

# Private Work, Public Benefit

How Installing Sump Pumps Relieved Neighborhood Backups

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# Presentation Overview

- Introduction
- MDC Clean Water Project
- SSO Program
- Project Specifics
- Lessons Learned
- Results

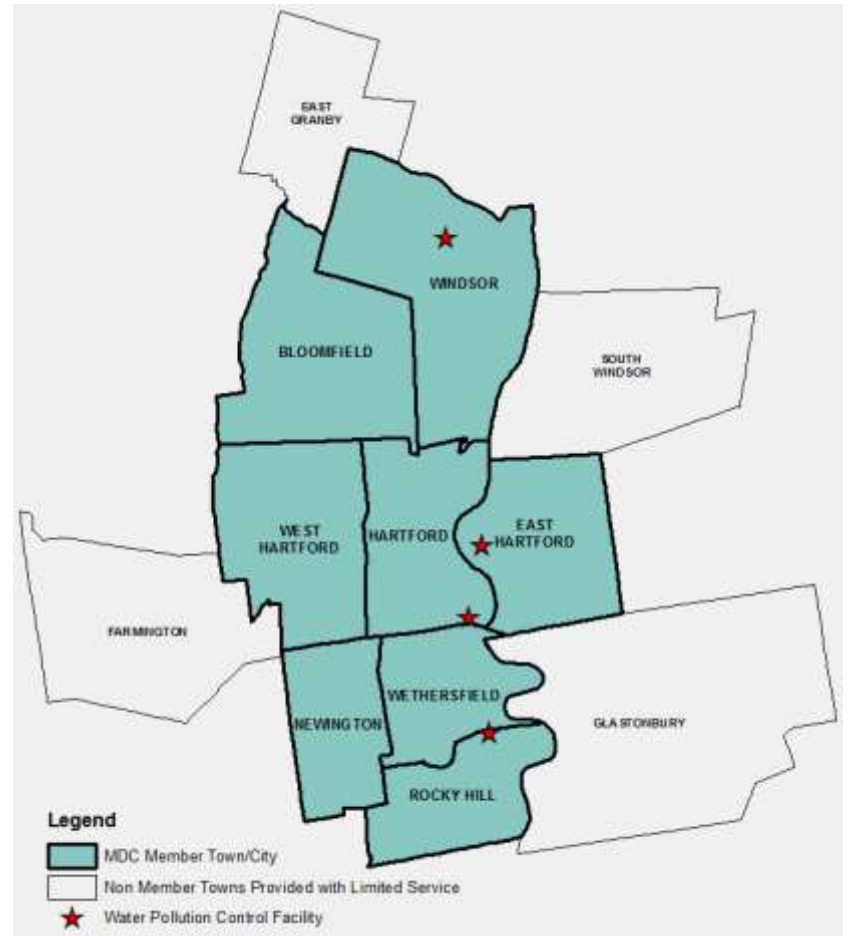


# Introduction

The MDC is a nonprofit municipal corporation chartered by the Connecticut General Assembly in 1929

Our mission is to provide our customers with safe, pure drinking water, environmentally protective wastewater collection and treatment and other services that benefit the member towns

We provide water, sewer and household hazardous waste collection to our member towns and treated water to portions of non-member towns



# Clean Water Project

2006 Consent Decree/2007 Consent Order by USEPA and CTDEEP

## Main Goals

- Eliminate Sanitary Sewer Overflows (SSO)
- Reduce the amount of combined sewage that enters the CT River
- Reduce the amount of Nitrogen released into the CT River

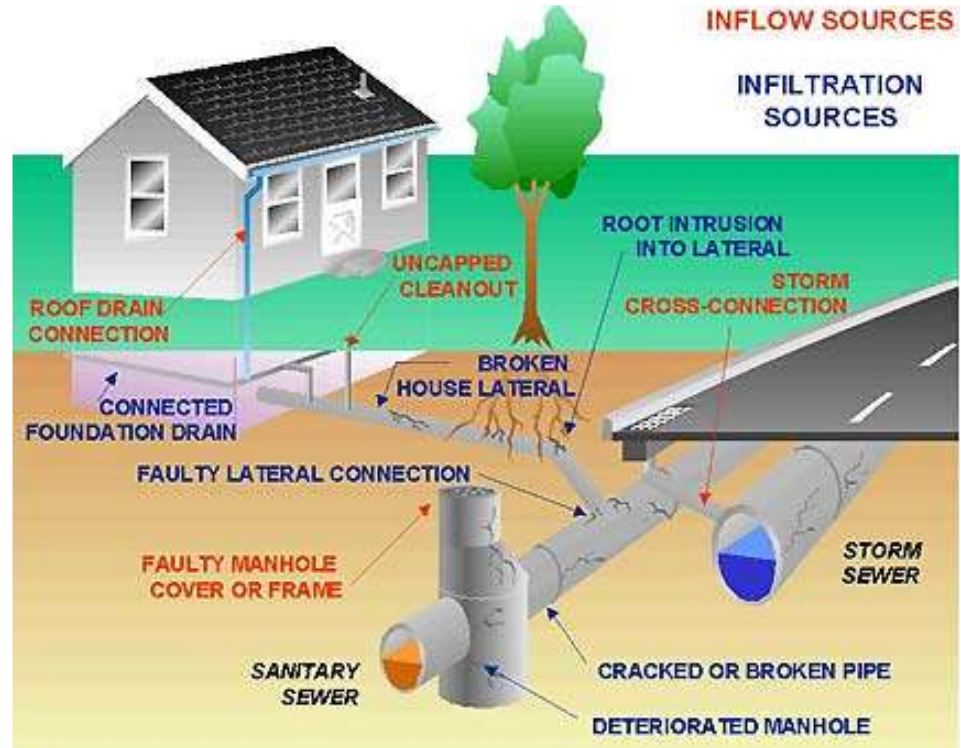
## Clean Water Project Components

- WPCF Improvements
- Sewer Separation
- Storage and Conveyance Tunnels
- Relief and Consolidation Pipe
- Inflow and Infiltration (I/I) Reduction



# Infiltration Removal Program

- District completed system-wide Sanitary Sewer Evaluation Survey (SSES)
- Identified approximately 400,000 linear feet of pipe with infiltration rates in exceedance of 4,000 gpd/in-mi (USEPA Cost Effective Rate)
- Created Pilot Program to investigate best methods of rehabilitation





Toilet Back Up



Sewer Main Defect



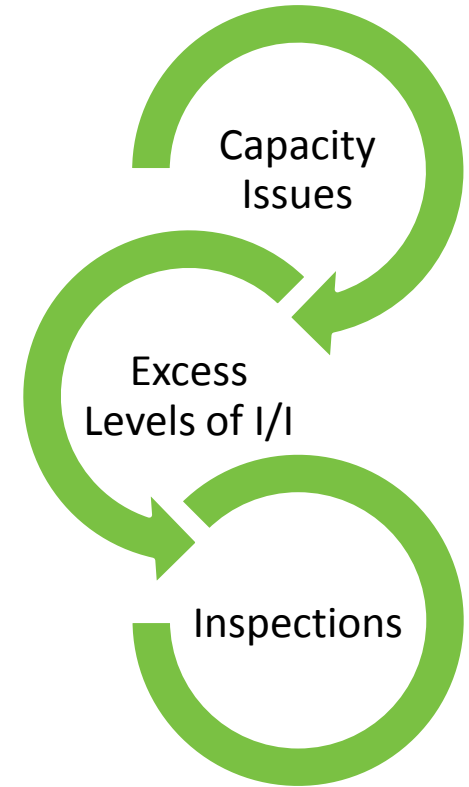
Manhole Surcharge



Sanitary Sewer Overflows

# MDC SSO Program in West Hartford

- Data Collection
  - 35 flow meters to collect sewer flow information
  - Smoke tested and TV inspected 83 miles
  - Flow isolated 132 miles
  - 3,800 manhole inspections
  - 3,500 building inspections



# MDC 'Chronic Capacity Problems'

## Town of West Hartford

Prioritized Areas Based on:

- Reported Backups
- Sewer Surcharging
- Severity
- Town Feedback

**Project 1 = Four Mile Road**

**Project 2 = Greenhurst Road**





# Background of Greenhurst Area Issues

- Most properties built between 1930 and 1950
- Complaints Reported:
  - 21 Properties with sewer backups
  - 26 Properties with basement flooding
  - 46 Properties reported property flooding during storms

# Building Inspections and Dye Testing

- 181 Completed Inspections of 203 attempted in area (89%)
- 100 Confirmed Buildings Connections to Sanitary Sewer (55%)
- 112 Dye Tests Completed

Building Inspection Area	Targeted Inspections	Completed Inspections <sup>1</sup>	Refused <sup>2</sup>	Not Home <sup>2</sup>	Connections to Sanitary Sewer	Suspected Illicit Connections	Completed Dye Test	Sewer Backups	Backflow Preventers	Basement Flooding Evidence	Property Flooding	Number of Photos
Greenhurst Road Area	203	181	21	1	100	13	112	21	63	26	46	501
		89%	10%	0.5%	55%	7%	62%	12%	35%	14%	25%	-

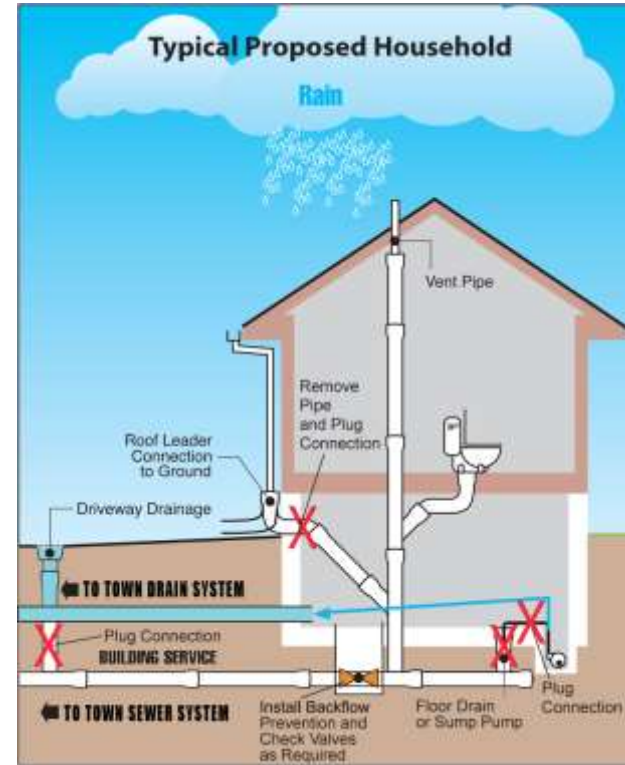
# Confirmed and Suspected Inflow Sources

Street	Sump Pumps		Roof Leaders		Foundation Drains		Floor/Garage Drains		Yard Drains		Misc. Building Drains		Totals	
	Confirmed Total	Inflow (gal)	Confirmed Total	Inflow (gal)	Confirmed Total	Inflow (gal)	Confirmed Total	Inflow (gal)	Confirmed Total	Inflow (gal)	Confirmed Total	Inflow (gal)	Confirmed Total	Inflow (gal)
Bonny View Road	0	0	2	3,240	16	34,560	1	1,080	0	0	0	0	19	38,880
Greenhurst Road	3	6,480	0	0	22	47,520	0	0	0	0	1	360	26	54,360
Park Road	1	2,160	0	0	11	23,760	1	1,080	0	0	2	720	15	27,720
South Main St	1	2,160	0	0	6	12,960	0	0	0	0	0	0	7	15,120
Smallwood Road	0	0	0	0	9	19,440	0	0	0	0	0	0	9	19,440
Webster Hill Blvd	1	2,160	0	0	21	45,360	0	0	0	0	5	1,800	27	49,320
Westbrook Road	0	0	0	0	10	21,600	0	0	0	0	0	0	10	21,600
<b>TOTALS</b>	<b>6</b>	<b>12,960</b>	<b>2</b>	<b>3,240</b>	<b>95</b>	<b>205,200</b>	<b>2</b>	<b>2,160</b>	<b>0</b>	<b>0</b>	<b>8</b>	<b>2,880</b>	<b>113</b>	<b>226,440</b>



# Multi-Phased Approach to Address Sewer Surcharging

- Phase I – Increase sanitary sewer size from 8-inch to 12-inch on Greenhurst Road
- Phase II – Complete sewer rehabilitation
- Phase III – Remove private property storm water and groundwater



# Final Design Summary

- 830 LF of Sewer Main Replacement
- 575 LF of Lateral Replacement
- 4,250 LF Cured-in-Place Pipe (CIPP) Lining
- 3,600 LF Storm Drainage Pipe
- Private Inflow Removal
  - 75 Sump Pumps
  - 3,860 LF of Collector Drain
  - 3,830 LF of Drain Service
  - 1,830 LF Interior 1-1/2 inch Pipe



# Construction

- Awarded of Contract to Paganelli Construction Corp. in Windsor Locks, CT
- Total Bid Price = \$4,589,875
- Notice to Proceed (NTP) = 11/18/2015
- Substantial Completion = 7/21/2017
- Project Closeout (1 year warranty) = 7/21/2018
  - Post 1-year CCTV inspection



# Typical Private Property Work



# Public Outreach

- Multiple Outreach Meetings During Design
- Met Privately with Individual Property Owners (Design and Construction)
- Monthly Update Mailer
- Private Property Surface Restoration
- Ongoing discussions with Field Engineer
- Coordination with Town Paving





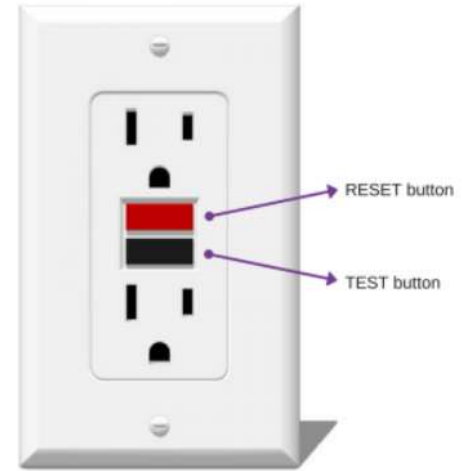
# Lessons Learned

- Comprehensive vs. Focused Approach
  - Public and Private
- Each House is a Variable
- Change of Property Ownership
- Outreach, outreach, outreach
- Town Plumbing and Electrical Codes
  - Air Gap Fitting



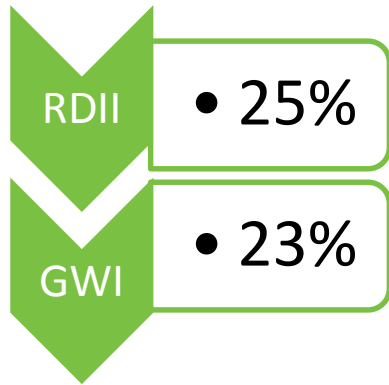
# Lessons Learned (Continued)

- GFCI Outlet vs GFCI Breaker
- Road Closures - Local Traffic Only
  - Shorter Duration vs Greater Disruption
- School Coordination
- Homeowner maintenance of installed equipment
- LOTS of photos
  - Restoration questions
  - Missing equipment



# Results

- Have not post-metered area
- Assuming similar results
  - 75 vs 50 sump pumps installed



- Greenhurst is 8% of entire subarea
- 15 Sewer Backups (2007-2012)
- **0 Sewer Backups to date**

## Four Mile Road Results

Location = West Hartford

Cost = \$6M

Comprehensive Relief

- 4,000 LF Sewer Replacement
- 1,000 LF Lateral Replacement
- 1,200 LF Lateral CIPP
- 50 Sump Pumps/Pits
- 2,500 LF Collector Drain
- 2,600 LF of Drain Service



Questions?

