

Mystic River Water Quality Science Forum  
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# Island End IDDE Success Story What Does It Really Take?

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# Background



## Chelsea's IDDE Program:

- Initially just response to complaints
- Formalized in 2008 due to EPA Enforcement
- Written IDDE Plan 2009
  - Annual outfall monitoring
    - 25 municipal outfalls
    - Dry- & wet-weather rounds
  - IDDE field investigations
    - Indicated for 18 of 25 catchment areas



# Chelsea's IDDE Program

## Field investigation:

- Site-specific selection of investigative methods
- Typically “bottom up” approach
- Methods used (to date):
  - Manhole inspection
  - Drain segment isolation (“sandbagging”)
  - CCTV
  - Dye testing
  - ZoomCAM (“camera-on-a-stick”)





# Island End Case Study



## Carter Street Pump Station:

- Drainage pump station
- Force main discharges to arch culvert tributary to Island End River
- No direct discharge to river; hence, no “outfall” to observe/monitor
- First IDDE investigation initiated **2001!**



# Carter Street Pump Station IDDE

## Illicit discharges identified/removed:

- CCTV of drain found direct illicit May 2001
  - Sewer service from tomato facility connected to drain
  - Illicit eliminated by property owner October 2004 (#1)
  - Construction cost borne by property owner





# Carter Street Pump Station IDDE

## Illicit discharges identified/removed:

- CCTV of sewer found direct illicit October 2004
  - Cross connection between sewer & drain systems
  - Illicit eliminated by city December 2004 (#2)
- Engineering study found direct illicit early 2005
  - Cross connection between sewer & drain systems
  - Illicit eliminated by city June 2005 (#3)



# Carter Street Pump Station IDDE

## Illicit discharges identified/removed (*continued*):

- “Food waste” reported in flow at pump station 2006
- Smoke/dye/CCTV found direct illicit February 2007
  - Collapsed sewer illegally “rerouted” to drain
  - Sewer reinstated/illicit eliminated by city May 2007 (#4)
  - Estimated cost \$30,000
  - No food waste at pump station
  - BUT ... pump station still running during dry weather



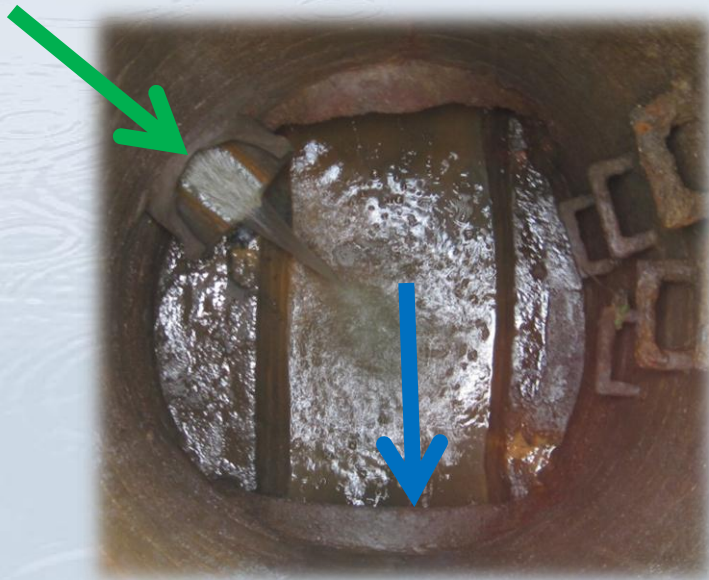


# Carter Street Pump Station IDDE

## Illicit discharges identified/removed (continued):

- MH inspection found two illicit one location April 2010

Municipal sewer directly  
connected to drain



Top of municipal sewer broken  
to allow overflow to drain





# Carter Street Pump Station IDDE

## Illicit discharges identified/removed (*continued*):

- Removal of two illicit discharges not so easy...
  - Downstream sewer elevation too high to allow rerouting
  - Design/construction to relay sewer put in CIP 2010
  - Engineering design to relay sewer undertaken 2011
  - Construction identified third illicit same site December 2012
  - All three illicit removed December 2012 (#5-#7)
  - Estimated cost for design/construction \$360,000
  - BUT ... pump station *still* running during dry weather!



# Carter Street Pump Station IDDE

## Where we are today:

- Twelve years of IDDE efforts
- Seven major illicit discharges found/removed to date
- Hundreds of gallons per day of wastewater no longer discharging to the Island End River
- Total expenditures exceed \$800,000
- BUT ... pump station *still* running during dry weather



# Carter Street Pump Station IDDE

## Where do we go next:

- SO ... Carter Street IDDE investigation continues
  - MH inspection to map dry-weather flow presence/quantity
  - Sampling of continuous dry-weather flow at key DMHs
  - Drain segment isolation (if indicated) at connections
- IDDE investigation ongoing in 14 other catchments too!
  - Island End River (3)
  - Chelsea River (5)
  - Mill Creek (6)





# Conclusions

## So, what does it take for success?

- Formal IDDE Program
  - Comprehensive infrastructure mapping
  - Annual stormwater outfall monitoring
  - IDDE field investigations
- Adequate funding
  - Implement IDDE Program
  - Design/construction to remove identified illicit discharges
- Dedication, Commitment, Perseverance



# Questions?

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