

MOVING BEYOND THE I/I CONTROL PLAN

Presentation for NEWEA | September 2018

PRESENTED BY

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I/I CONTROL PLAN
FOR THE
DEPARTMENT OF PUBLIC WORKS
WARE, MASSACHUSETTS
DECEMBER 2017



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- I/I Control Plan Submitted by **12/31/17** (or extension request)
- Hooray!! Now What?
- Investment into the future

What were the IICP requirements?

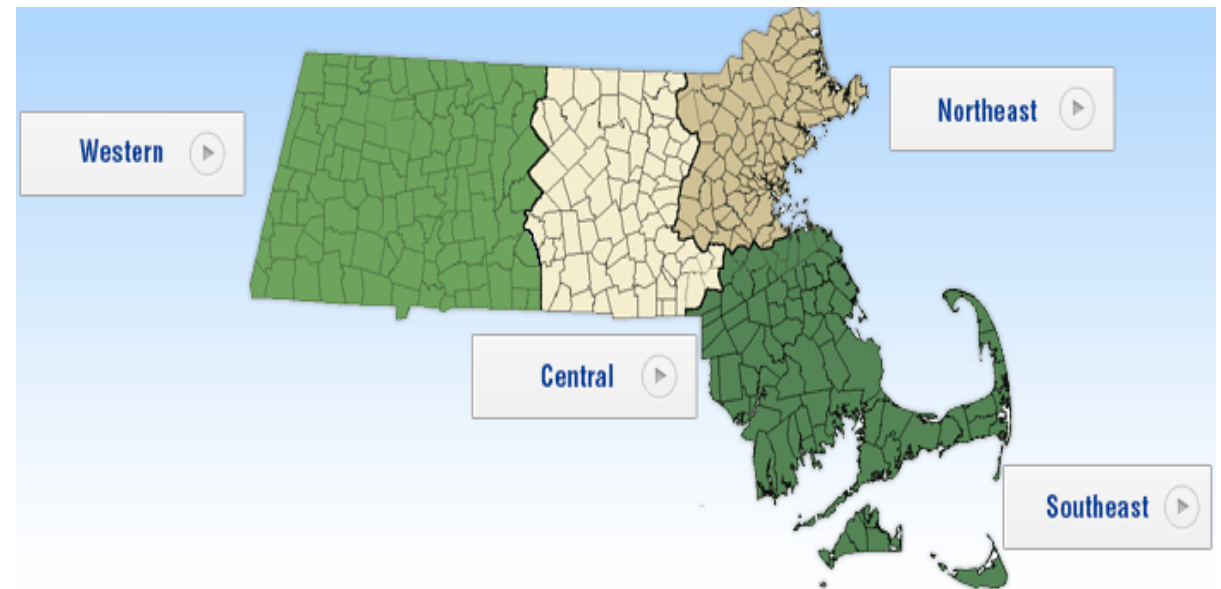
- 2017 DEP I/I guidelines
- System-wide flow monitoring
 - Spring, 10 weeks
 - 1 meter/20,000 LF
 - 2 rain gauge minimum
 - 2 groundwater gauges/basin
- 5-yr, 24-hr storm
- Plan – further investigation, budget, schedule



What We've Seen

- Monitoring/gauging alternatives
 - Phases (extensions)
 - Site visit frequency
- Conditional approvals
 - “Presumptively approved” – 120 days
 - Supplemental information
 - Focus on private systems, new connections
 - Access to GIS
 - Next round of metering

- CMOM Checklist
- Annual updates



Basic Approach

- Explore results, past and present
- Identify low hanging fruit
- Prioritize the work
- Determine with confidence where to spend \$ NOW
- Measure success

Meter Basin	Net ADDF ¹ (MGD)	Net BI (MGD)	Net BSF (MGD)	Pipe Length (LF)	IDM ²	Net BI Unit Rate (GPD/IDM)
FMB1	0.130	0.076	0.054	17,300	25.79	2,947
FMB2	0.115	0.057	0.058	27,000	44.15	1,291
FMB3	0.280	0.070	0.060			1,003
FMB4	0.080	0.020	0.010			918
FMB5	0.040	0.000	0.000			36
FMB6	0.190	0.160	0.040			4,963
FMB7	0.100	0.090	0.010			965
FMB8	0.590	0.190	0.030			6,848
TOTALS	2.200	0.720	0.220			0.500

1. Bring the Past Present

- *'Take those old records off the shelf'*
 - Review CCTV logs in high I/I basins
 - Review past recommendations
- Identify problems never addressed
- Bid early action rehab package

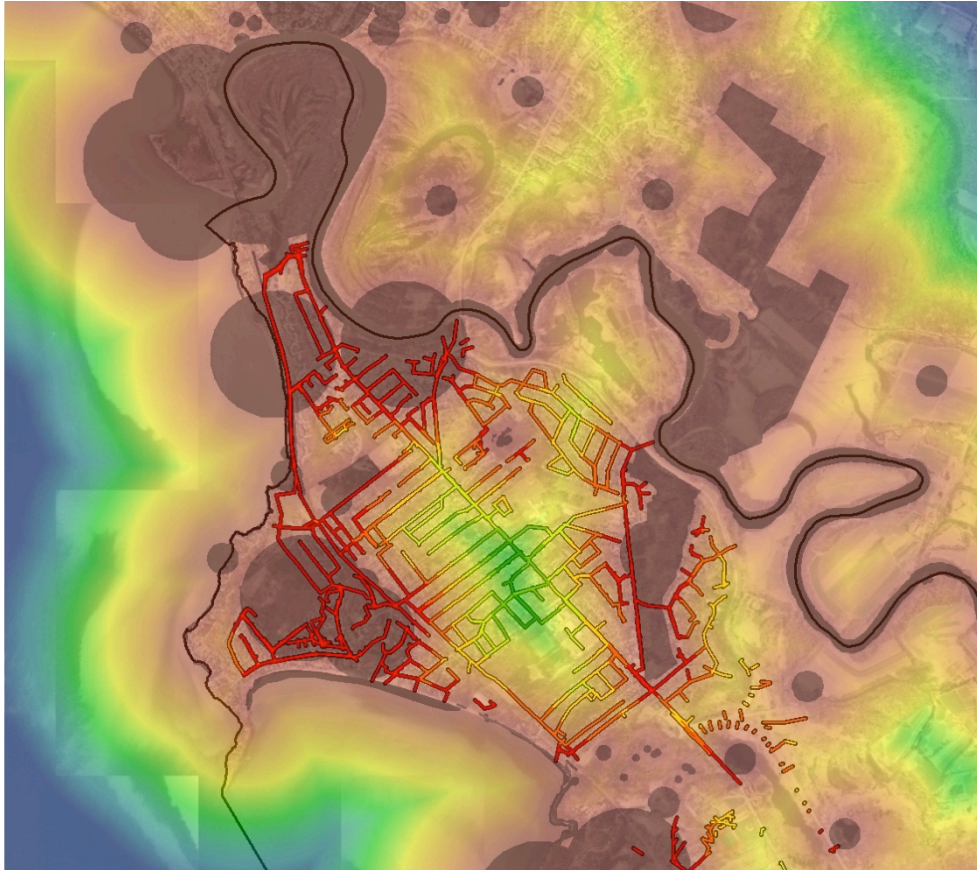


IDENTIFY LOW HANGING FRUIT

- 4,000 gpd/idm **X 2**
- 10-20% of total volume (I/I)
- Vented covers
- Frames & Pipe Seals
- Educational letters

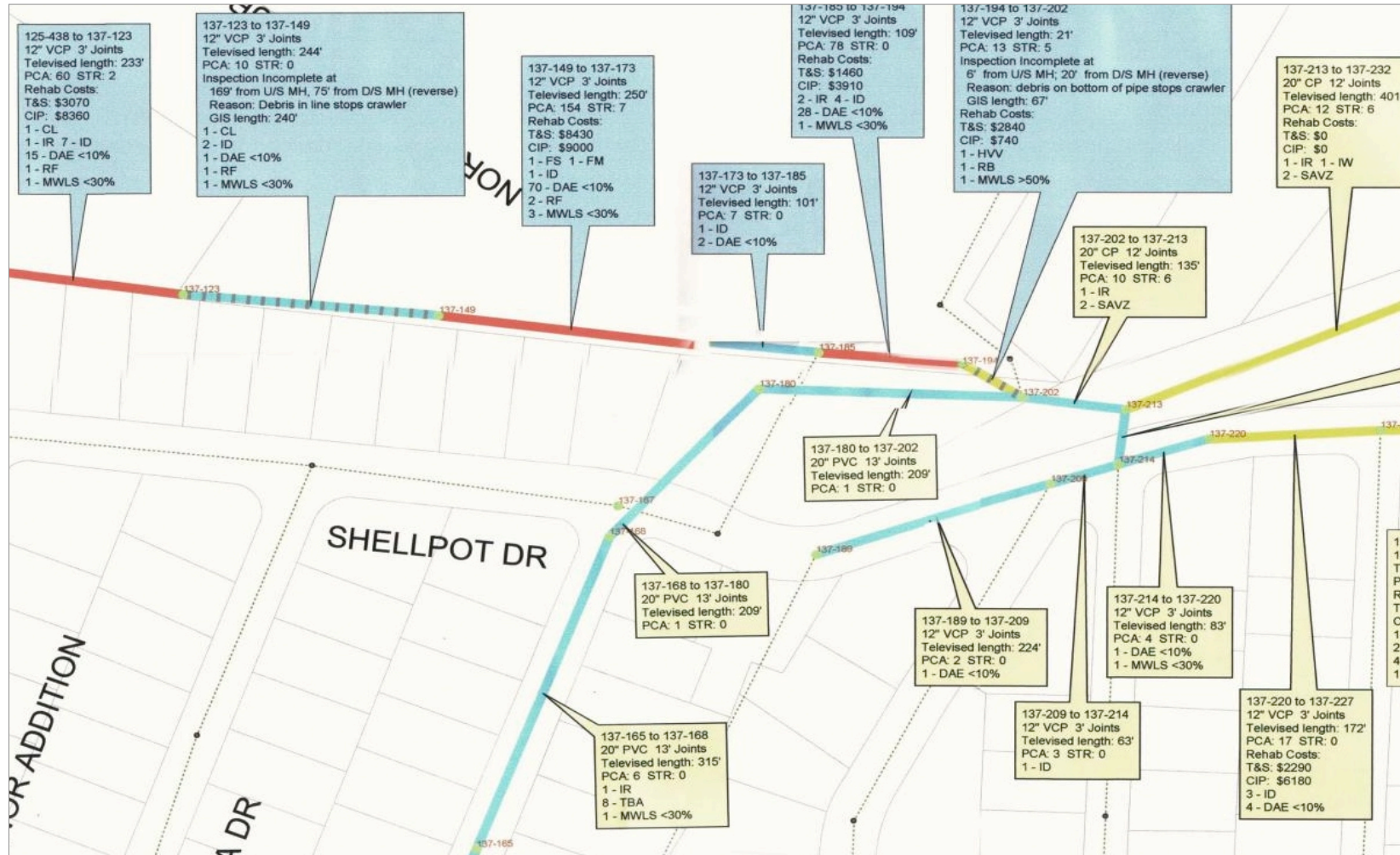


3. Go Big with GIS

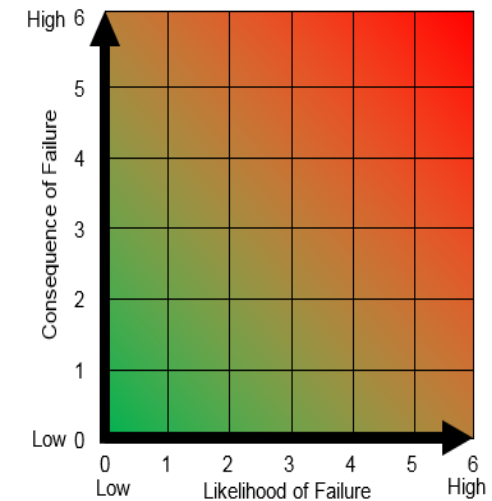


- Prioritize the work – hear this all the time... how?
- Perform a criticality analysis using GIS
 - Establish criticality/CoF
 - Economic, social, environmental factors
- Overlay with IICP results (high inflow or infiltration PLUS high CoF)
- This is phase 1 for fieldwork

Overlay example high CoF, high I/I



Increase
Aggressiveness of
Assessment



Increase
Aggressiveness of
Rehabilitation

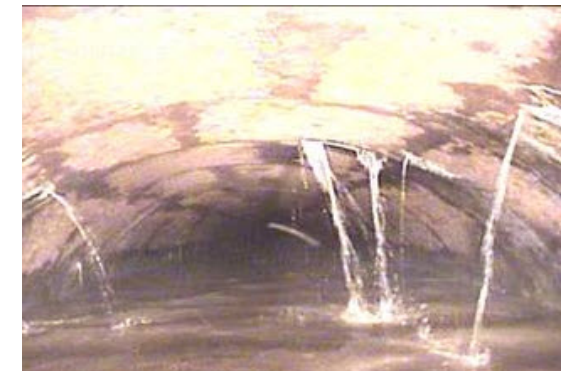
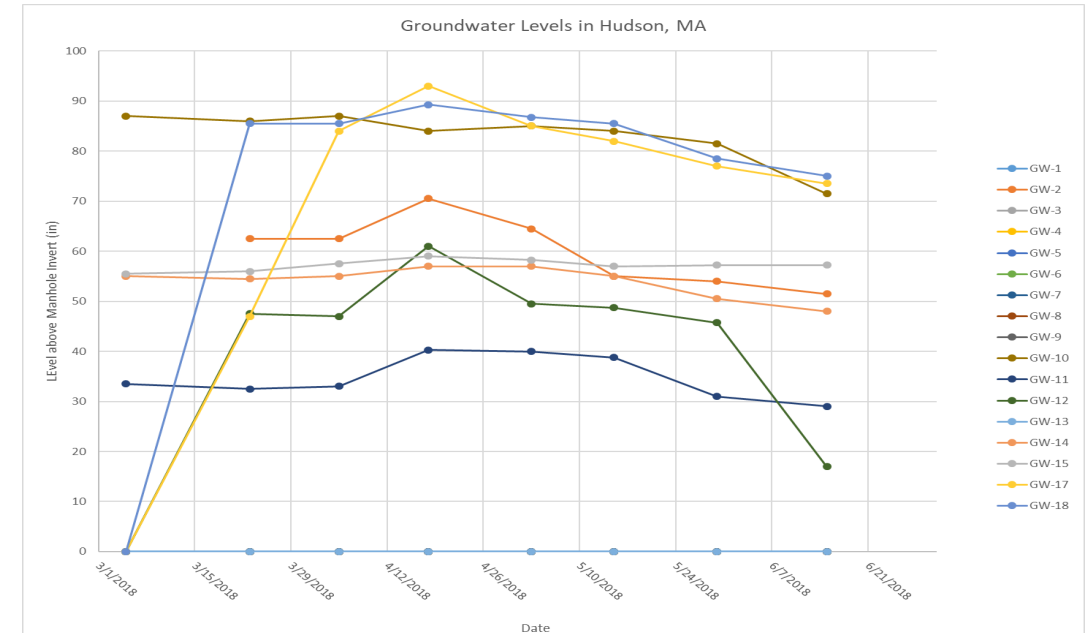
4. Jump on Inflow

- **Smoke Testing**
Inexpensive – find more low hanging fruit
- **Level 1 manhole inspections**
Top portion, cover, frame, chimney
- **Private sources**
Address shortly



5. Beat Infiltration

- Groundwater vs. pipe depth
- Adjacent water bodies
- Night flow isolations – narrow the playing field
 - Pipe/MH inspections
- Find it, Fix it – I/I “design build”



6. I/I “Design Build”

PREPARE BID PACKAGE

- Age and material
- Pre-inspection CCTV
- Inspection runs 2 weeks ahead



The following manhole rehabilitation recommendations are not indicated on the map:
• Building Channels
• Cleaning
• Fixing drop connections
• Replacing vented covers

Note:

Upstream MH ID in GIS	Downstream MH ID in GIS	Also identified in the Summary of Work As:
P-008	P-008B	P-005A to P-006B
P-119	P-113	P-120 to P-113
P-271	P-269	P-271 to P-268A
P-272B	O-201	P-272C to O-201

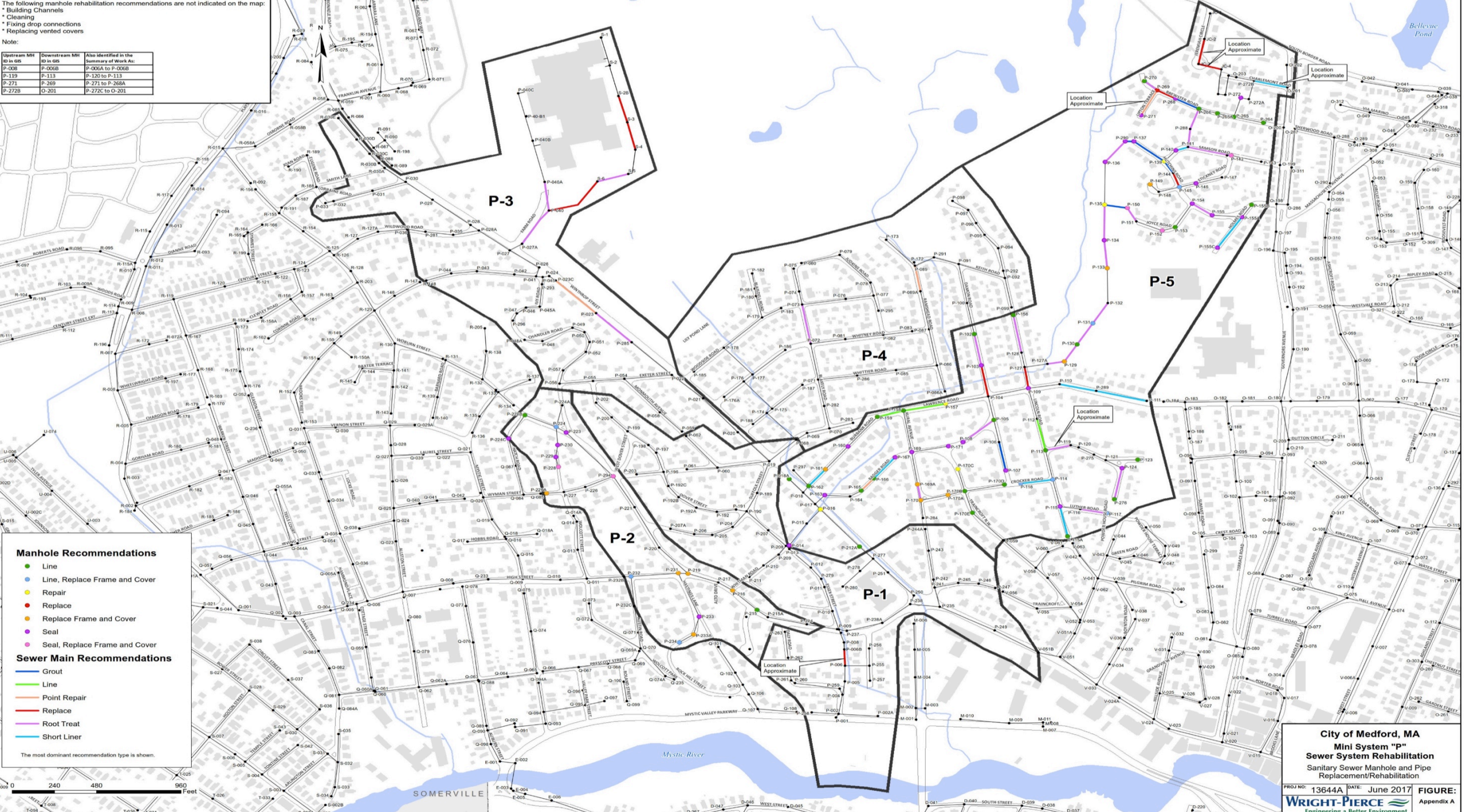
Manhole Recommendations

- Line
- Line, Replace Frame and Cover
- Repair
- Replace
- Replace Frame and Cover
- Seal
- Seal, Replace Frame and Cover

Sewer Main Recommendations

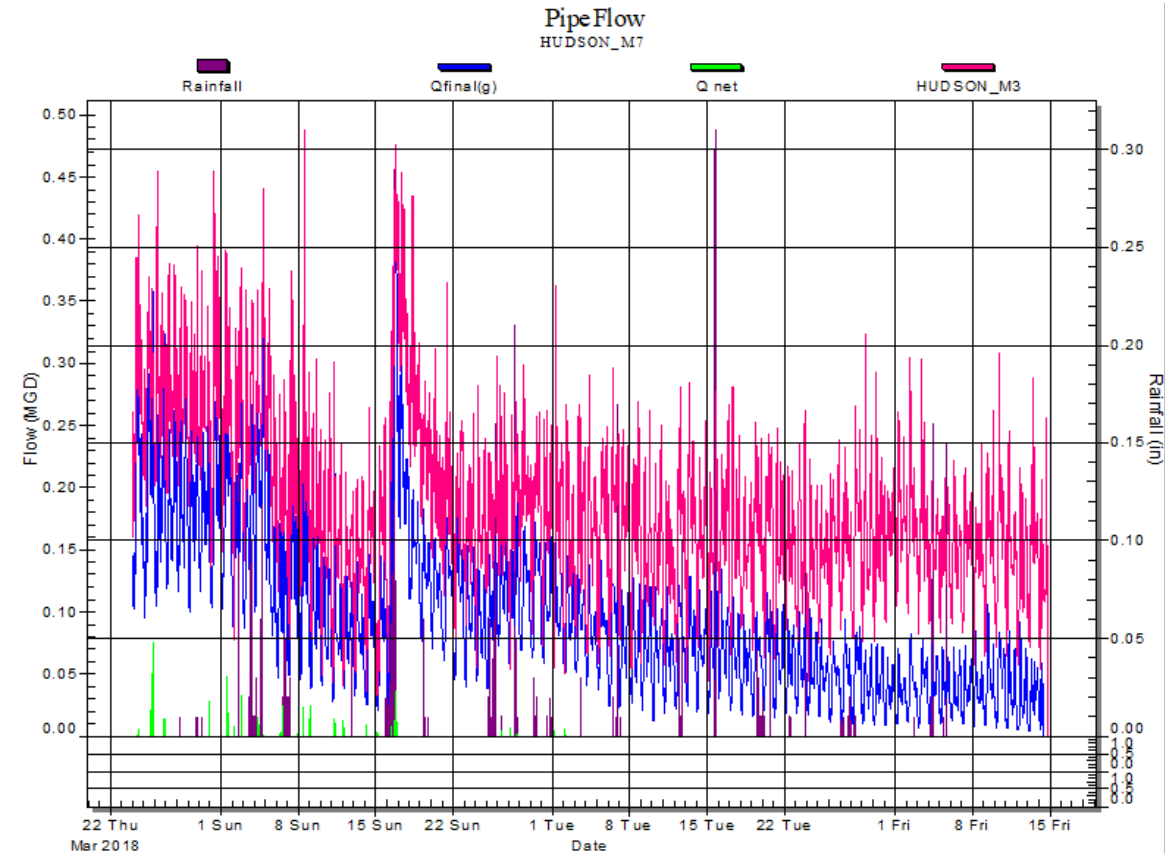
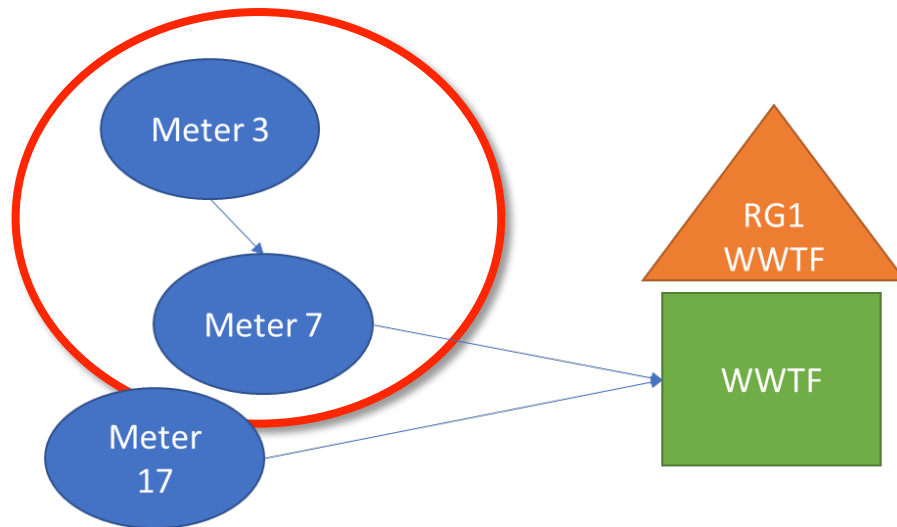
- Grout
- Line
- Point Repair
- Replace
- Root Treat
- Short Liner

The most dominant recommendation type is shown.



7. Hack Inconclusive Results

- Meter basin flow balance issues
- Merge basins



7. Hack Inconclusive Results



- Site connectivity walk
- Evaluate past SSOs, meter data, PS runtime data, water consumption data
- Perform flow isolations
- Reconfigure meter placements

8. Whip Private Sources

Stop waiting – address private sources

- Meetings, letters, educational outreach
- Take ownership of laterals
 - Penalties for leaky laterals
 - Credits for lateral repairs
- Amnesty programs for illicit connections
- Stricter ordinances
- Time of sale fieldwork



9. Optimize Development

- 4:1, >15,000 gpd
- Work with developers
- Project-ready in high I/I basins
- Cost share

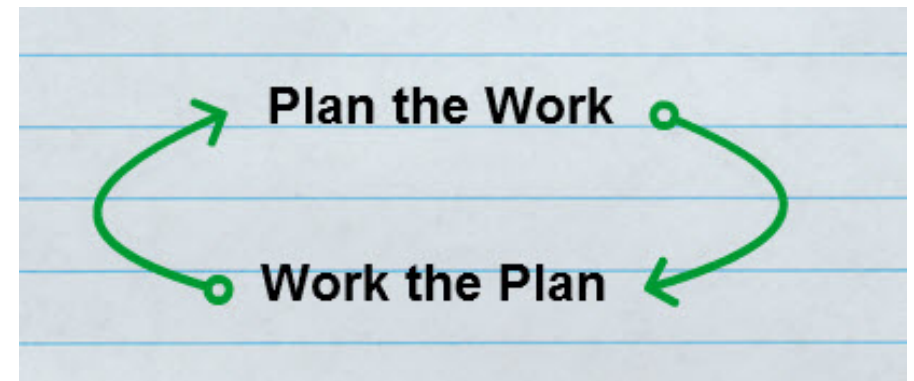


POST-CONSTRUCTION FLOW MONITORING

- Permanent meters
- Prioritize in budget
- Benchmarking
- Modeling
- See how things are changing!



- Get cracking on rehab!
- Don't be afraid of private sources
- Use CoF as “backing”
- Work plan into budget
- Educate community
- Share results



Contact Information



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