Infiltration/Inflow (I/I) Local Assistance Program**

Grant and loan program to fund local I/I reduction and sewer system rehabilitation projects for member sewer communities.



### **Annual Infiltration/Inflow Reduction Report (PDF)**

A progress update on regional I/I reduction accomplishments by fiscal year as required by MWRA's NPDES Permit.



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Plan as approved by the MWRA Board of Directors on May 23, 2001. MWRA submitted the plan to the US EPA and MA DEP as required under MWRA's NPDES Permit. It was approved by MA DEP on November 19, 2002.



### **I/I Task Force Report (PDF)**

Regional report developed through the cooperative efforts of 43 MWRA member communities and other regional stakeholders. The report recommends implementation of regional I/I reduction goals and implementation strategies.



### **The MWRA Sewer System**

Information about our sewer system, wastewater treatment, and our state of the art facilities.

### **Sanitary Sewer Overflows (SSOs)**

## MWRA Contacts

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<http://www.mwra.com/comsupport/communitysupportmain.html>



# MWRA Annual I/I Reduction Report

## SEWER SYSTEM TOPICS



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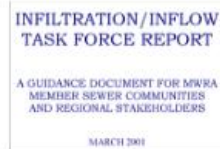
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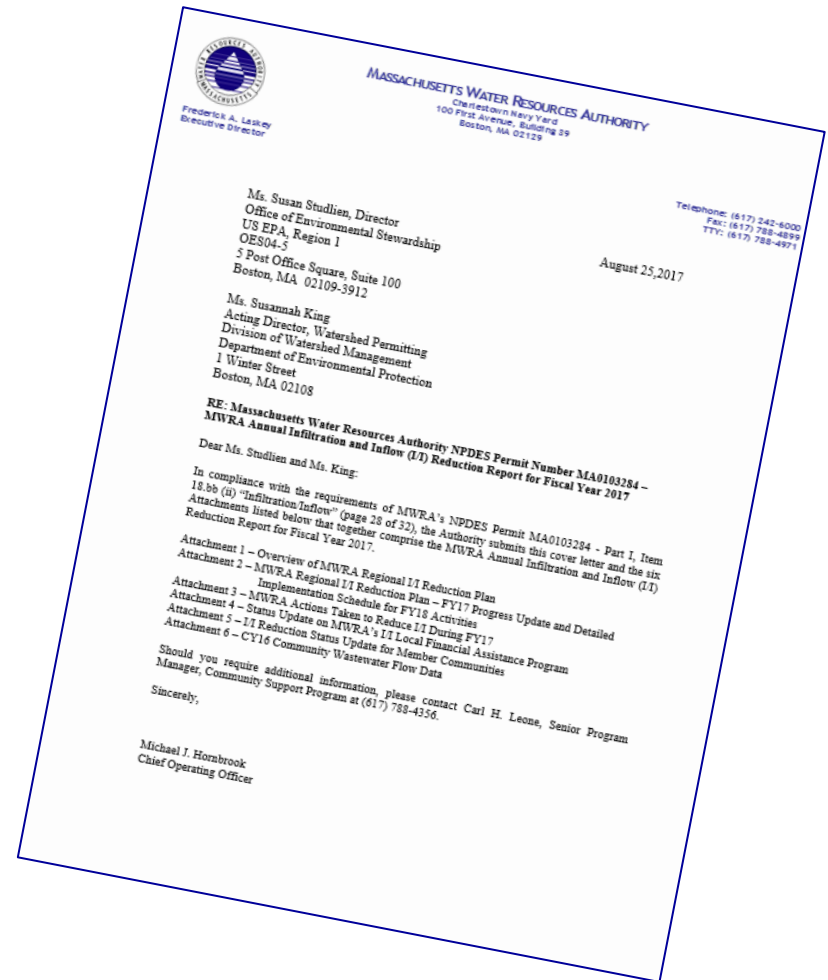
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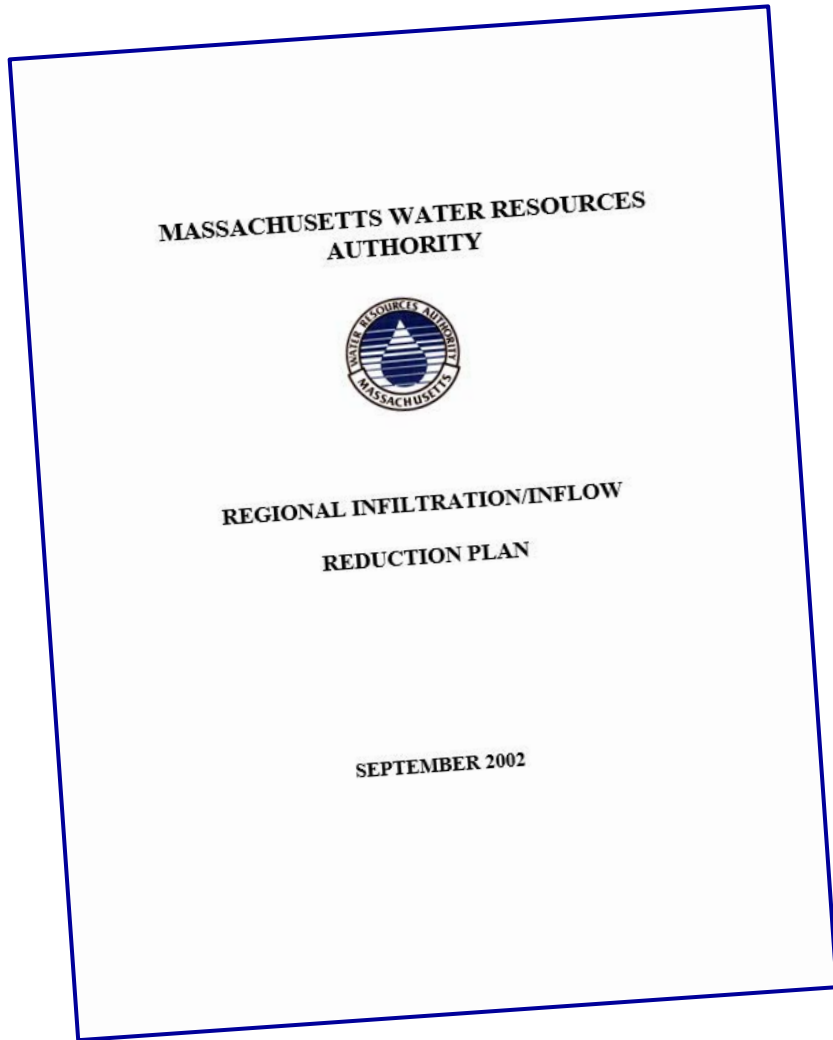
# MWRA Annual I/I Reduction Report

- Overview of MWRA I/I Reduction Plan
- FY17 Update for MWRA System
- Update on I/I Financial Assistance
- CY16 Wastewater Flow Data





# MWRA I/I Reduction Plan



- O & M of MWRA-Owned System
- Work Cooperatively with Communities, DEP, & EPA to:
  - Eliminate Sewer Backups and Minimize SSOs
  - Reduce I/I
  - Educate the Public
  - Technical Assistance for O & M and Capital Improvements



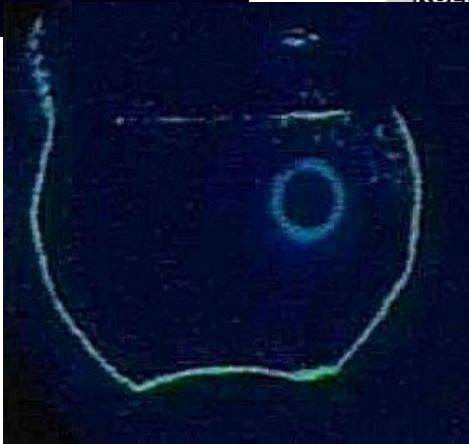
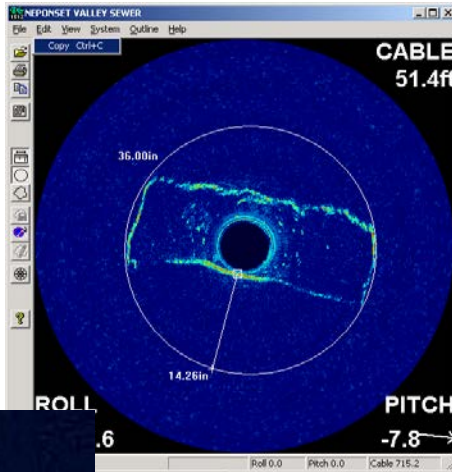
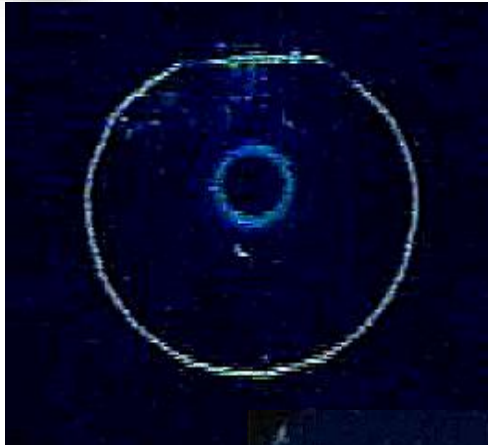
# O & M of MWRA-Owned System

- Manhole and Structure Inspection – Target 700 per year
- CCTV Inspections & Pipeline Cleaning – Target 35 miles per year





# O & M of MWRA-Owned System



- Siphon Barrel Sonar Inspection & Cleaning – Target 50 barrels per year



- Manhole Frame and Cover Replacement – Target 110 per year





# O & M of MWRA-Owned System



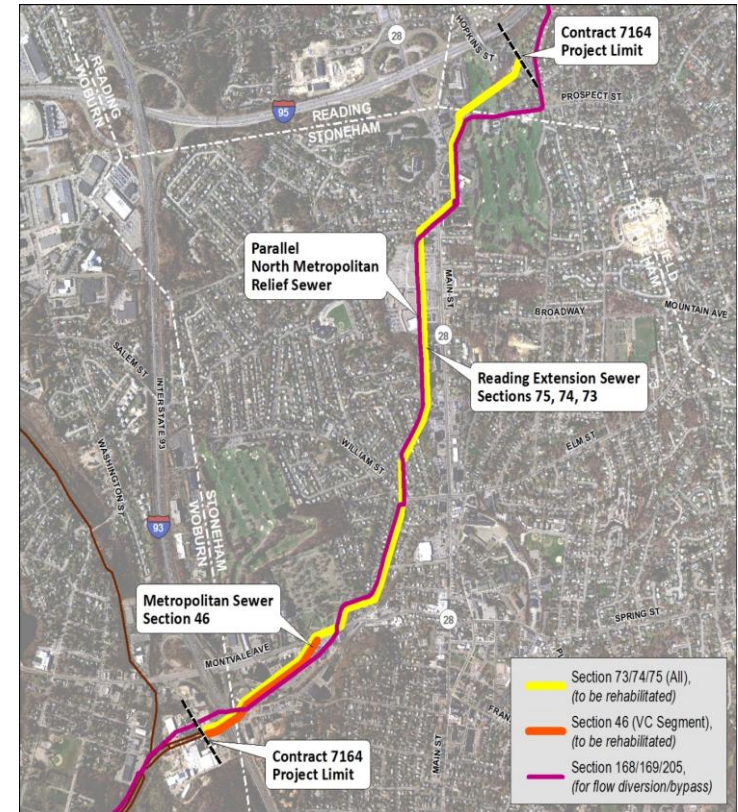
- Manhole Structural Rehabilitation – Target 50-75 manholes per year







# O & M of MWRA-Owned System



- Interceptor Renewal Program via CIP Projects
  - \$126 Million for 10 Projects Completed FY04-FY17
  - \$88 Million for 7 Projects in FY18 CIP
  - \$82 Million for 6 Future Projects in Master Plan



# Wastewater Metering for Flow-Based Rates

- O & M of 200+ Wastewater Meters
- Rate Basis Wastewater Flow Data to Communities Every 2 months
- Web-Based Access to Recent Data
- \$20 Million Metering System Upgrade Project FY18-22





# MWRA Community Support Program

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### **Sanitary Sewer Overflows (SSOs)**



# Infiltration/Inflow – I/I



**Infiltration**  
(Groundwater via physical defects)

**Inflow**  
(Stormwater via direct connections)

**Goal** – Rehabilitation of local sewer systems and long-term reduction of I/I



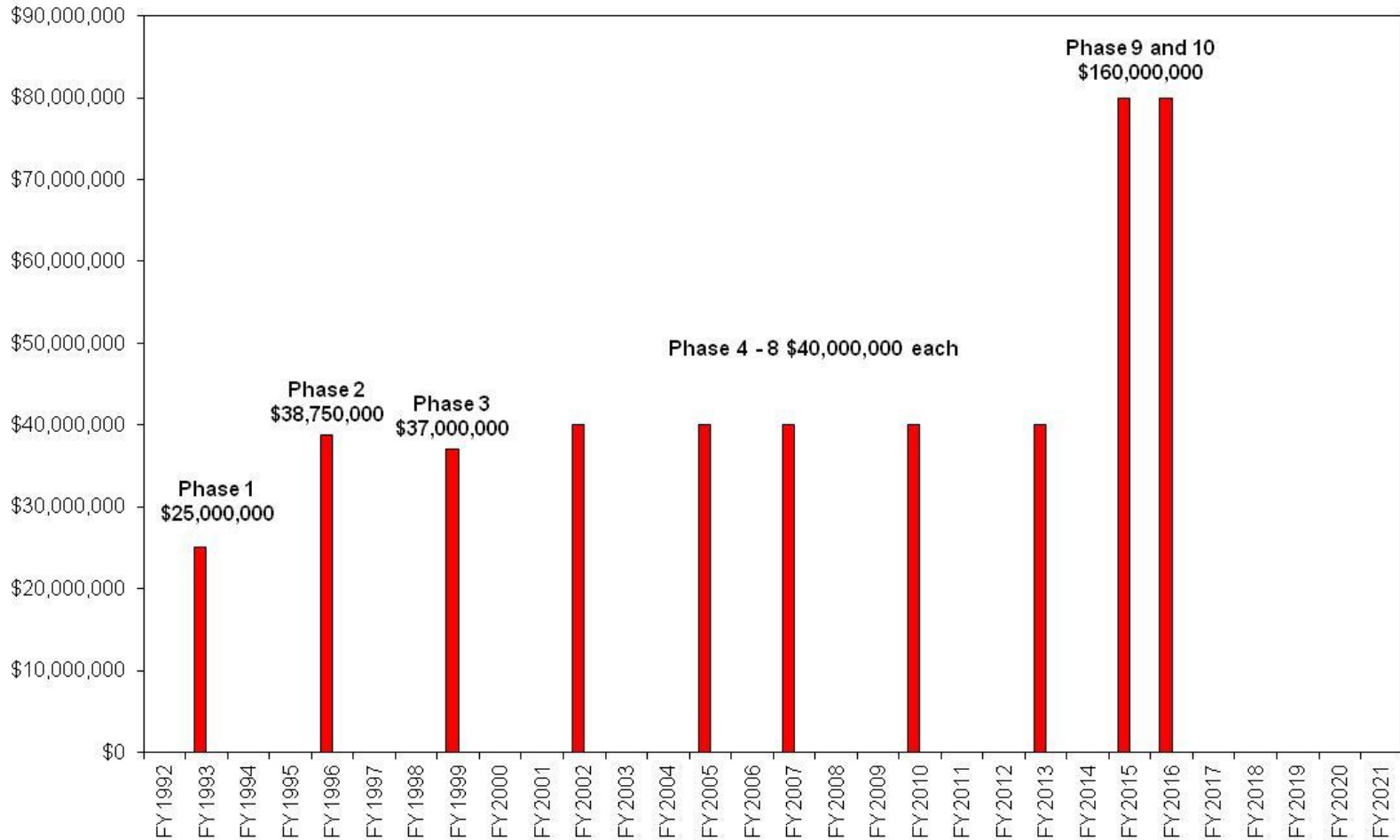
## MWRA I/I Local Financial Assistance Program

- \$461M approved for distribution (10 Phases)
- \$332M distributed (FY93 – FY17)
- 528 local projects funded
- All 43 member sewer communities participating
- Community allocation based on % share sewer charge
  
- \$160M approved in FY15 with enhanced funding terms
  - Prior terms 45% grant / 55% 5-year interest-free loan
  - New terms 75% grant / 25% 10-year interest-free loan



# MWRA's Long-Term Commitment to Fund I/I Reduction

**I/I Local Financial Assistance Program  
Timing of Phases 1 through 10**





# I/I Local Financial Assistance Program Funding Summary

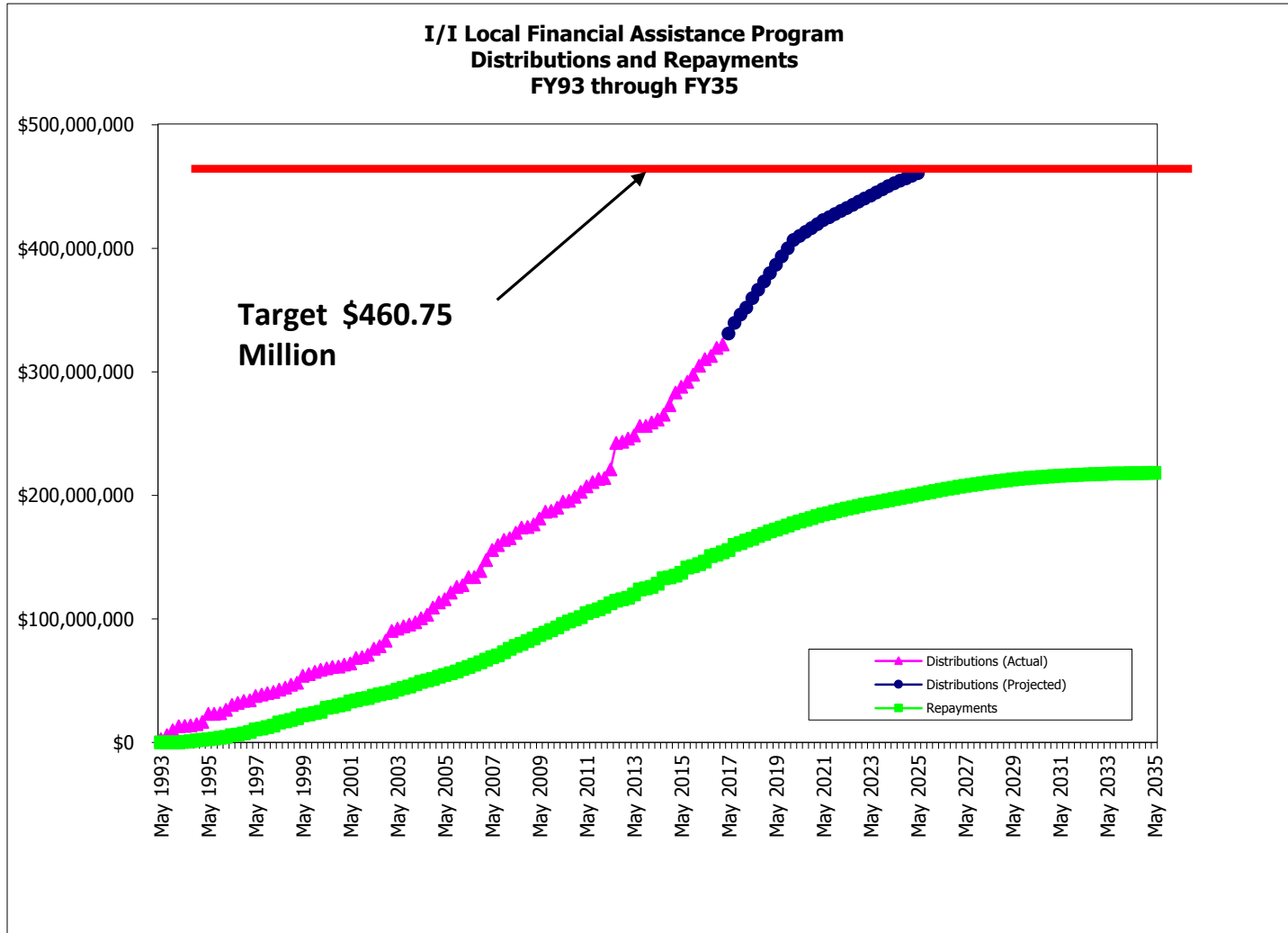
## MWRA I/I LOCAL FINANCIAL ASSISTANCE PROGRAM FUNDING SUMMARY AS OF JULY 2017

Community	Total Allocations (Phases 1 - 10)	Total Distributions (Phases 1 - 10)	Percent Distributed	Funds Remaining
Arlington	\$8,423,000	\$8,213,000	98%	\$210,000
Ashland	\$2,168,500	\$1,742,450	80%	\$426,050
Bedford	\$3,404,600	\$1,999,600	59%	\$1,405,000
Belmont	\$5,135,100	\$2,992,100	58%	\$2,143,000
Boston	\$132,171,200	\$92,678,406	70%	\$39,492,794
Braintree	\$8,359,000	\$6,575,800	79%	\$1,783,200
Brookline	\$13,165,200	\$7,666,200	58%	\$5,499,000
Burlington	\$5,102,800	\$5,102,800	100%	\$0
Cambridge	\$23,620,100	\$11,077,055	47%	\$12,543,045
Canton	\$3,965,900	\$2,675,900	67%	\$1,290,000
Chelsea	\$6,870,100	\$5,551,100	81%	\$1,319,000
Dedham	\$5,740,000	\$5,740,000	100%	\$0
Everett	\$8,071,500	\$6,650,500	82%	\$1,421,000
Framingham	\$12,125,000	\$7,255,910	60%	\$4,869,090
Hingham	\$1,632,500	\$1,632,500	100%	\$0
Holbrook	\$1,639,600	\$896,562	55%	\$743,038
Lexington	\$7,445,300	\$7,445,300	100%	\$0
Malden	\$12,283,900	\$4,593,900	37%	\$7,690,000
Medford	\$11,987,600	\$6,914,600	58%	\$5,073,000
Melrose	\$6,076,300	\$4,995,300	82%	\$1,081,000
Milton	\$5,564,500	\$3,736,500	67%	\$1,828,000
Natick	\$5,582,600	\$4,613,600	83%	\$969,000
Needham	\$6,257,600	\$2,892,150	46%	\$3,365,450
Newton	\$21,197,400	\$21,197,400	100%	\$0
Norwood	\$6,879,400	\$4,519,399	66%	\$2,360,001
Quincy	\$19,790,000	\$16,336,000	83%	\$3,454,000
Randolph	\$6,050,800	\$3,894,800	64%	\$2,156,000
Reading	\$4,629,100	\$3,785,100	82%	\$844,000
Revere	\$10,130,900	\$5,502,900	54%	\$4,628,000
Somerville	\$15,515,800	\$10,117,800	65%	\$5,398,000
Stoneham	\$4,919,900	\$4,919,900	100%	\$0
Stoughton	\$4,722,900	\$4,629,100	98%	\$93,800
Wakefield	\$5,966,900	\$5,966,900	100%	\$0
Walpole	\$3,680,000	\$3,042,000	83%	\$638,000
Waltham	\$13,732,400	\$11,377,400	83%	\$2,355,000
Watertown	\$6,285,800	\$3,661,800	58%	\$2,624,000
Wellesley	\$5,709,700	\$3,256,224	57%	\$2,453,476
Westwood	\$2,532,300	\$2,091,300	83%	\$441,000
Weymouth	\$11,480,900	\$7,785,900	68%	\$3,695,000
Wilmington	\$2,462,000	\$1,606,000	65%	\$856,000
Winchester	\$4,183,000	\$3,535,100	85%	\$647,900
Winthrop	\$3,393,400	\$2,807,400	83%	\$586,000
Woburn	\$10,695,500	\$8,962,500	84%	\$1,733,000
<b>Totals</b>	<b>\$460,750,000</b>	<b>\$332,636,156</b>	<b>72%</b>	<b>\$128,113,844</b>

Last 5 Years I/I Funding	\$111.5 Million
FY13	\$27.4 Million
FY14	\$12.8 Million
FY15	\$26.6 Million
FY16	\$22.4 Million
FY17	\$22.3 Million



# MWRA's Long-Term Commitment to Fund I/I Reduction







## I/I Funding Results – Infiltration Reduction

- TV inspection of sewers – 1,902 miles
- Sewers replaced – 60 miles
- Cured-in-place pipe (CIPP) liners – 165 miles
- Sewers chemically sealed – 149 miles
- Sewer spot repairs – 2,398
- Service connection repairs – 11,891
- Underdrains sealed – 4.8 miles
- Manholes rehabilitated/sealed – 16,118



# Weymouth TV Inspection





# Weymouth Cured-In-Place Pipe Spot Repair





# Weymouth Manhole Rehabilitation



**H<sub>2</sub>S Deterioration of Manhole**



**Cementitious  
Liner Applied**





# Norwood Sewer Rehabilitation

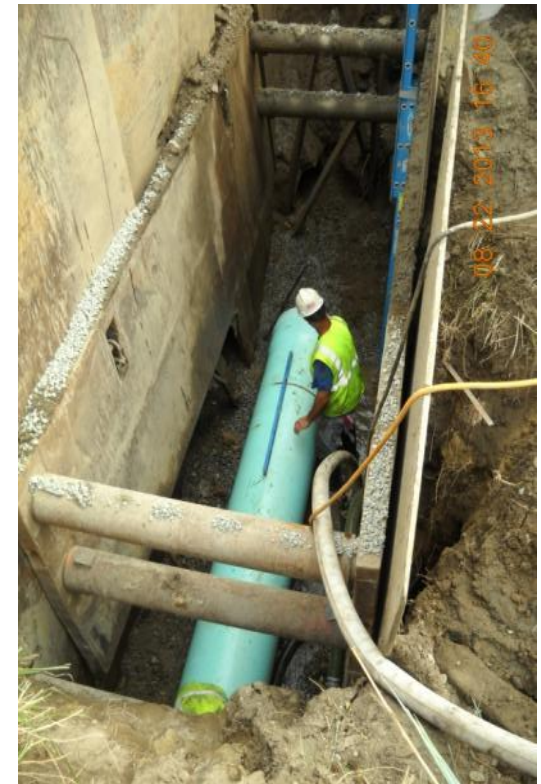
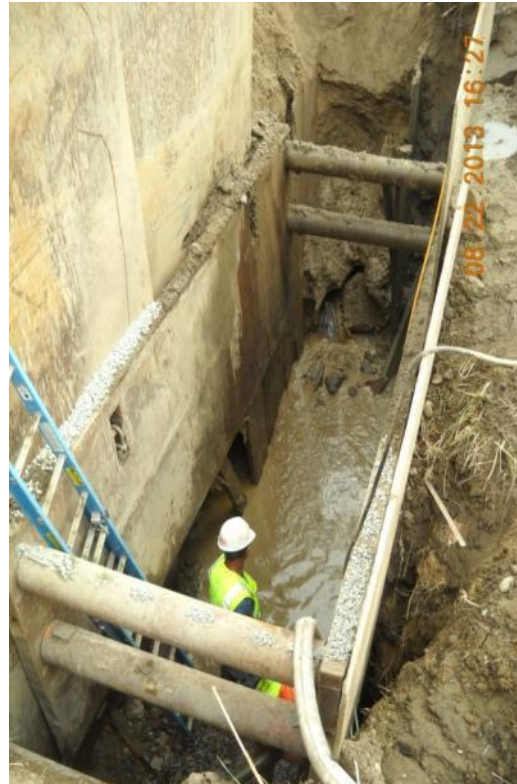
## Cured-in-Place Pipe Installation



**Sewer Spot Repair and New Manhole**



# Quincy Sewer Repair at Salt Marsh





## I/I Funding Results – Inflow Reduction

- Smoke testing of sewers – 1,308 miles
- Catchbasins disconnected – 1,031
- New/replaced storm drains – 44 miles
- Manhole covers replaced/sealed – 2,921
- Buildings inspected – 77,894
- Downspouts/area drains disconnected – 5,292
- Sump pumps redirected – 433



# Arlington and Newton Smoke Testing



**Catch Basin Direct Connection to Sewer**





# Burlington Removal of Sump Pump Sewer Connections





# Boston Private Inflow Identification and Removal



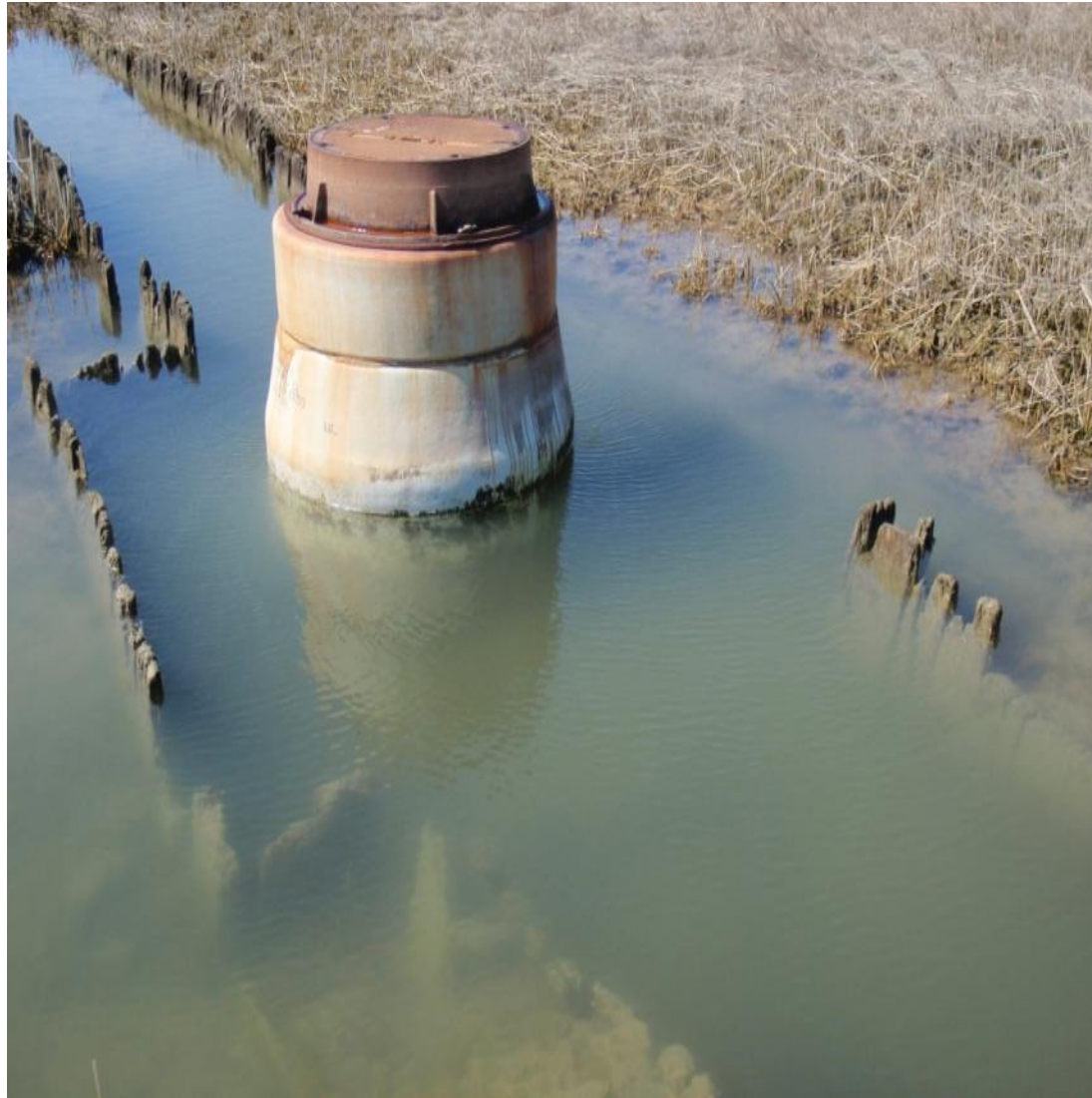
**Sump Pump Direct Connection to Sewer**



**Downspout Direct Connection to Sewer**



# Quincy Manhole Rehabilitated in Salt Marsh





# Repair of Wakefield Manhole in Wetland





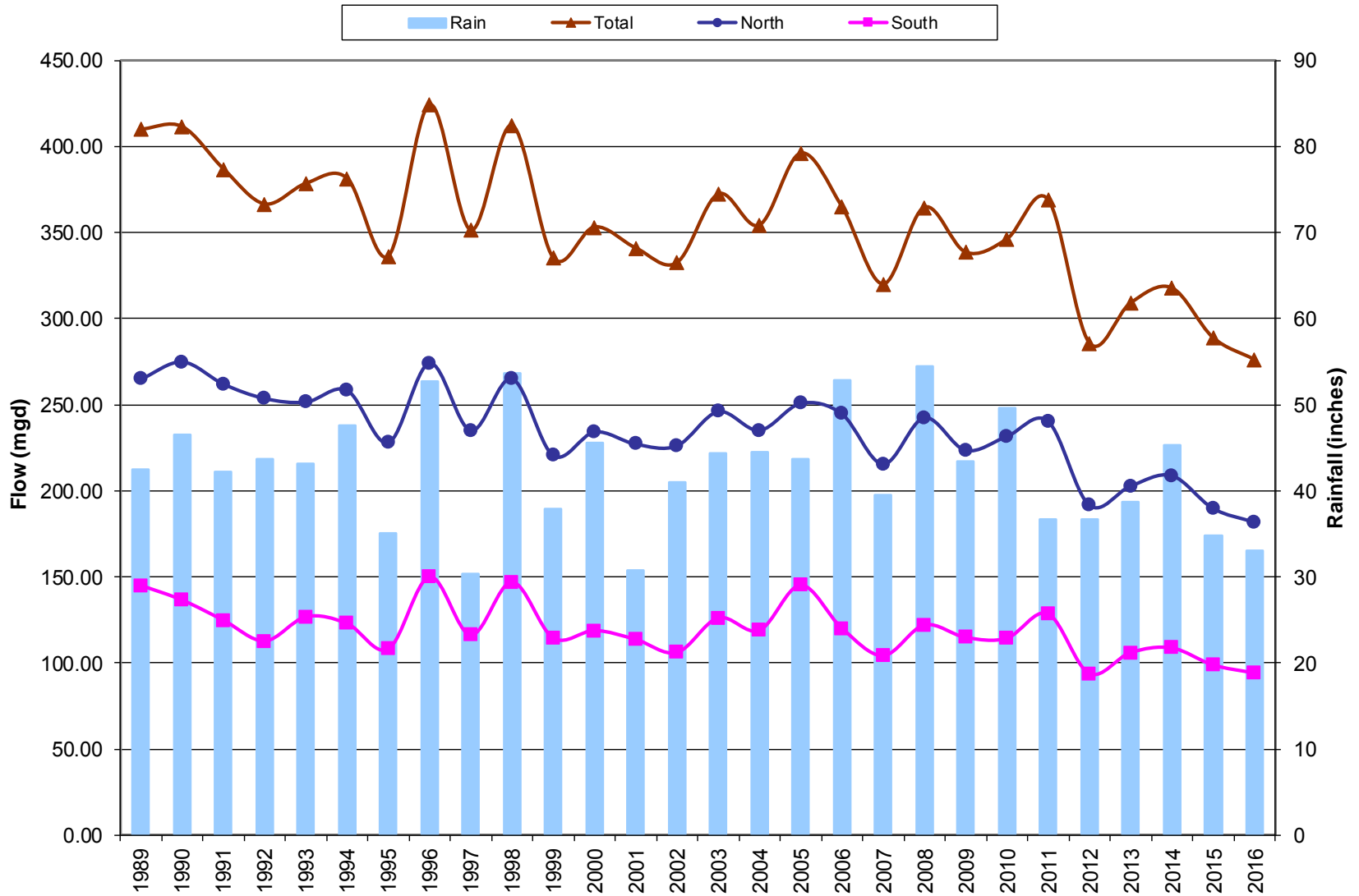
# MWRA CY16 Regional Flow Data

Flow Component	CY16 Average Daily Flow	CY16 High Month Flow (April)	CY16 Low Month Flow (September)
Total Flow	276	360	210
Estimated Sanitary	174	174	174
Estimated MWRA Infiltration	7	10	4
Estimated Community Infiltration	70	136	23
Estimated Inflow (Non-CSO)	13	24	3
Estimated Combined Storm Flow (Boston-North, Cambridge, Chelsea and Somerville)	12	16	6



# MWRA Long-Term Regional Flow Data

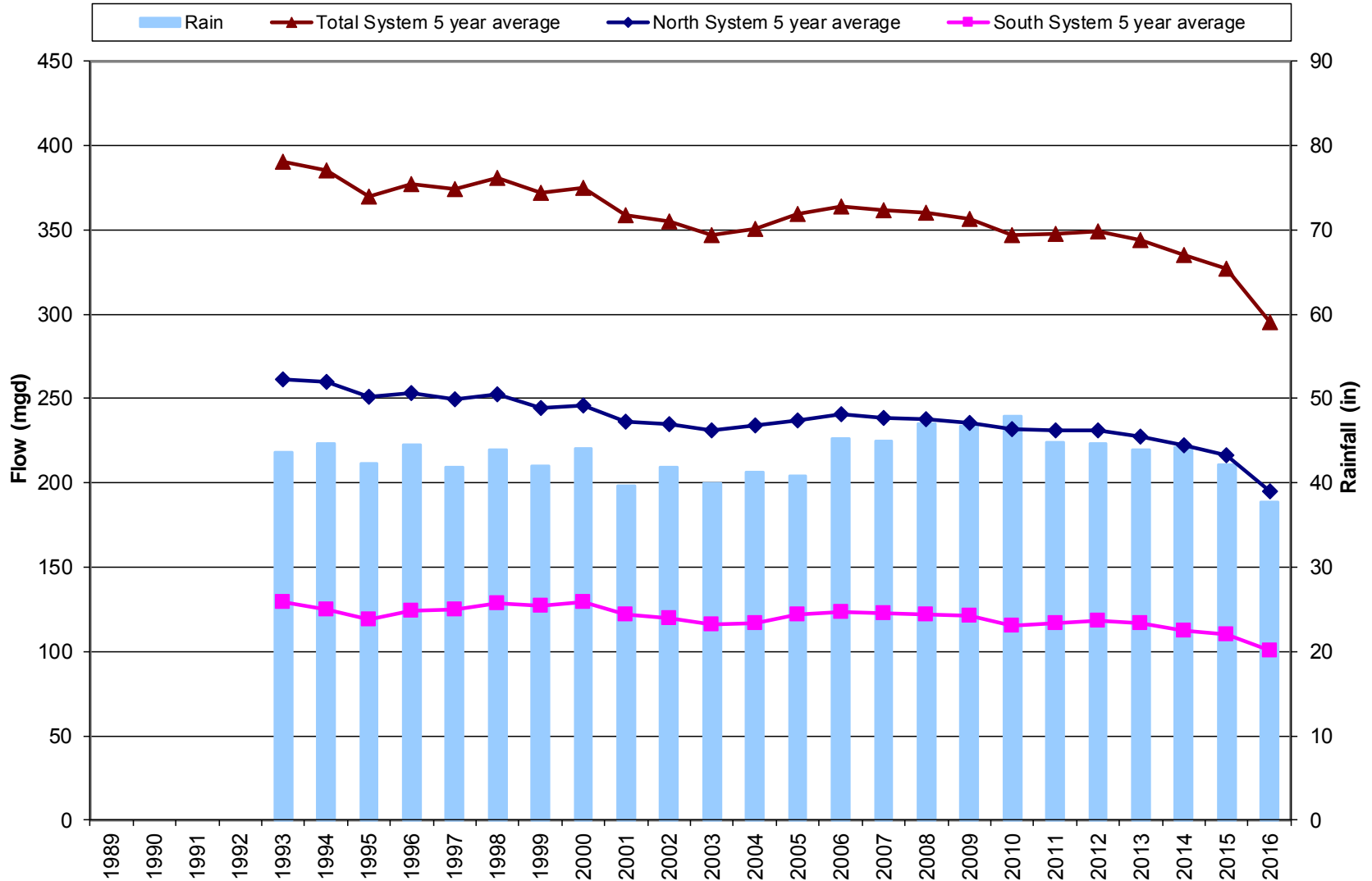
MWRA Long-Term Regional Flow Data  
NOAA Annual Rainfall at Logan Airport





# Long-Term Decline in Regional Wastewater Flow

MWRA Long-Term Regional Flow Data  
5-year Running Averages  
5 year running average NOAA Rainfall at Logan Airport





# Sample Recently Funded Projects

## Ashland

Miles of Sewer – 66

Sewered Population – 13,549

CY16 Average Daily Flow – 1.18 mgd

CY16 Estimated Sanitary Flow – 0.80 mgd

CY16 Estimated I/I – 0.38 mgd

- 7 I/I Projects Funded by MWRA - \$1.74 Million (\$0.43 Million Remaining)
- November 2016 Distribution - \$414,000 for
  - Flow Metering in 18 basins for I/I and SSES per DEP Guidelines
  - Follow-up CCTV for Main Lines and Services





# Sample Recently Funded Projects

## Arlington

Miles of Sewer – 106

Sewered Population – 43,993

CY16 Average Daily Flow – 3.94 mgd

CY16 Estimated Sanitary Flow – 2.40 mgd

CY16 Estimated I/I – 1.54 mgd

- 21 I/I Projects Funded by MWRA - \$8.21 Million (\$0.21 Million Remaining)
- February 2016 and February 2017 Distributions - \$1.80 Million for:
  - I/I Investigation in Area 10 (of 12)
  - I/I Investigation in Area 11 (of 12)
  - Phase 8 Sewer Rehabilitation
  - Phase 9 Sewer Rehabilitation
  - Post Construction Flow Evaluation in Phase 7 Area



# Sample Recently Funded Projects

## Everett

Miles of Sewer – 57

Sewered Population – 42,935

CY16 Average Daily Flow – 4.42 mgd

CY16 Estimated Sanitary Flow – 3.20 mgd

CY16 Estimated I/I – 1.22 mgd

- 9 I/I Projects Funded by MWRA - \$6.65 Million (\$1.42 Million Remaining)
- February and August 2016 Distributions - \$2.81 Million for Project to Redirect 46 Catch Basins from Sewer (Total City Cost \$3.6 Million)



# Sample Recently Funded Projects

## Quincy

Miles of Sewer – 202

Sewered Population – 93,494

CY16 Average Daily Flow – 11.78 mgd

CY16 Estimated Sanitary Flow – 8.20 mgd

CY16 Estimated I/I – 3.58 mgd

- 13 I/I Projects Funded by MWRA - \$19.66 Million (\$0.13 Million Remaining)
- November 2016, February 2017 & August 20 17 Distributions - \$6.02 Million for:
  - Coastal Pipeline and Structures Rehabilitation Project
  - Wollaston Beach Area Rehab
  - Avalon Beach and Bay Point Marina Area Rehab
  - Furnace Brook Parkway Rehab
  - Bayside Road and John Street Sewer Rehab



# MWRA Water Loan Programs

- Local Water System Assistance Program – Total of \$349 Million provided for 391 projects
- Lead Loan Program – up to \$100 Million available

Community/Funding Date	Amount
Marlborough/FY18	\$1.0 Million
Newton/FY17	\$4.0 Million
Quincy/FY17	\$1.5 Million
Winchester/FY17	\$0.5 Million
<b>TOTAL</b>	<b>\$7.0 Million</b>