



Best Practices, Online Mapping Tools, and Lessons Learned to Improve Your IDDE Program

Presented by
Nate Pacheco
VHB

January 25, 2023

Outline

- MS4 Permit Context and IDDE Requirements
- Best Practices
 - Desktop and Preparation
 - Field Work
 - Follow-up and QAQC
- Lessons Learned

United States Environmental Protection Agency (EPA)
National Pollutant Discharge Elimination System (NPDES)

GENERAL PERMITS FOR STORMWATER DISCHARGES FROM
SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEMS
IN MASSACHUSETTS
(as modified)

AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Clean Water Act (CWA), as amended (33 U.S.C. §1251 *et seq.*), and the Massachusetts Clean Waters Act, as amended (M.G.L. Chap.21 §§ 26-53), any operator of a small municipal separate storm sewer system whose system:

- Is located in the areas described in part 1.1;
- Is eligible for coverage under part 1.2 and part 1.9; and
- Submits a complete and accurate Notice of Intent in accordance with part 1.7 of this permit and EPA issues a written authorization

is authorized to discharge in accordance with the conditions and the requirements set forth herein.

The following appendices are also included as part of these permits:

- Appendix A – Definitions, Abbreviations, and Acronyms;
- Appendix B – Standard permit conditions applicable to all authorized discharges;
- Appendix C – Endangered Species Act Eligibility Guidance;
- Appendix D – National Historic Preservation Act Eligibility Guidance;
- Appendix E – Information required for the Notice of Intent (NOI);
- Appendix F – Requirements for MA Small MS4s Subject to Approved TMDLs;
- Appendix G – Impaired Waters Monitoring Parameter Requirements;
- Appendix H – Requirements related to discharges to certain water quality limited waterbodies;

This modifies parts: 2.0; 2.1; 2.1.1; 2.1.2.a; 2.2.; 2.2.2 (paragraphs 2 and 3); 2.3.3; 2.3.5; 2.3.6; 2.3.7.b; 4.1; 4.4; 5.1.5; 6.5; Appendix F part A.I; Appendix F part A.II; and Appendix H of the permits that became effective on July 1, 2018

These permit modifications become effective on **January 6, 2021**.

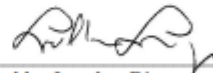
These permits and the authorization to discharge expire at midnight, **June 30, 2022**.

Signed this 7th day of **December 2020**

Signed this 7th day of **December 2020**

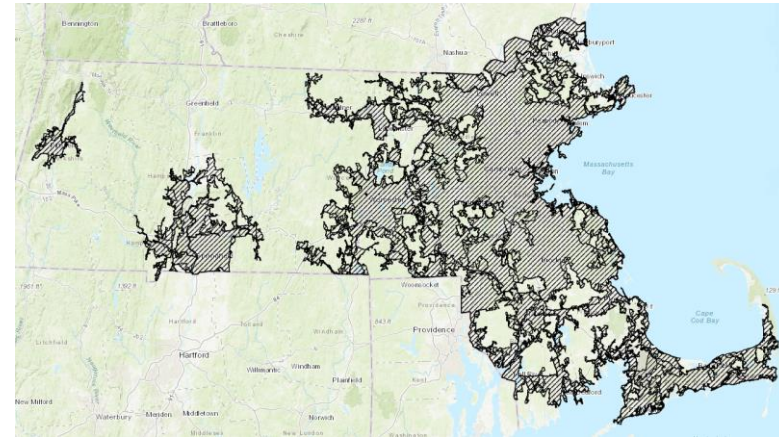
/S/Signature On File

Ken Moraff, Director
Water Division
United States Environmental Protection Agency
5 Post Office Square – Suite 100
Boston, Massachusetts 02109-3912

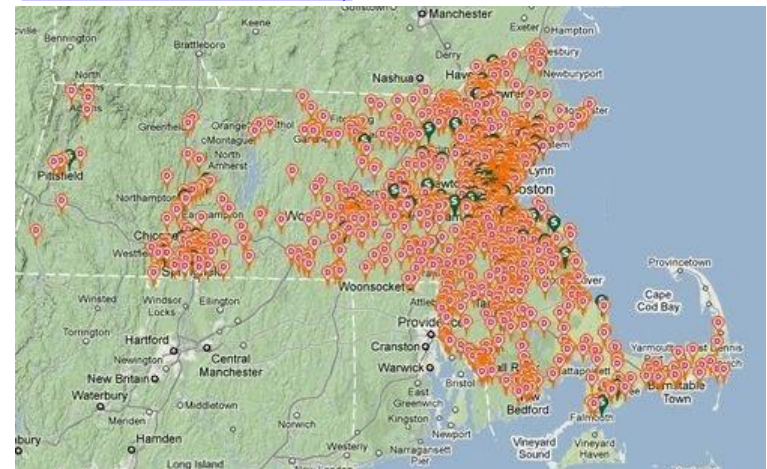

Lealdon Langley, Director
Division of Watershed Management
Department of Environmental Protection
One Winter Street
Boston, Massachusetts 02108

MS4 Permit

- Municipal Separate Storm Sewer System (MS4) Permit under NPDES
- 5-Year Permit Term
 - Currently in Year 5, new permit expected soon
- Administered by EPA in Massachusetts
- Applies to municipalities located either fully or partially within Urbanized Area as defined by 2010 Census

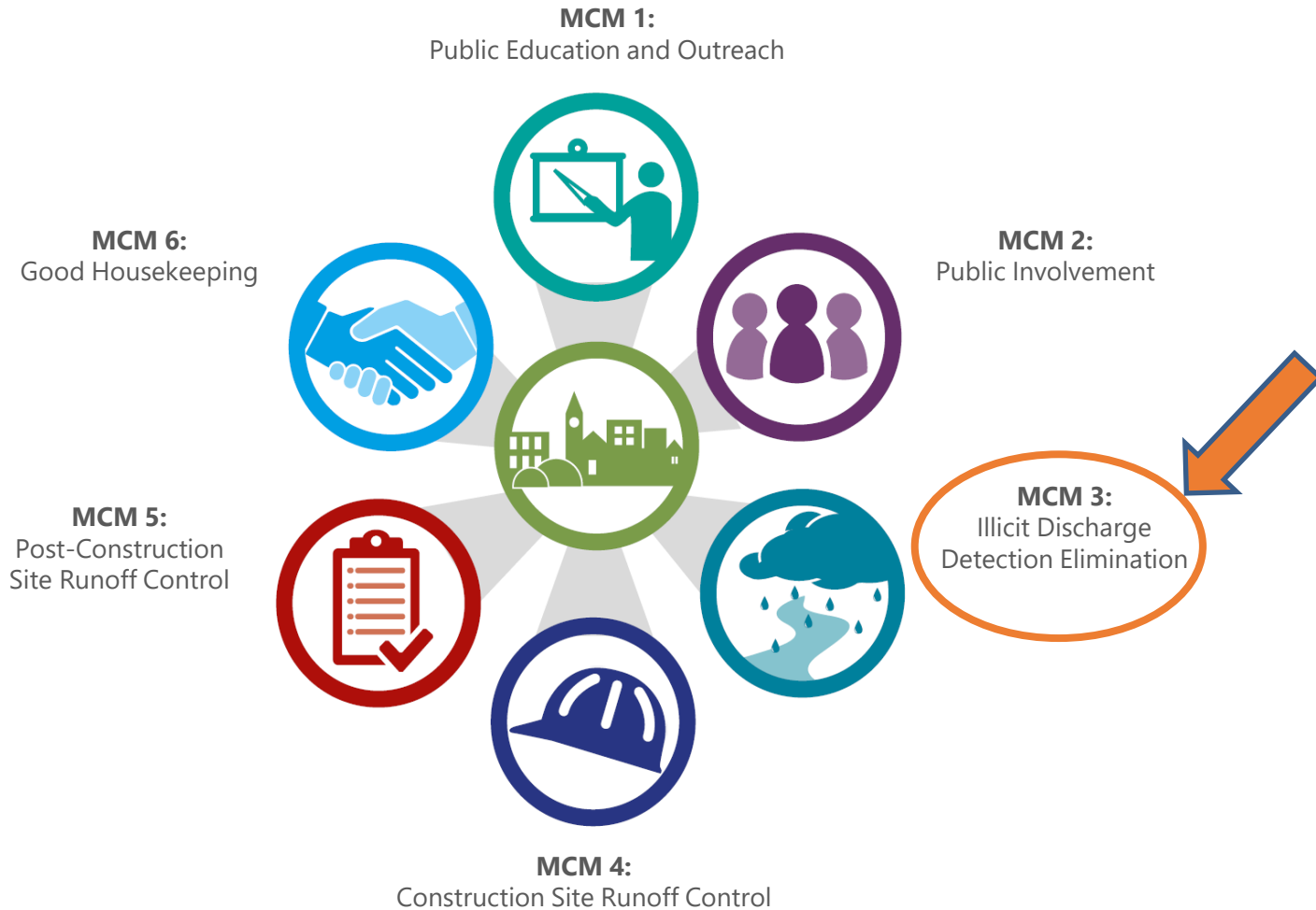


Source: MassDOT WQDF Reference Map



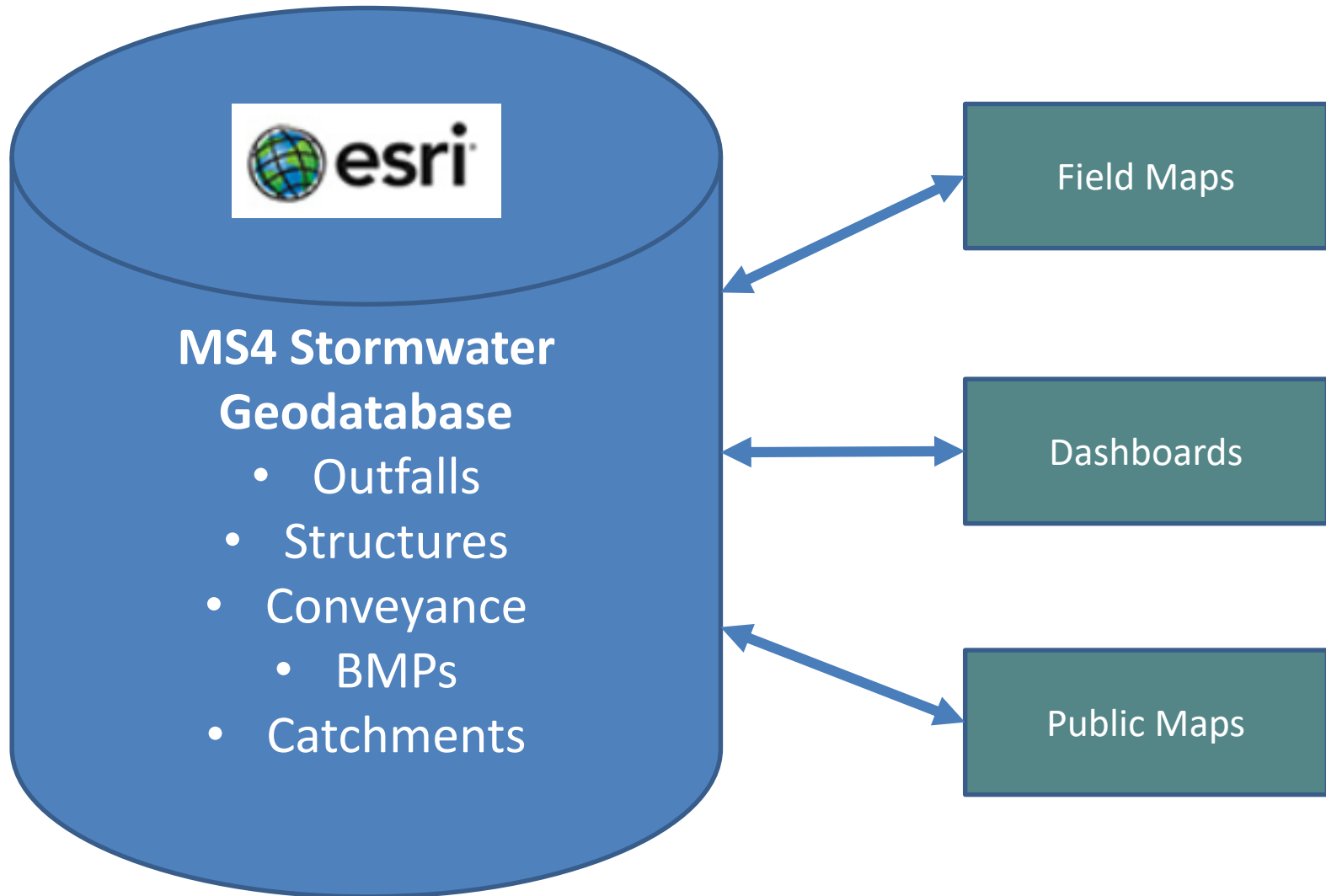
Source: Dunkin' adds 338 stores in 1st half of year

MS4 Permit: 6 Minimum Control Measures

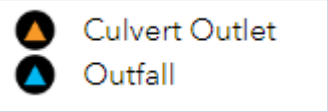
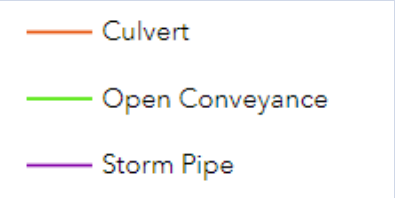
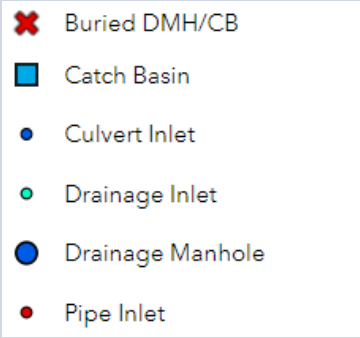



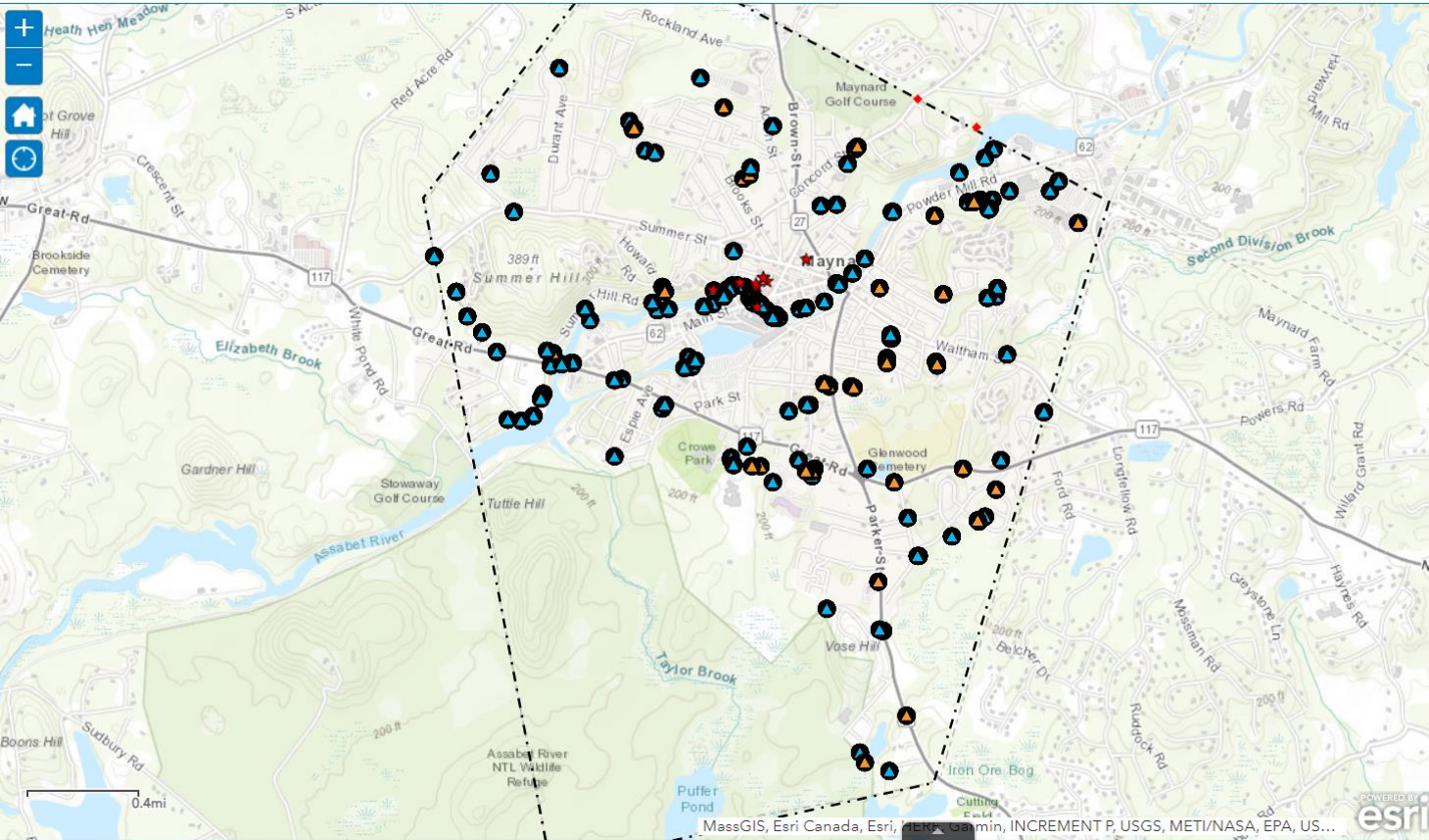
Effective Date	1 year	2 years	3 years	4 years	5 years	6 years	7 years	8 years	9 years	10 years
July 1, 2018	June 30, 2019	June 30, 2020	June 30, 2021	June 30, 2022	June 30, 2023	June 30, 2024	June 30, 2025	June 30, 2026	June 30, 2027	June 30, 2028
WRITTEN PROGRAMS	IDDE Plan & SSO Inventory ▶	Regulations for new permittees ▶								
MAPPING	Phase I Map ▶									Phase II Map ▶
Update map with outfalls, receiving waters, & certain structures		Update mapping information with information collected during catchment investigations								
DRY WEATHER OUTFALL SCREENING & SAMPLING	Initial Outfall Ranking ▶	Updated Outfall Ranking ▶								
	Dry weather outfall & interconnection screening & sampling									
CATCHMENT INVESTIGATIONS				Catchment investigations complete for problem catchments & catchments with sewer input indicators ▶					100% Catchments Investigated ▶	
	Catchment investigations of outfalls & interconnections performed as necessary									
WET WEATHER OUTFALL SCREENING & SAMPLING				Wet weather complete for all outfalls/interconnections identified as problem or with sewer input indicators ▶					100% Required Outfalls Screened & Sampled ▶	
	Wet weather screening of outfalls & interconnections performed as necessary									

Desktop and Preparation: MS4 Stormwater Geodatabase



Desktop and Preparation: Database Structure

Outfall	Conveyance	Structure	Catchment
			
<ul style="list-style-type: none"> • Outfall Inspection Form <ul style="list-style-type: none"> • Photos 	<ul style="list-style-type: none"> • Conveyance Inspection Form <ul style="list-style-type: none"> • Photos 	<ul style="list-style-type: none"> • Structure Inspection Form <ul style="list-style-type: none"> • Photos • Structure Condition Form <ul style="list-style-type: none"> • Photos 	<ul style="list-style-type: none"> • Catchment Action Form <ul style="list-style-type: none"> • Photos



Layer List

Layers

- Highest Priority IDDE Outfalls
- Illicit Discharge
- Outlets
 - Culvert Outlet
 - Outfall
- Interconnections
- Drainage Structures
 - Buried DMH/CB
 - Catch Basin
 - Culvert Inlet
 - Drainage Inlet
 - Drainage Manhole
 - Pipe Inlet
- Drainage Conveyance
 - Culvert
 - Open Conveyance
 - Storm Pipe

Desktop and Preparation: Mapping and Preparation

- Ensure mapping is as up to date as possible **before** going into the field
- Identify a **REALISTIC** number of structures to visit **ahead of time**
 - Key Junction Manholes
 - Highest Priority Outfalls



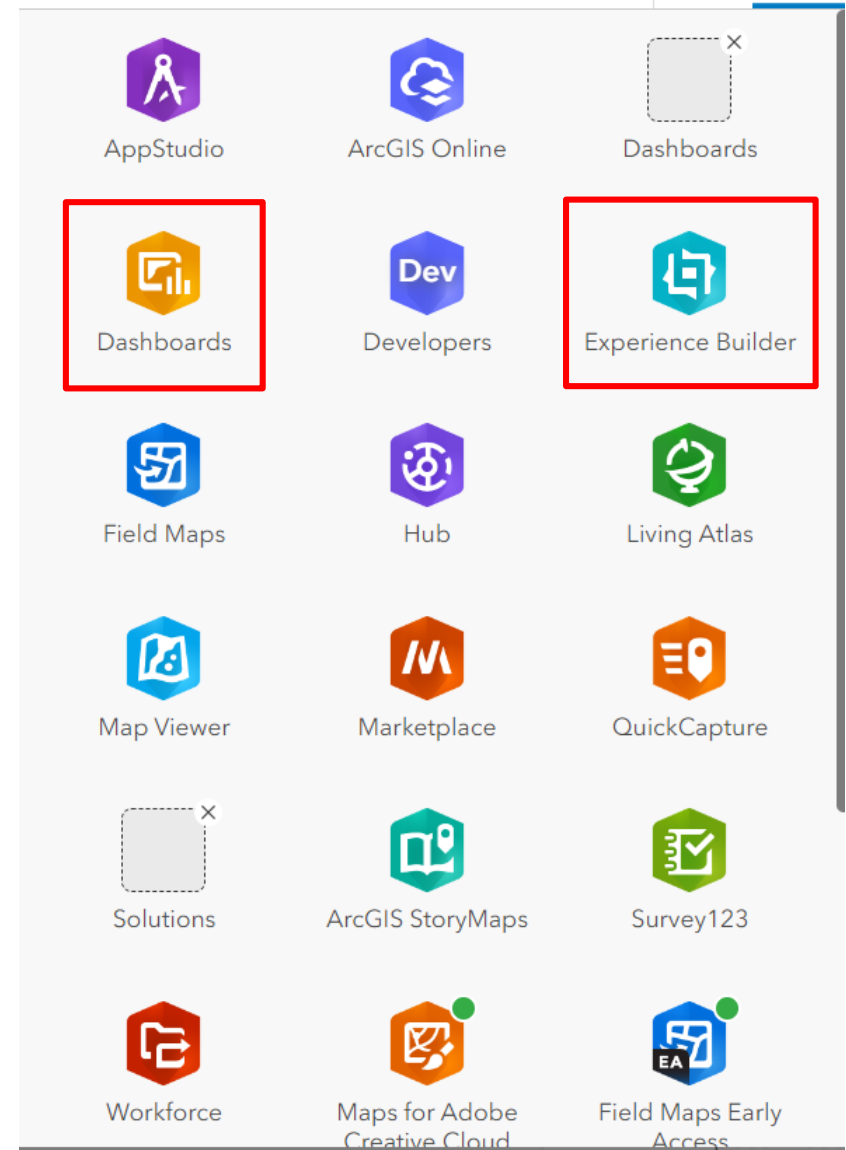
Desktop and Preparation: Coordination

- Coordinate access, and potential traffic control/police well ahead of time
- Prepare activity letter with town seal and approve with town
- Check if roadway salting has happened recently
- Coordinate with lab ahead of time and ensure field staff understand hold times



Desktop and Preparation: Dashboards for Planning

- Utilize different **out of the box mapping tools and applications** to support planning and tracking
- ESRI Ops Dashboards/Experience Builders



Desktop and Preparation: Dashboards for Planning

SCP Group IDDE Screening Step #1: Select SCP Group 4090100 - Providence and Seekonk

SCP Watersheds

Step #2
Select a watershed below to filter map and outfall list
IDDE Screening due 1 year after SCP Due Date

- Brickyard Pond: RI0007020L-02**
SCP Due Date: 12/30/2023
SCP Consultant:
- Providence River: RI0007020E-01B**
SCP Due Date: 12/30/2023
SCP Consultant:
- Providence River: RI0007020E-01A**
SCP Due Date: 12/30/2023
SCP Consultant: Beta Group, Inc.
- Seekonk River: RI0007019E-01**
SCP Due Date: 12/30/2023
SCP Consultant:
- Upper Narragansett Bay: RI0007024E-01B**
SCP Due Date: 12/30/2023
SCP Consultant:
- Upper Narragansett Bay: RI0007024E-01A**
SCP Due Date: 12/30/2023
SCP Consultant:

Last update: a few seconds ago

Selected Outfalls

Step #3
Select outfall to zoom to on map and view inspection records below
All outfalls in list are final, active RIDOT-owned outfalls

- Structure ID: 925
Receiving Waterbody: Providence River (RI0007020E-01B)
IDDE Exempt Status:
- Structure ID: 926
Receiving Waterbody: Providence River (RI0007020E-01B)
IDDE Exempt Status:
- Structure ID: 938
Receiving Waterbody: Providence River (RI0007020E-01B)
IDDE Exempt Status:
- Structure ID: 943
Receiving Waterbody: Providence River (RI0007020E-01B)
IDDE Exempt Status:
- Structure ID: 999
Receiving Waterbody: Providence River (RI0007020E-01B)
IDDE Exempt Status:

Last update: a few seconds ago

Dry Weather Inspections

0 Completed
27 Need Inspection

Last update: a few seconds ago

Wet Weather Inspections

0 Completed
27 Need Inspection

Last update: a few seconds ago

Outfall Inspection Records

1 of 18

STRUCTURE ID	925
OUTFALL ID	NARR353
WATERBODY ID	RI0007020E-01B
SUBWATERSHED	Providence River
INSPECTION REASON	Pre-2020 Inventory
IDDE PRIORITY	No CD Priority
PRIORITY STATUS	NA
APPENDIX EIGHT	No
TMDL PRIORITY	No

Last update: a few seconds ago

IDDE Exempt Outfalls

Null 27

Last update: a few seconds ago

Total Outfalls

27

Filtered for Final Outfalls owned by RIDOT with a Feature Status of Active

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Map Legend

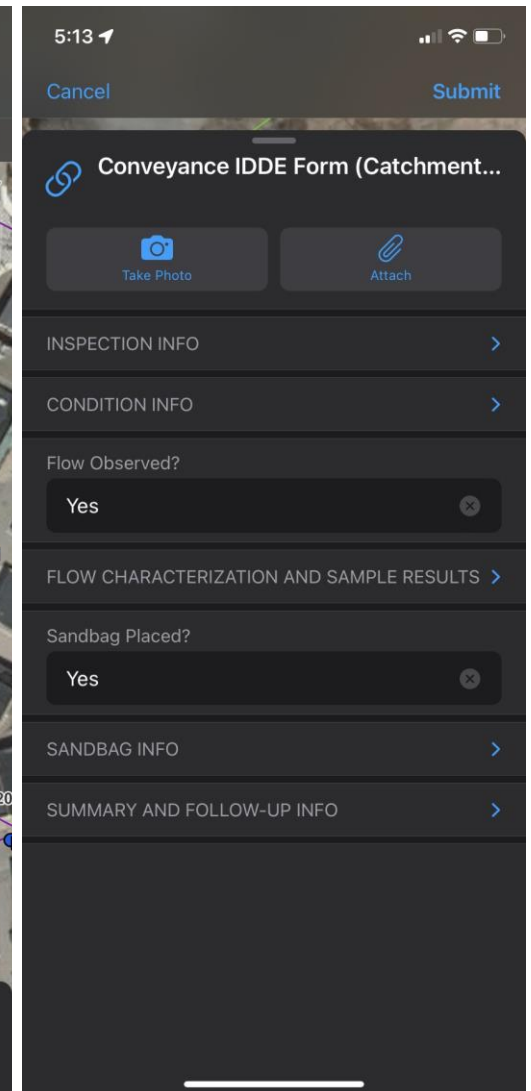
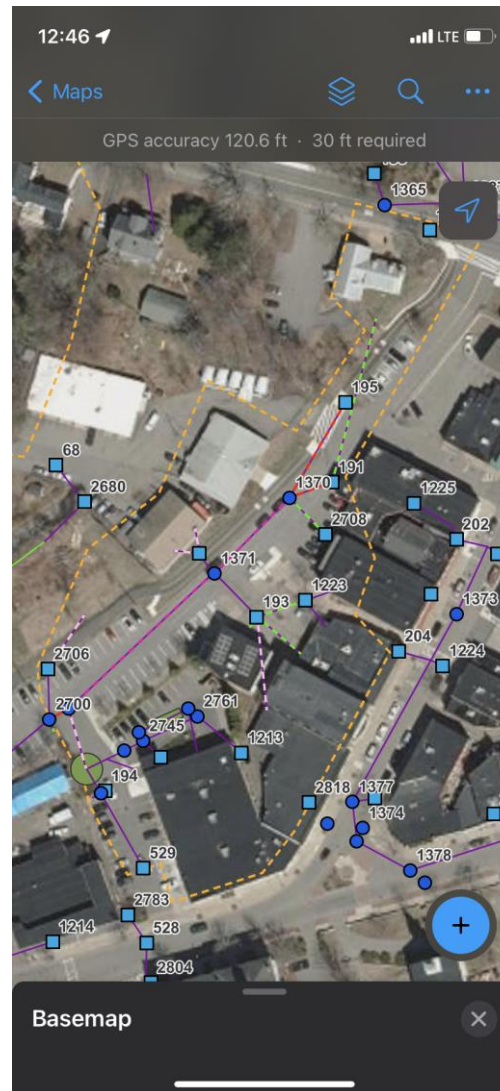
Outfalls: IDDE Dry/Wet Weather Status

- ◆ No Screening Completed
- ◆ Dry Weather Screening Complete
- ◆ Dry & Wet Weather Screening Complete
- ◆ Wet Weather Screening Complete
- ◆ IDDE Exempt

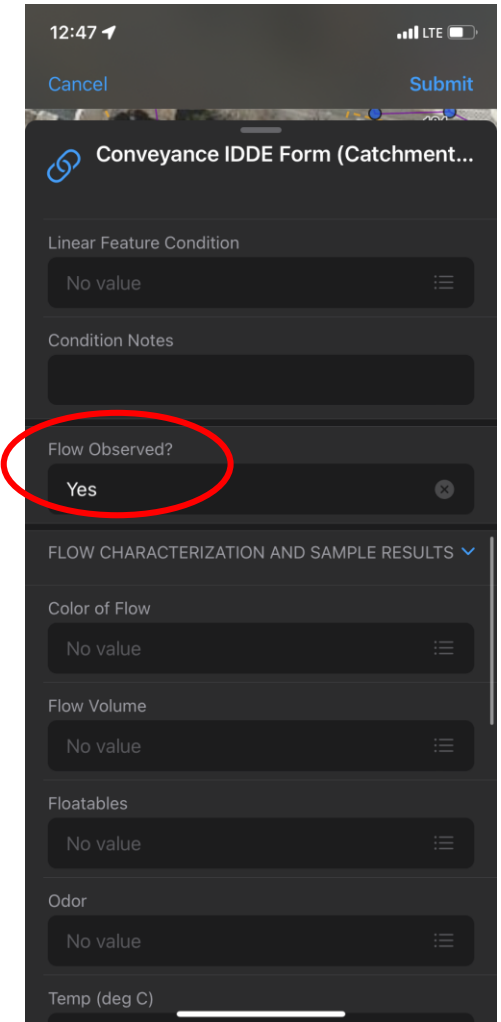
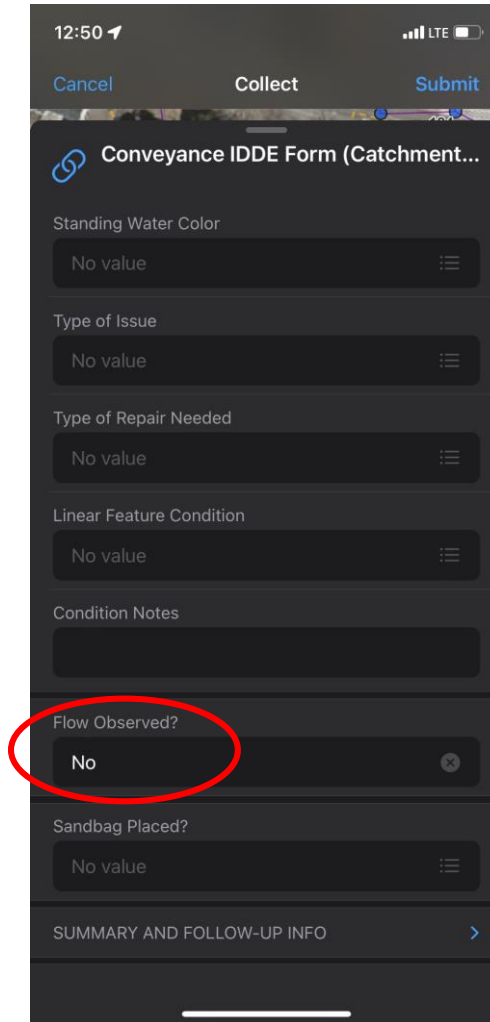
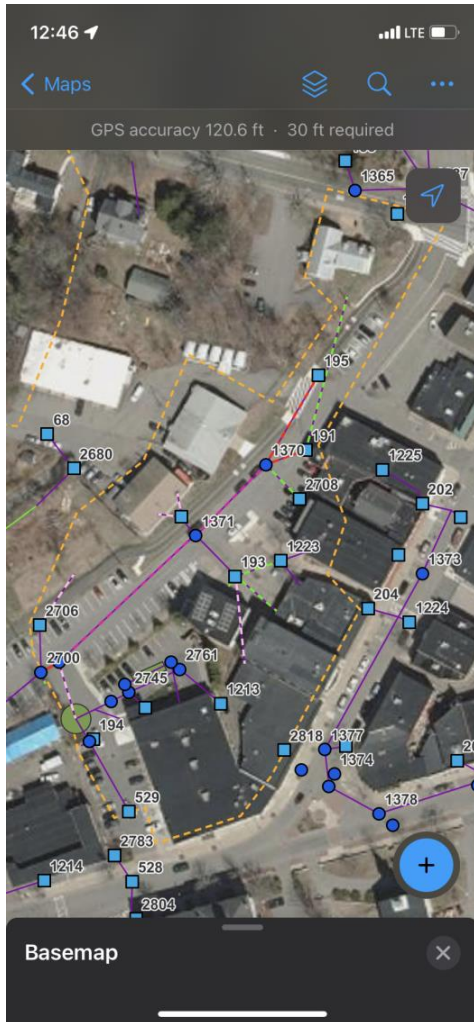
SCP Watersheds

Field Work: "Smart" Field Forms

- Optimize Field Forms to ensure efficient and accurate data collection
 - Field Categories
 - Conditional Logic
 - Required Fields
 - Default Values



Field Work: "Smart" Field Forms – Conditional Logic



Field Work: Best Practices

- **SAFETY FIRST** – always!
- Document **every structure** visited
 - Take photos (multiple) at **each structure**
- Carry business cards and letters with Town seal
- The **simpler the form**, the better
- Attach any relevant as-builts, correspondence, etc to structures **ahead of time** so field staff may utilize



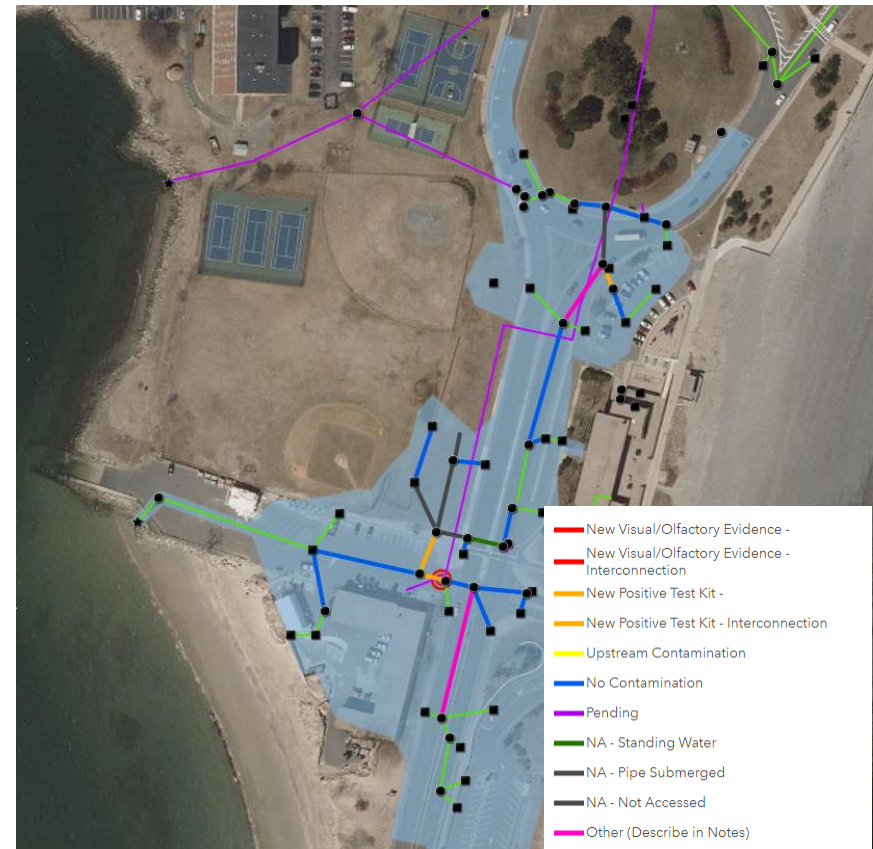
Field Work: Best Practices

- Don't spend tons of time updating mapping in field – desktop is much quicker
- Bring backup batteries
- You never know what you're going to find – be prepared for ANYTHING
- Make sure field staff has appropriate context and knowledge of goals



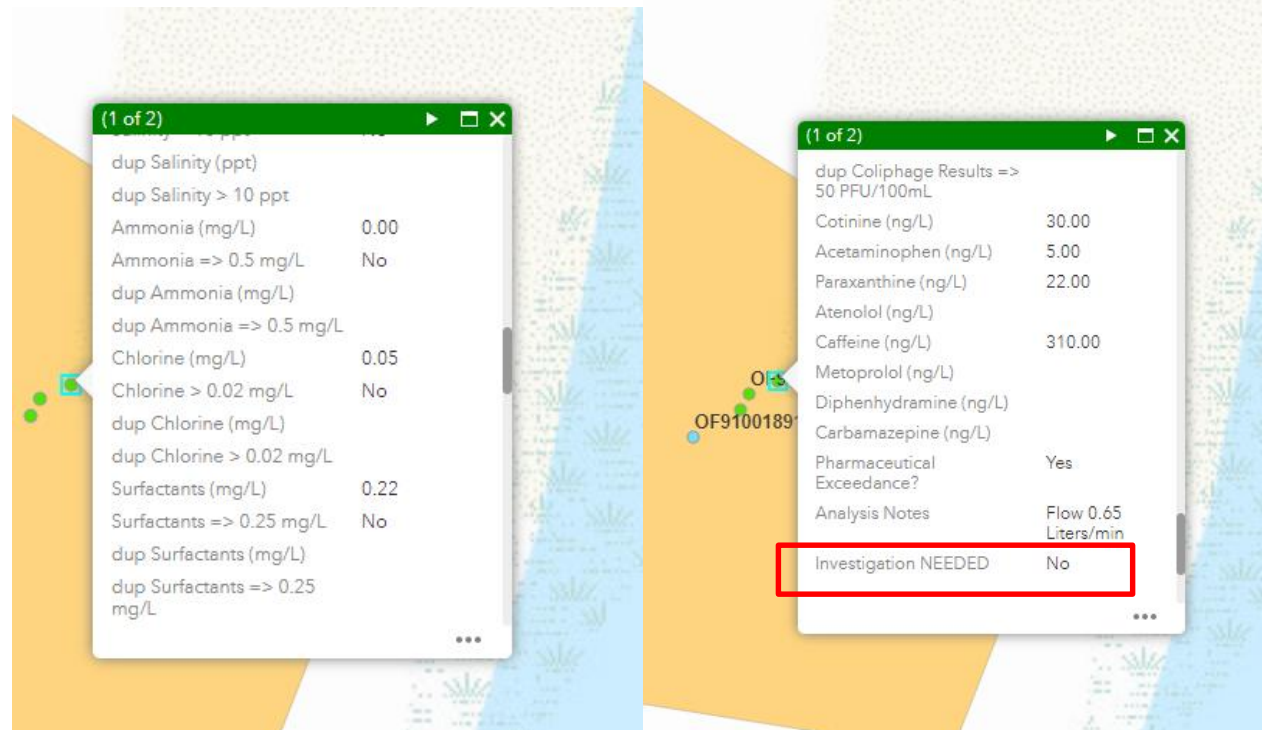
Follow-Up and QAQC: Technology Supporting IDDE Program

- Use attribute-based symbology to make maps easy to read and glean information from
- Utilize **database views** to geospatially see IDDE results in real time



Follow-Up and QAQC: Technology Supporting IDDE Program

- Utilize specialized **geoprocessing tools** for data QAQC and critical field population
 - Python Scripts
 - FME Workbenches
 - Attribute Rules



Lessons Learned

- Mapping mapping mapping
- IDDE Work is **resource intensive** – budget accordingly!!
- Talk to municipal/agency experts and staff before chasing something too hard
- Engage the public!
- Issues can sometimes get political – but IDDE Bylaw (should) give legal authority for enforcement



RIDOT Suspicious Discharge Reporter

RIDOT is committed to eliminating non-stormwater discharges from its drainage system. In addition to its robust system inspection program, the general public can play a major role in identifying illegal discharges to RIDOT's infrastructure. If you have witnessed evidence of illegal dumping or suspicious discharges to RIDOT's drainage system, please place a point on the map indicating where the activity occurred. Please provide as much information as possible to assist RIDOT in tracking down the source and eliminating the discharge. Thank you for helping to keep Rhode Island's waters clean.

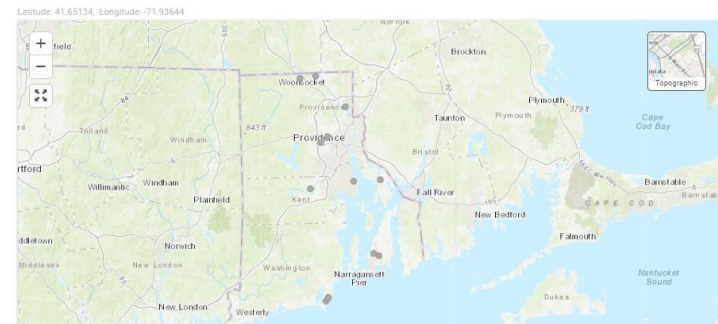
1. Enter Information

Date Identified
Method Identified
Select...
Location

2. Select Location

Specify the location for this entry by clicking/tapping the map or by using one of the following options.

Search Lat/Lon
Find address or place LOCATE ME



Questions?

Nate Pacheco | npacheco@vhb.com | 617.607.6164

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Offices located throughout the east coast