

# Boston's IDDE Program Lessons Learned from 20 Years of Experience

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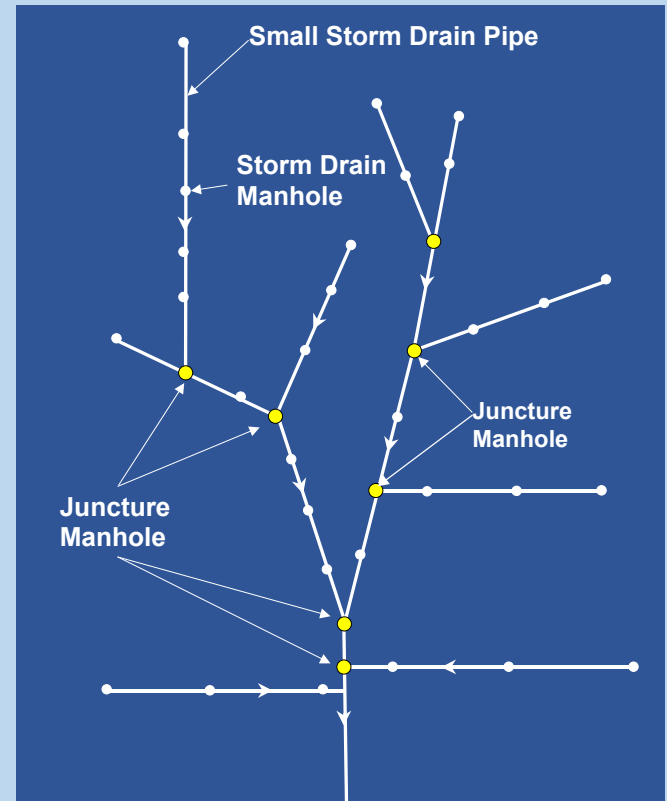
# BWSC's Collection Systems

- 207 Storm drain outfalls/sub-catchments
- 18 Interconnections
- 29 Active Combined Sewer Overflow Outfalls
- Appx. 80% of Boston has separate sewers and storm drains- 20% combined sewers (mostly downtown)
- NPDES SW Permit Since 1999



# IDDE Methodology

- Manhole inspections/sandbagging
- Dye testing of buildings
- Plug testing of suspected leaking sewer laterals to confirm leakage
- CCTV of sewers and drains
- Correction of illicit by BWSC (in public way) or by owners (internal)
- Post correction dye testing and manhole inspections





# Types of Illicit Discharges

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- Direct connection – BWSC corrects
- Internal or “partial” connection – owner corrects
- Leaking lateral – requires further testing to determine whether an infrastructure vs. owner lateral problem



# BWSC's IDDE Program

- 5 Phases of Citywide IDDE since 1999
- With each new phase-
  - -Expanded areas under investigation
  - -Built on “lessons learned”
  - -Added new “Tools in the Tool Box”



# Consent Decree 2012

- Required a written IDDE Plan
- Requires annual dry and wet weather outfall screening of all SD, CSO outfalls and interconnects (254)
- Prioritization of Sub-catchments for illicit discharge investigations
- Established a schedule for completing illicit discharge inspections of all BWSC sub-catchments by 2019





# Outfall Screening and Prioritization

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# BWSC Commitment

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- Current citywide IDDE Contract (\$2,105,000)
- Citywide IDDE contracts since 2000: \$8,523,000
- Contract to correct illicit connections (public way)
  - Current contract \$1,602,000
  - Correction costs range \$1,000-\$45,000 per connection
  - Average cost to correct a direct illicit: \$14,000
- Current contract to “plug test” laterals and CCTV sewers/drains: \$549,000;
  - Plug test cost \$1,900 each
- Sewer Lateral Financial Assistance Program

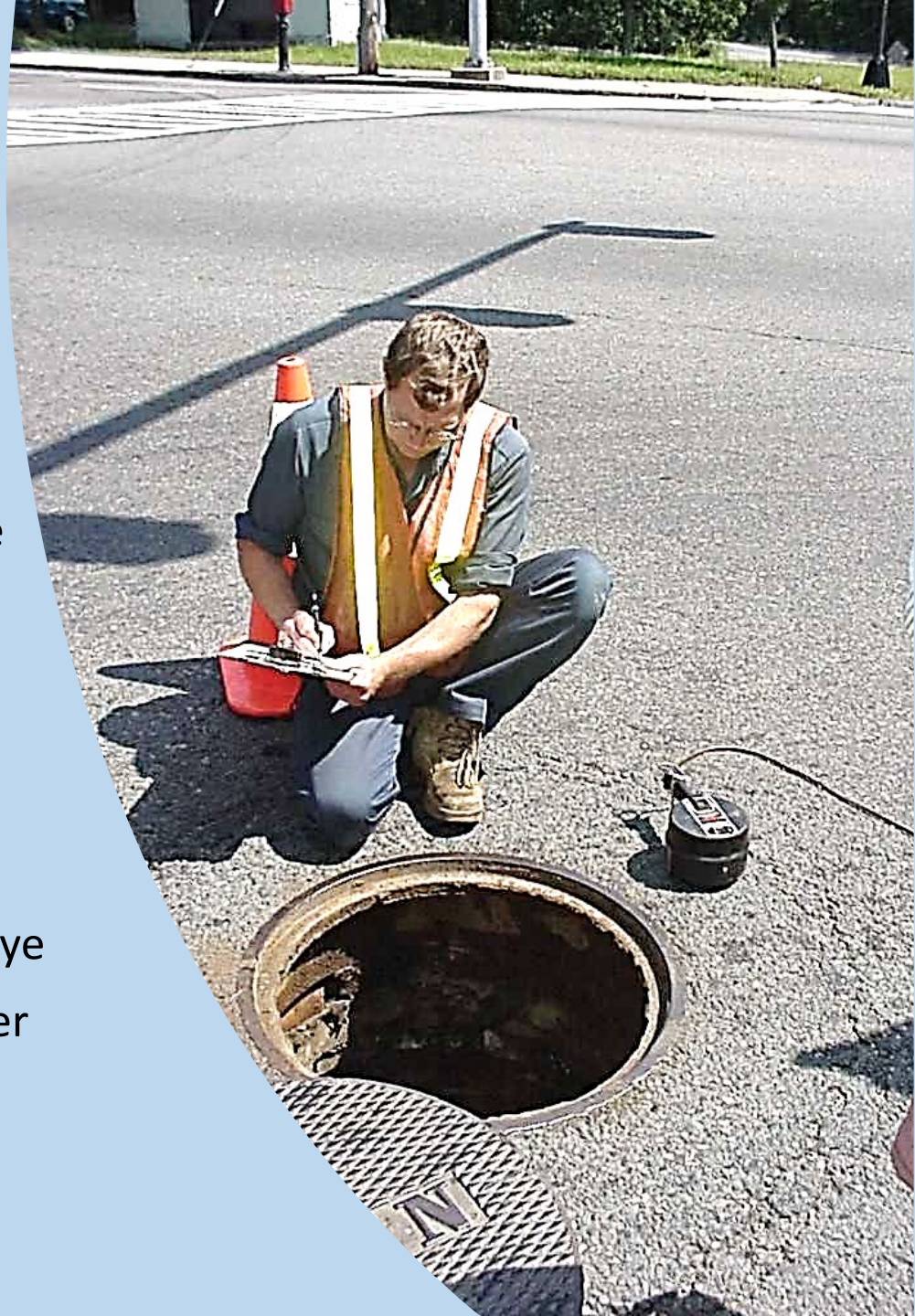




# Tips and Advice

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- Don't let BWSC's program intimidate you
- Start simple/keep making progress
- Adaptability and flexibility are key
- Go with your gut/Be creative
- Check both sewer and drain for dye/Leave enough time to wait for dye
- May need more than one dye test per building



# Tips and Advice

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- Progressive enforcement for private illicit is key
- BWSC Consent Decree is very similar to small MS4 Permit
  - Keep prioritization as simple as possible
- Use of DNA and PCP and Pharmaceuticals





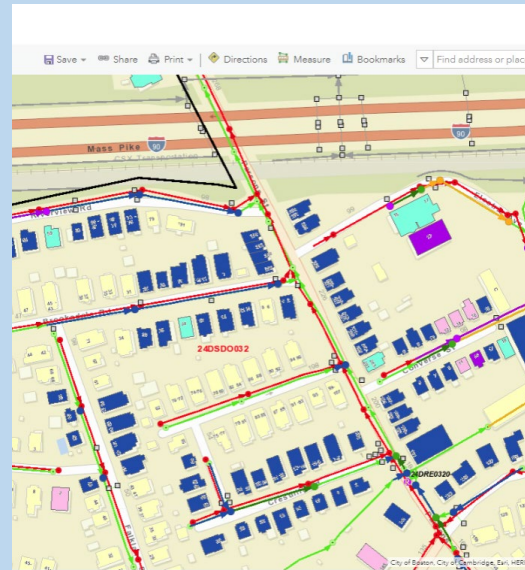
# Original Methodology

- Paper Maps
  - Handwritten notes
  - Color coding with highlighters
  - Updated and repaired regularly
- Mobile Database Software
- Microsoft Access
  - Data tables
  - PDF reports
- Lessons learned from this methodology




# Evolved Methodology

- Live mapping using GIS and ESRI Collector
  - Auto color coding based on inspection results
  - Map corrections
- Lessons Learned
  - Separate maps for different types of inspections
  - Automated QC checks
  - Backup copies of maps
  - Paper maps are still helpful



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*If we can't find the  
source we can't fix it.*

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