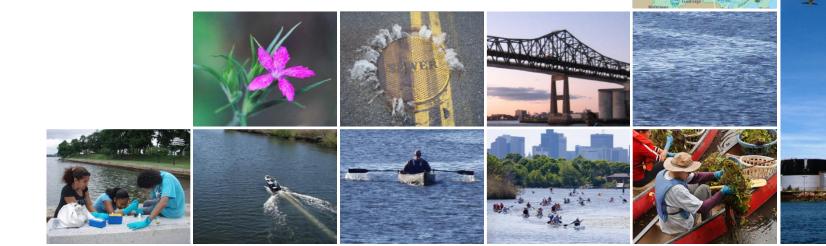


Strategies to eliminate sanitary sewer overflows in the Mystic River Watershed.

Patrick Herron Water Quality Monitoring Director Mystic River Watershed Association



Agenda:

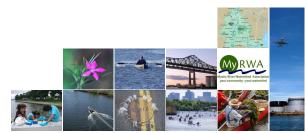
Introduction to Inflow and Infiltration

How significant is Inflow and Infiltration in the system?

Why resources need to be directed at Inflow not infiltration.

What actions are currently being taken?

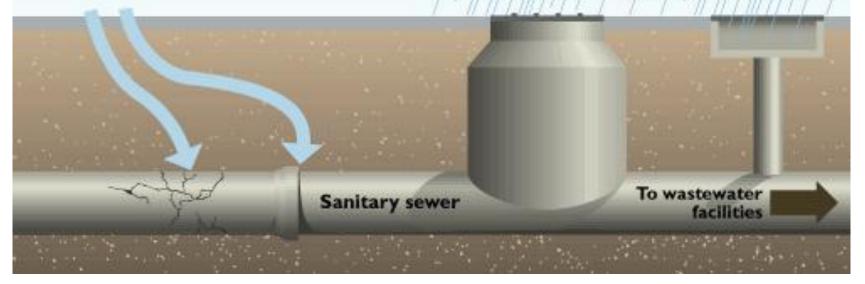
What actions should be taken?



What is Infiltration and Inflow?

Infiltration: ground water that seeps into the sanitary sewer through cracks or joints.

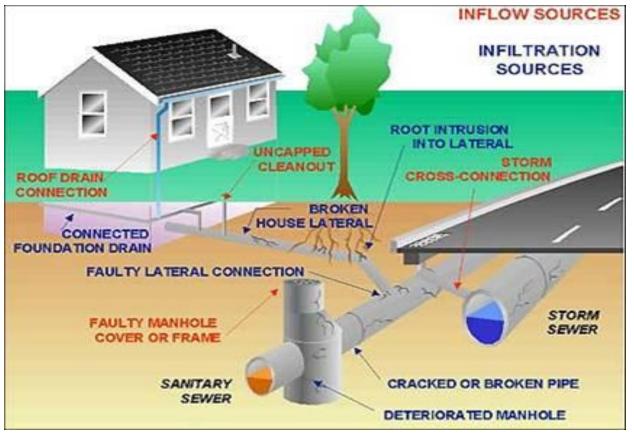
Inflow: rain water that enters the sanitary sewer through holes in manhole covers, catch basins, or improper plumbing connections.



http://www.crd.bc.ca/wastewater/ii/about.htm



What is Infiltration and Inflow?



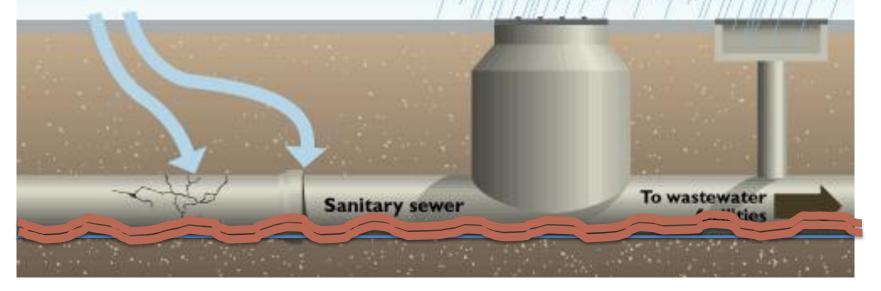
http://dedham-ma.gov/dedham/Image/Engineering/Inflow_Sources.jpg



What are the consequences of too much Inflow and Infiltration?

Infiltration: ground water that seeps into the sanitary sewer through cracks or joints.

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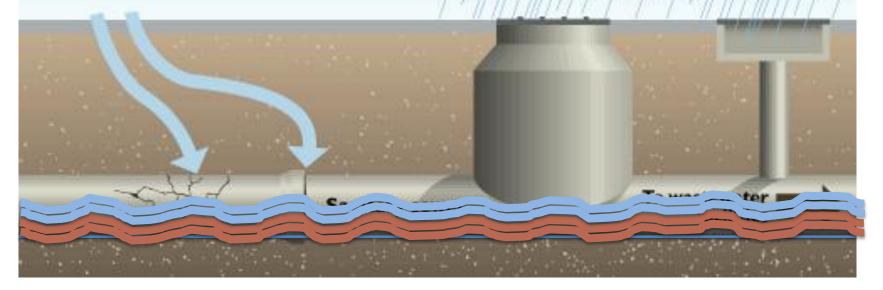




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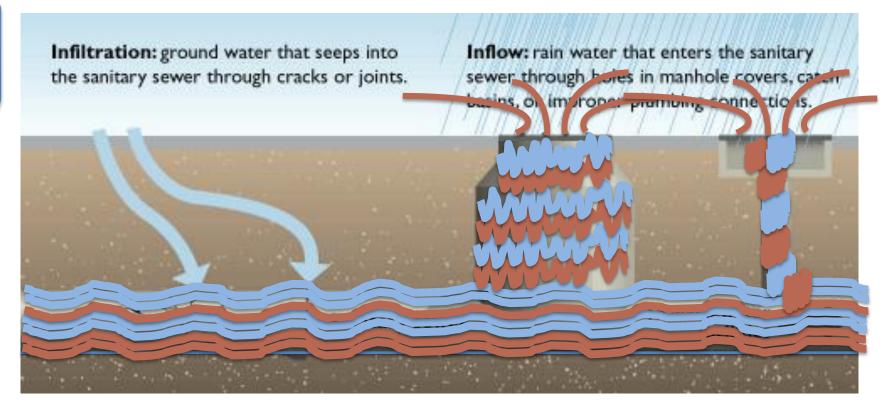
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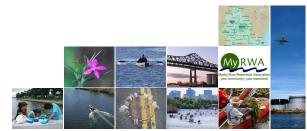
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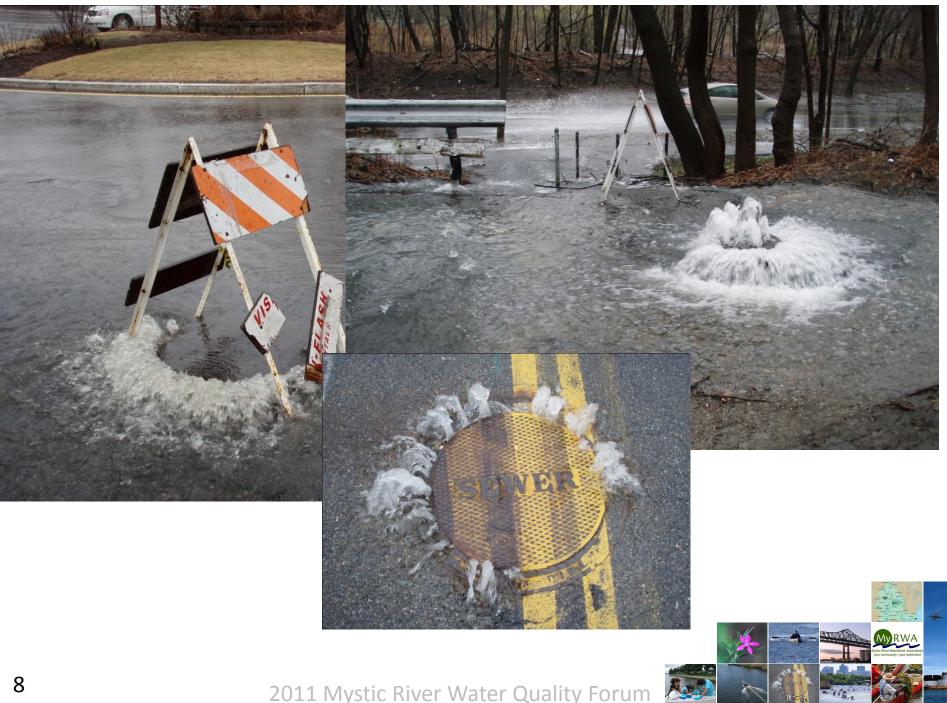




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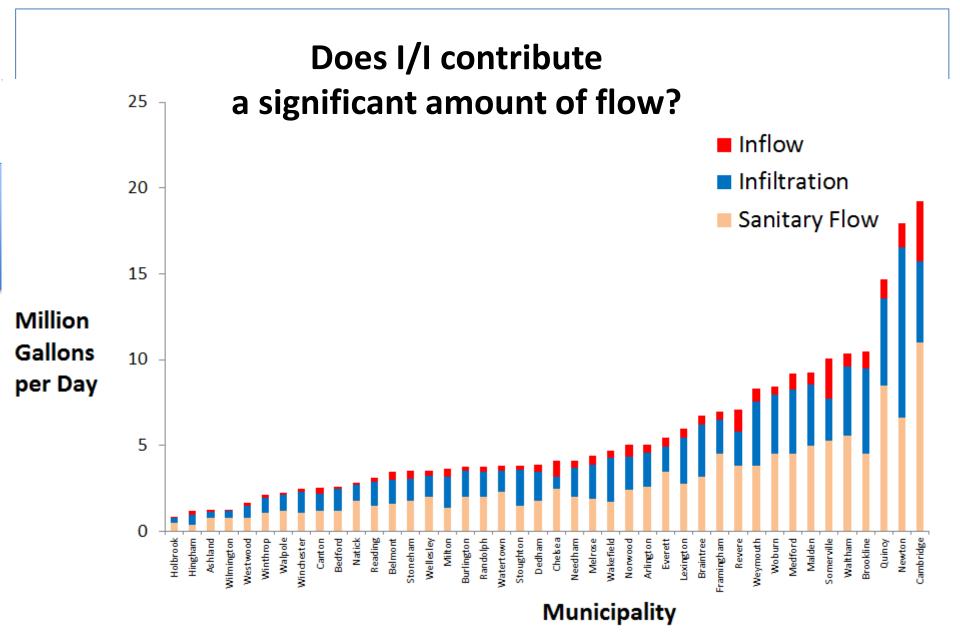






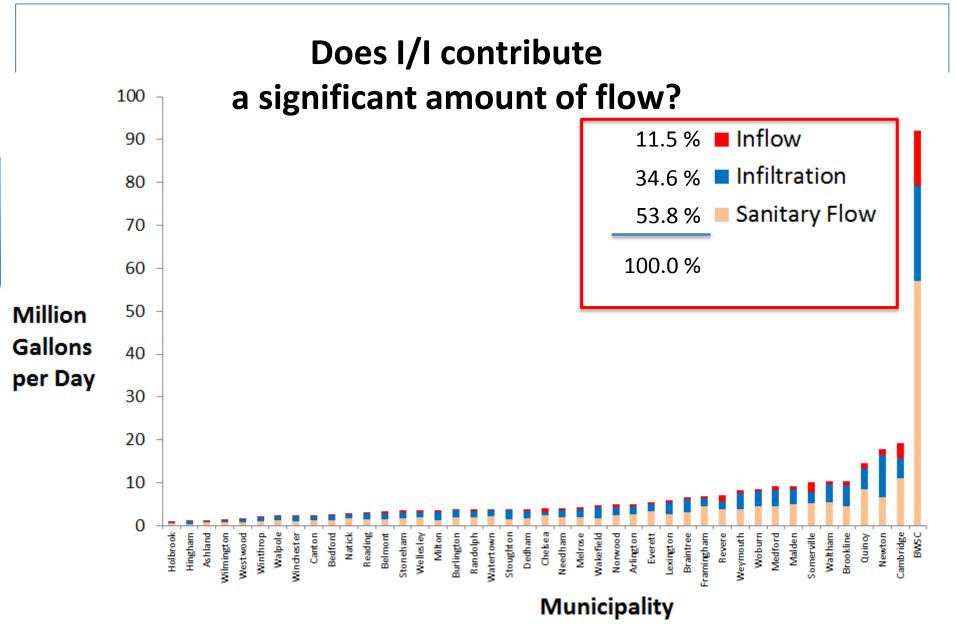






Source: 2009 MWRA Average Daily Flows

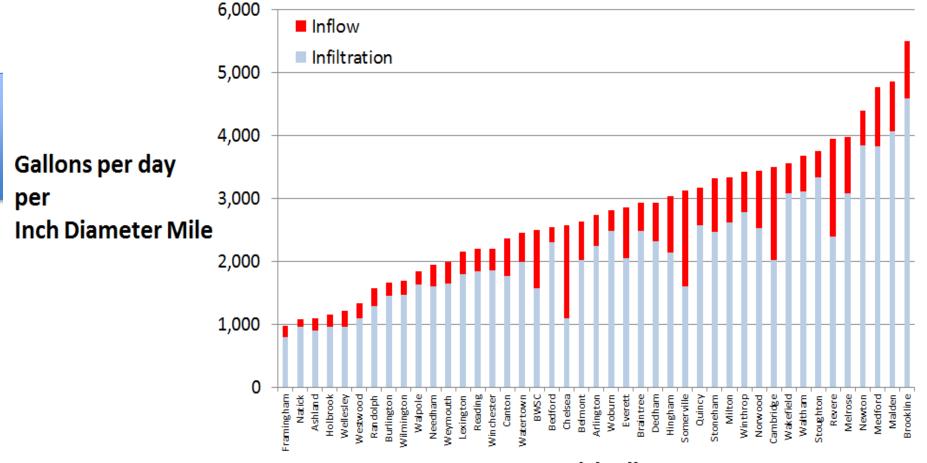




Source: 2009 MWRA Average Daily Flows



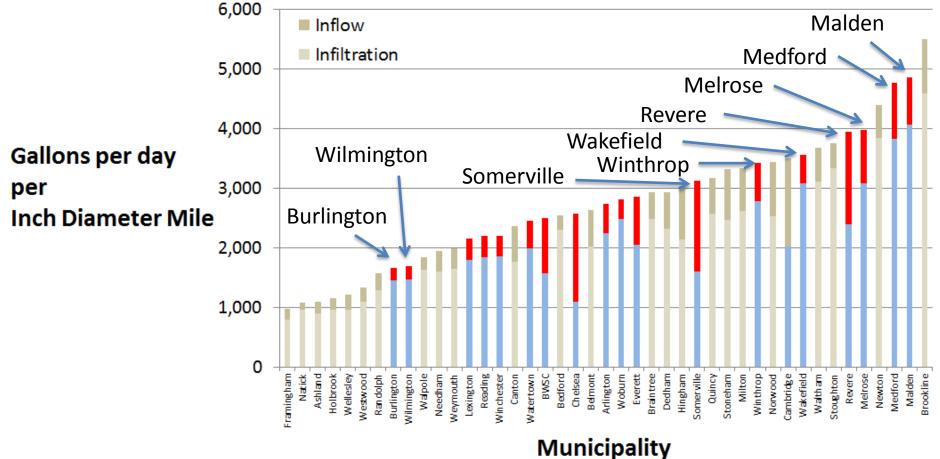
2009 ADF: Inflow and Infiltration in all MWRA Sewer Communities



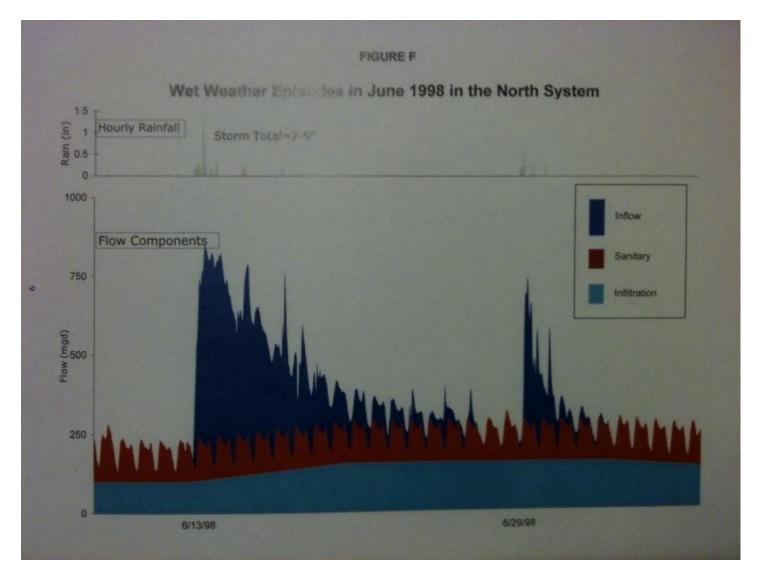
Municipality



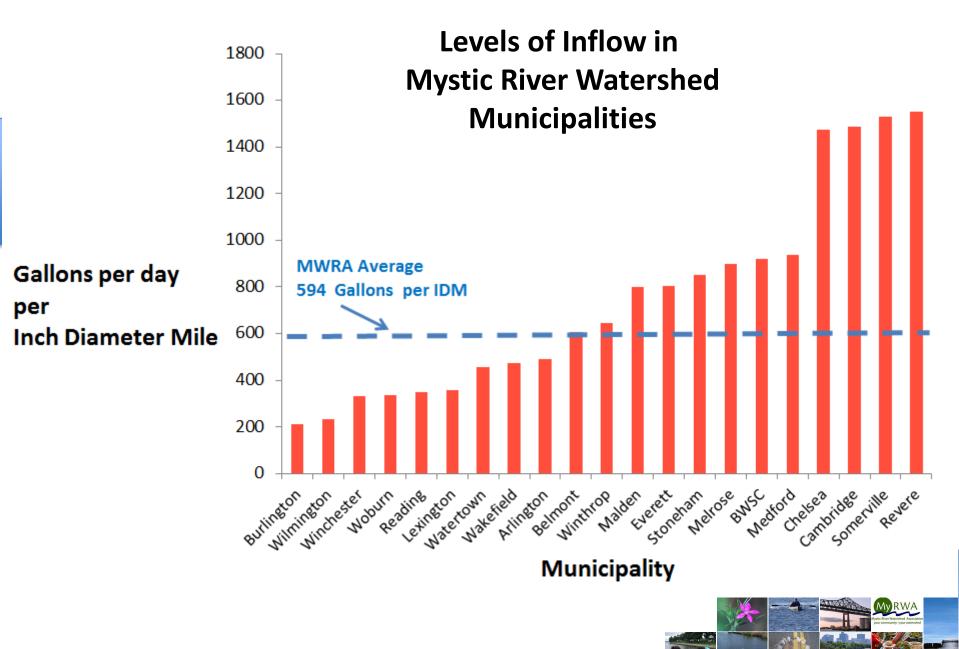
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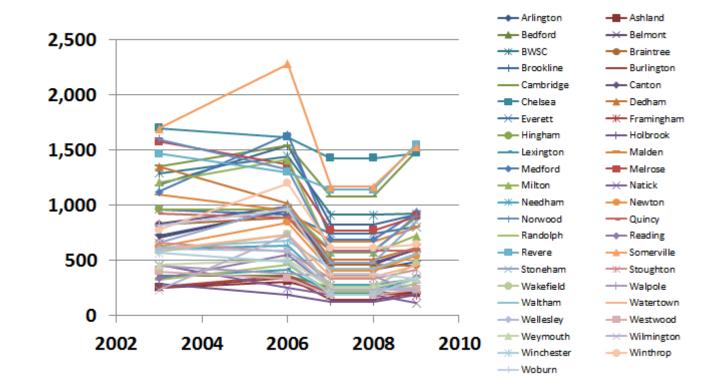








Looking for municipal progress on Inflow:



Year

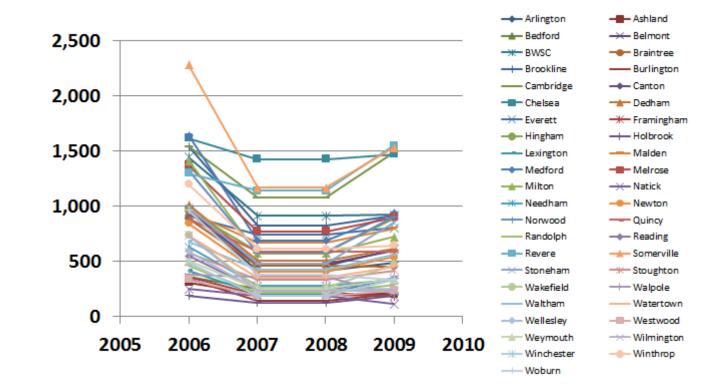


Gallons Per IDM

16

16

Looking for municipal progress on Inflow:

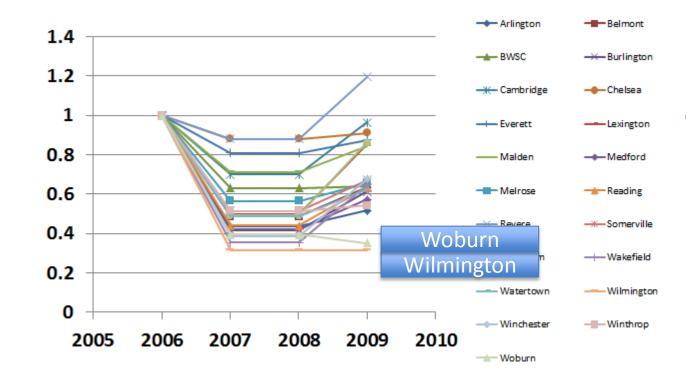


Year

Gallons Per IDM

17

Looking for municipal progress on Inflow:



Year

Dimensionless (Normalized)

18



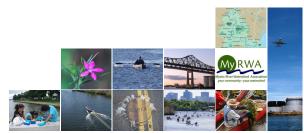
How is Inflow and Infiltration being worked on?

MWRA I/I Program (45% Grant, 55% Interest free loan) Since 1993, \$195 million has been allocated

Municipal Efforts

Every municipality is taking advantage of I/I funds Every municipality is implementing a unique strategy

Regulatory oversight



Municipal efforts

- Arlington: Currently designing new program to identify and remediate direct connections from people's homes. Expected to be expensive to mitigate many of these sites as they are on ledge.
- Burlington:1) Illicit/Sump Pump Sewer Connection Amnesty Program

http://www.burlington.org/engineering/Sewer%20Infiltration%20&%20Inflow.htm2) Private Residential Source Inflow Removal Program
3) Phase 4 investigations targeted 428 homes, ID'd 28 illicit connections
- Woburn:1) Invested \$8m in the past five years to remove I/I2) Targeted 5500 residences, gained entry in 91% of homes

Lexington: 1) 500 house inspections initiated with Weston and Sampson

2) Winthrop Road Sewer Upgrades expected to remove 400,000 peak design I/I



How do we need to work on I/I and SSOs?

- 1) Municipal subcommittee meeting on I/I
- 2) Improve the template for reporting SSOs
- 3) Provide notification to public on SSOs that are occurring.
- 4) Prioritize funding toward reducing SSOs: Target Inflow.
- **5) Data from individual storms** that model 1, 2, 5 yr, etc. storms Identify locations where SSOs are occurring in smallest storms
- 6) Location specific meetings on SSOs.
 - (e.g. all member contributing to major SSO)
- 7) Financial disincentives for SSOs to occur in municipality
- 8) Recalculation of 1, 2, 5, 10, 25 yr model storms
- 9) Long term plan

