



The Hartford Metropolitan District **CSO Regulator Monitoring and Notification Program**



NEWEA Webinar:
Diving into Public Notifications
Part II

March 3, 2021

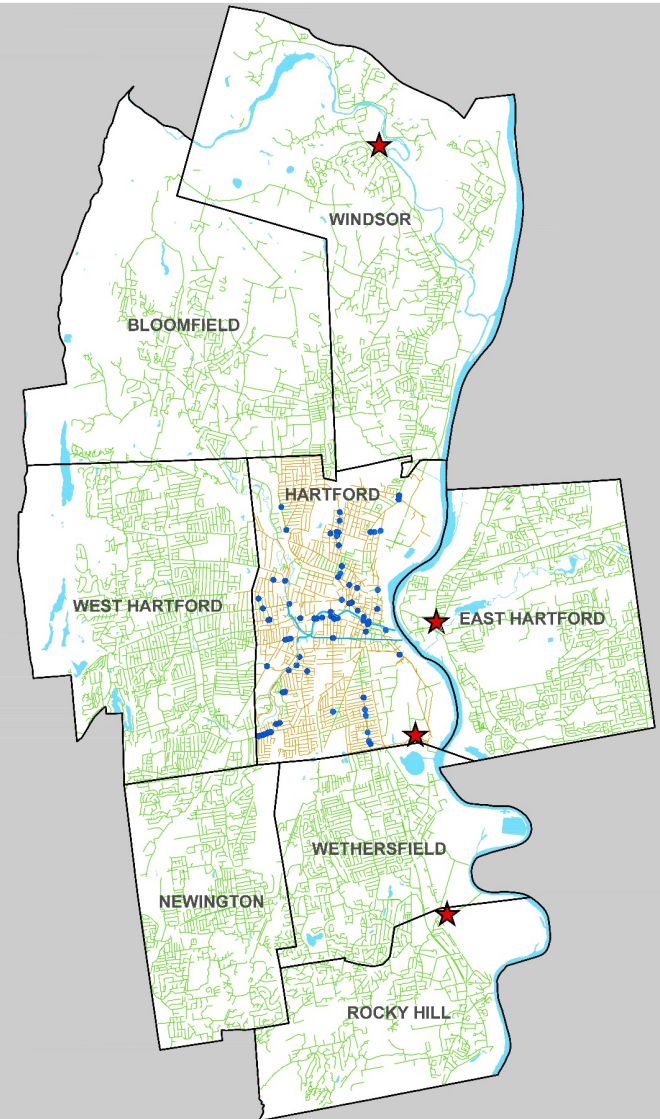
Jason Waterbury, Senior Project Manager
Mike O'Brien, Project Engineer

Agenda


- MDC Overview
- MDC CSO Monitoring History
- MDC CSO Monitoring System
- CT DEEP Reporting Requirements
- CSO Monitoring Benefits
- Lessons Learned

District Sewer System

- 4 Water Pollution Control Facilities (red stars)
- ~1,200 miles of sewers
 - 187 miles combined sewer (orange)
 - Mostly Hartford and a small portion of West Hartford
- 83 CSO Regulators/38 Outfalls (blue circles)



History of the CSO Monitoring Program

- September 17, 1997
 - Equipment failure at a flood control gate chamber caused a raw sewage discharge of about 21.3 MG into Wethersfield Cove over a week.
- Result  DEP Consent Order No. 5248 (May 13, 1998)
- Requirement:
 - MDC shall submit a report identifying and evaluating overflow points within the entire sewerage system where the installation of alarms would provide an “early warning” of raw sewage overflows in dry weather... and a plan and schedule for submitting plans and specifications and implementing the preferred alternative.

The District CO Response

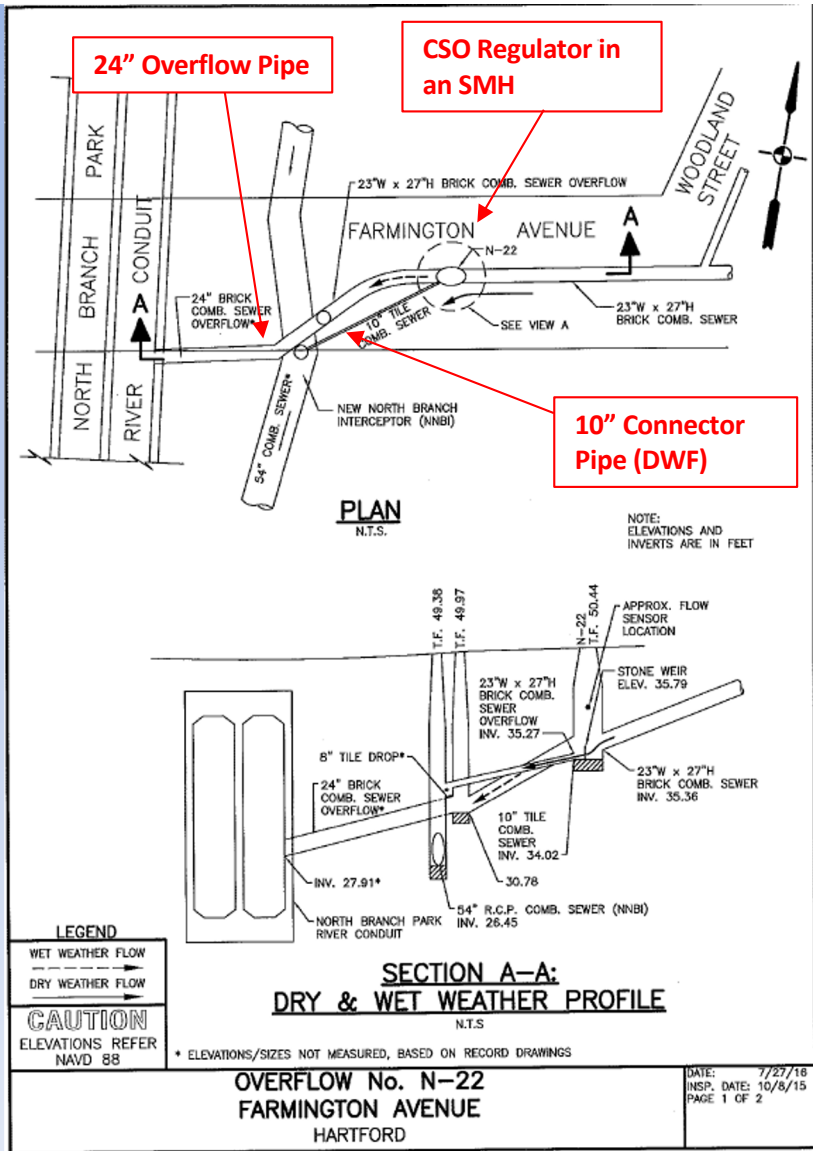
- Created the CSO Overflow Alarm and Monitoring System
 - Two separate contracts installed the utilities (power, telephone and flow signal) and instrumentation & hardware (ultrasonic level sensors, rain gages, remote alarm boxes, master control panel and computers)
 - System integration, application software development, field testing provided by CDM Smith
 - 81 of 83 CSO regulators are monitored; data is telemetered to MDC Command Center
 - Flow equations are used to compute CSO discharge flow/volume
- Substantial completion on August 13, 2002 ahead of the Consent Order deadline of September 30, 2002

CSO Monitoring – N-22

N-22 Pedestal Cabinet and Overflow Manhole



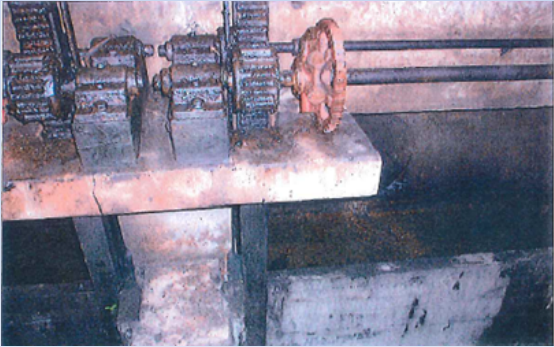
Ultrasonic Level Sensor



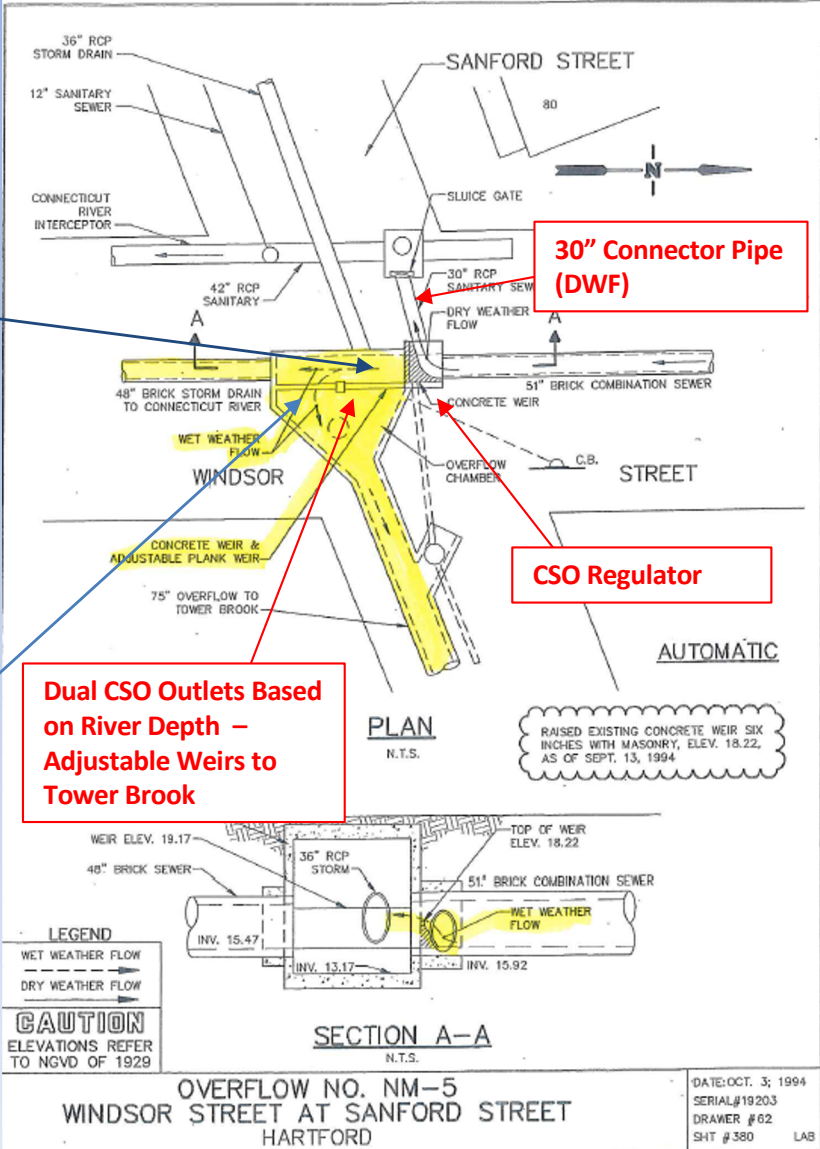
CSO Monitoring - NM-5



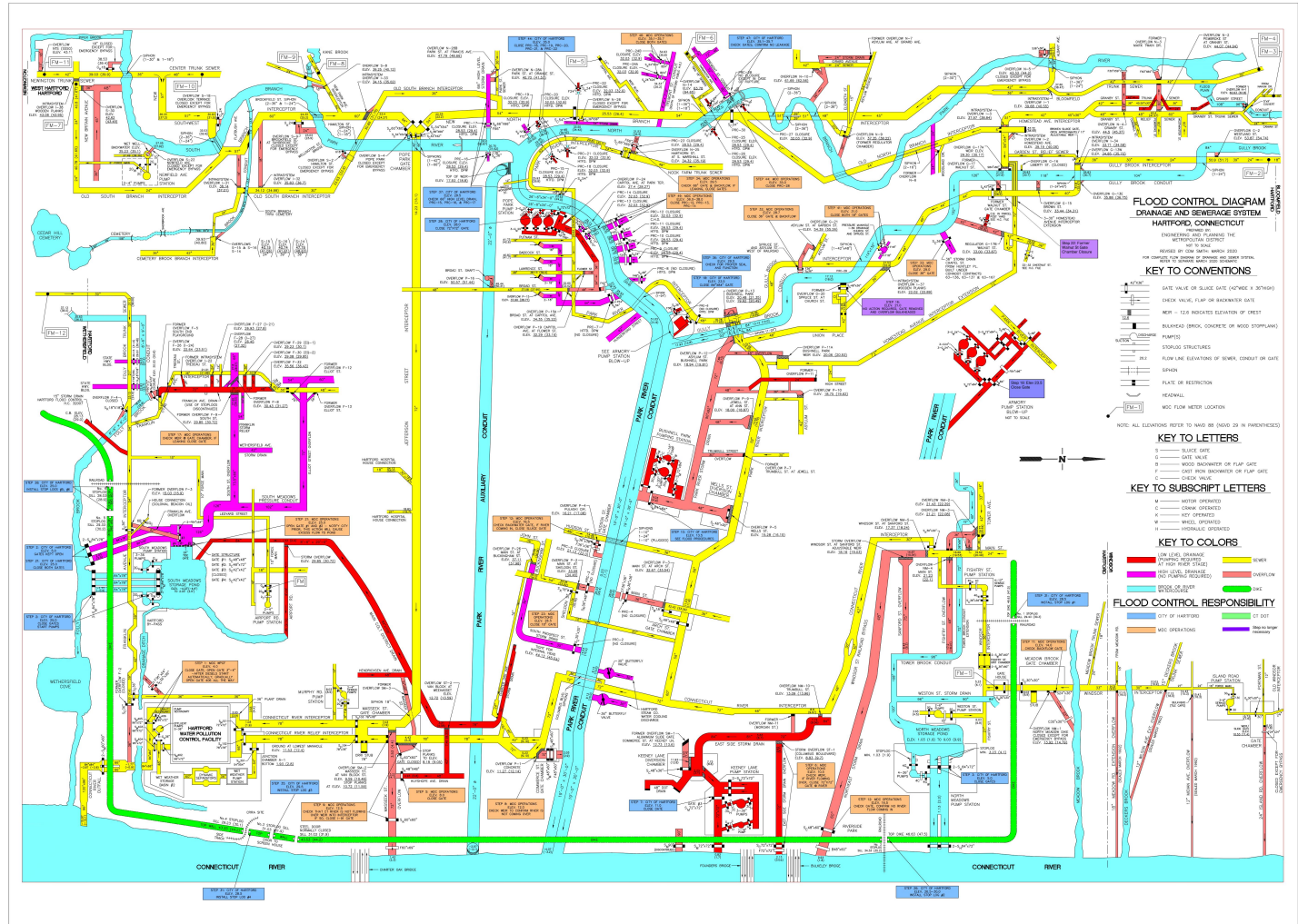
N-22 Weir



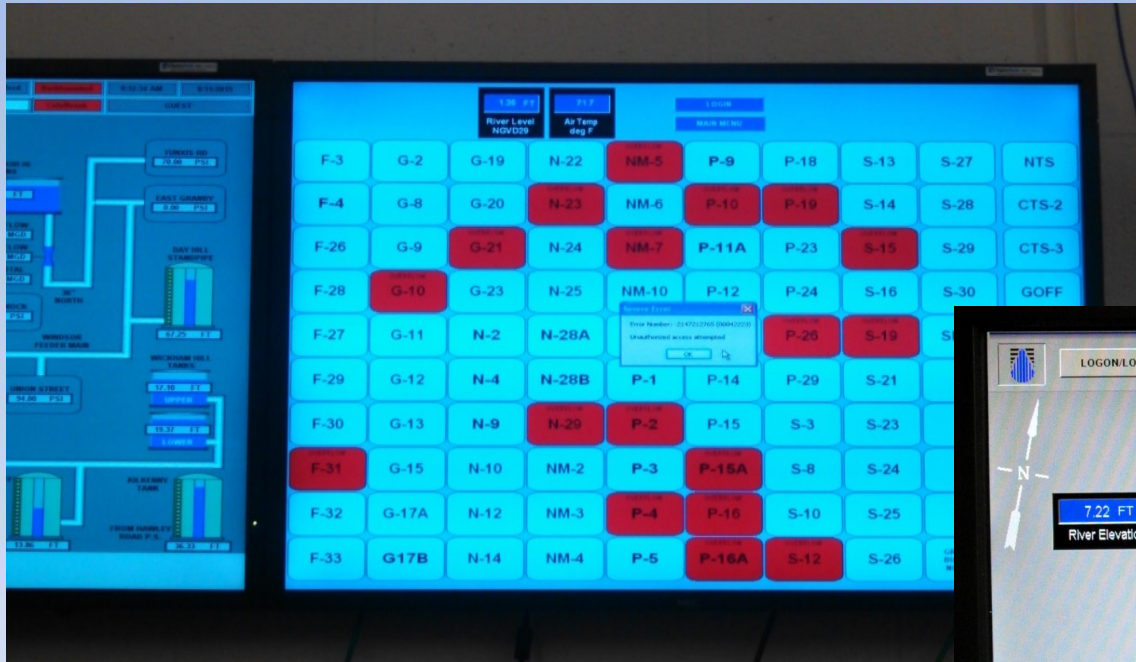
Adjustable Outlet Weir to Tower Brook



CSO Discharge During High River



MDC Command Center CSO Screens



Summary Screen

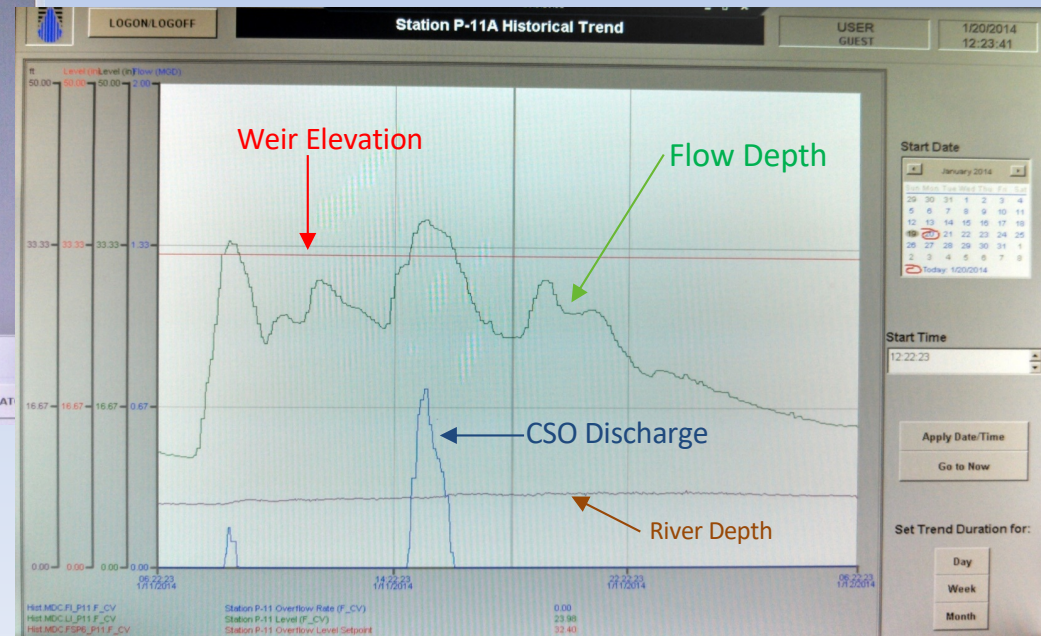
Outfall Details



Reporting Screens

*Reports Menu
By Drainage District/Receiving Water*

Real-Time Flow Monitoring and Trends



Evolving State CSO Reporting Requirements

- Prior NPDES Permits only required reporting of DWOs
- 2015 MDC Hartford WPCF NPDES Permit (Eff. 10/1/15)
 - Right-to-Know Untreated CSO Discharge Reporting by E-Mail
 - CTDEEP cited Public Act 12-11 “An Act Concerning the Public’s Right to Know of a Sewage Spill” as justification
- Public Act 18-97 “An Act Concerning the Sewage Spill Right to Know Act” (modified Public Act 12-11)
 - Required On-Line Electronic Reporting Effective 7/1/18
- **NEW** “Potential” SB 927 “AAC Revisions to the Sewage RTK Statute” – may decrease reporting buffer for volume

Current CSO Reporting Requirements

- **2 Hour Report**
 - Name or designator of regulator location
 - Date and time of initiation
 - Names of surface water bodies potentially impacted
- **5 Day Follow-up Written Report**
 - Date and time event ended
 - Amount of precipitation
 - Estimation of the duration, volume and quality of the discharge
 - Names of the surface water bodies impacted by the discharge

District Approach for Compliance

- 2 Hour Response (on-line state site, upload form for 1st activation set)
 - MDC Command Center staff fills in the required information (activation and impacted water bodies) on the form
 - Upload a list form of CSO Regulators with an “X” in a box next to each one that has overflowed within the first 2 hours of the event
- 5 Day Report (on-line state site)
 - Direct input of an estimate of total event duration (date and time), precipitation, and CSO volume (range)
 - (CSO quality in NPDES Permit, but this is assumed)
 - Attach a CSO report which contains amount of precipitation and an estimate of the duration and volume of the discharges for each Drainage District (receiving water) that experienced a CSO
 - For multi-day events, a report for each day is included

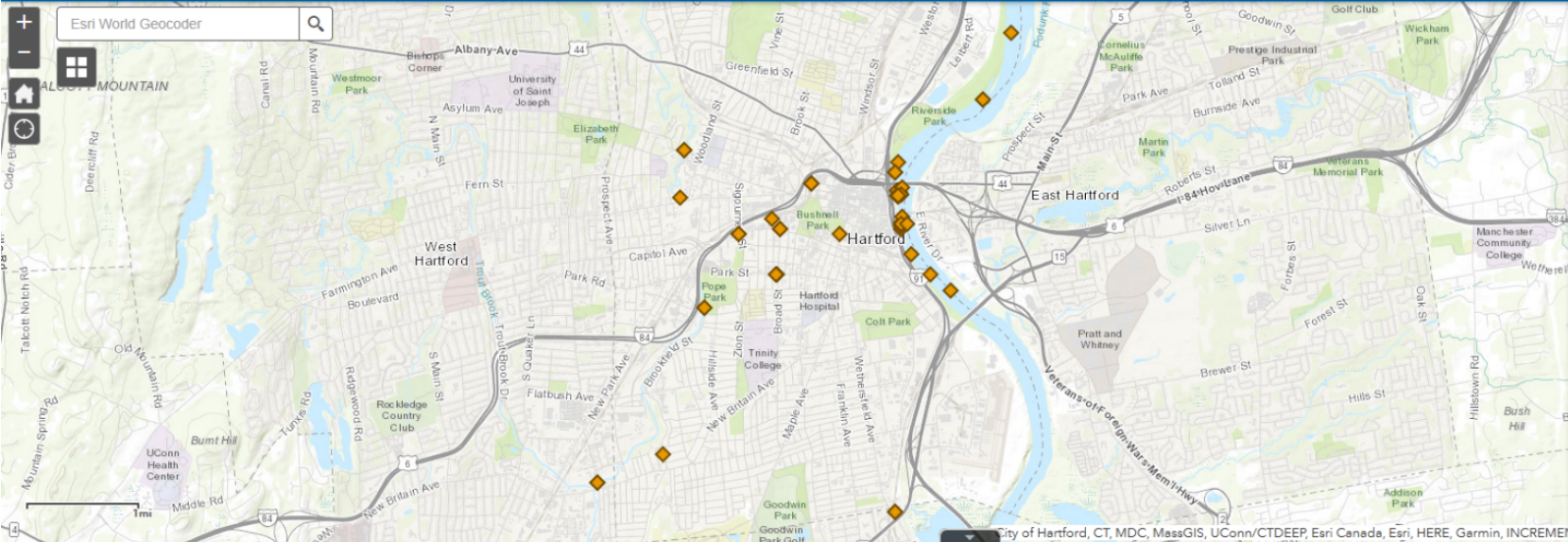
State Website

Bypass and CSO Events Public Viewer

Active Bypass and CSO Events

All Bypass and CSO Events

Connecticut Department of Energy and Environmental Protection



Legend

- CSO Event**
 - City of Bridgeport - East Side WPCF
 - City of Bridgeport - West Side WPCF
 - City of Norwalk
 - City of Norwich
 - City of Waterbury
 - Greater New Haven WPCA
 - The Metropolitan District
- Bypass Event**
 -

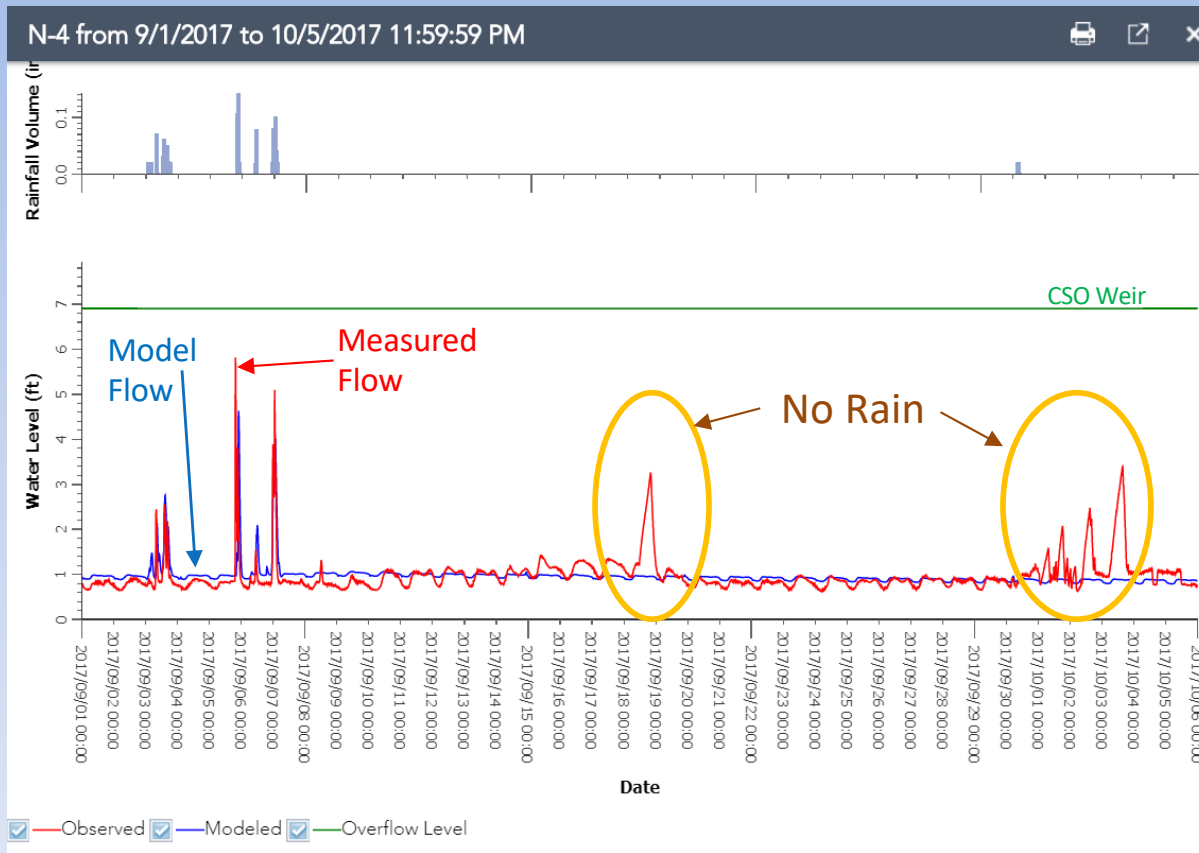
OBJECTID	Utility	CSO Town	Regulator Name	Regulator activated	Regulator Stopped	CSO Duration	Total Estimated Volume	Receiving Water body	Notes	Latitude	Longitude	Name of Utility	Time since event ended
29210385	The Metropolitan District	Hartford	Conduits: P-1, P-2, P-3, P-4, P-5, P-9, P-10, P-11A, P-12, P-13, P-15, P-15A, P-18, P-19, P-23, P-24; N-12, N-14, N-22, N-23, N-24, N-25 N-28A, N-28B, N-29; P-16, P-16A; G-20, G-2, G-8 - G12, G13W, G-13E, G-15, G-17A, G-17B, G-19, G-21, G-23	2/16/2021, 5:17 AM		null		Park River Conduit		41.32	-72.91		null

We Recorded It; Why Not Use It?

- PipeCAST used in conjunction with SWMM model for improved system understanding
 - Automatic post storm analysis using SWMM to compare “what happened to what should have happened”
 - Continual model evaluation - existing and future
- Proactively identify, optimize and address O&M Issues
 - Compare dry weather system performance trends vs model simulations
- Measure effectiveness of improvements under Clean Water Project (i.e. Track Level of Control)
- Manage risk in design of planned facilities



CSO Data Use – O&M Example



CSO Monitoring – Lessons Learned

- Challenge always is using real-time data versus data after “scrubbing”
- District completed a comprehensive CSO regulator/interceptor inspection/survey program and a review of all flow calculations to refine all computations in 2010/2011
 - 2015 circa CSO Regulator Sketches all updated
- District currently converting from telemetry to cellular data transmission to improve communications
- Migrating to Hach-Wims for reporting

Thank You

Contact Us

Jason Waterbury, P.E.

The Metropolitan District

860-278-7850

jwaterbury@themdc.com

Michael O'Brien, P.E.

The Metropolitan District

860-278-7850

mobrien@themdc.com

