



Quarterly Meeting
April 18, 2018

Stormwater Data for Asset Management and Decision-making

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Maryland
Transportation
Authority



Agenda

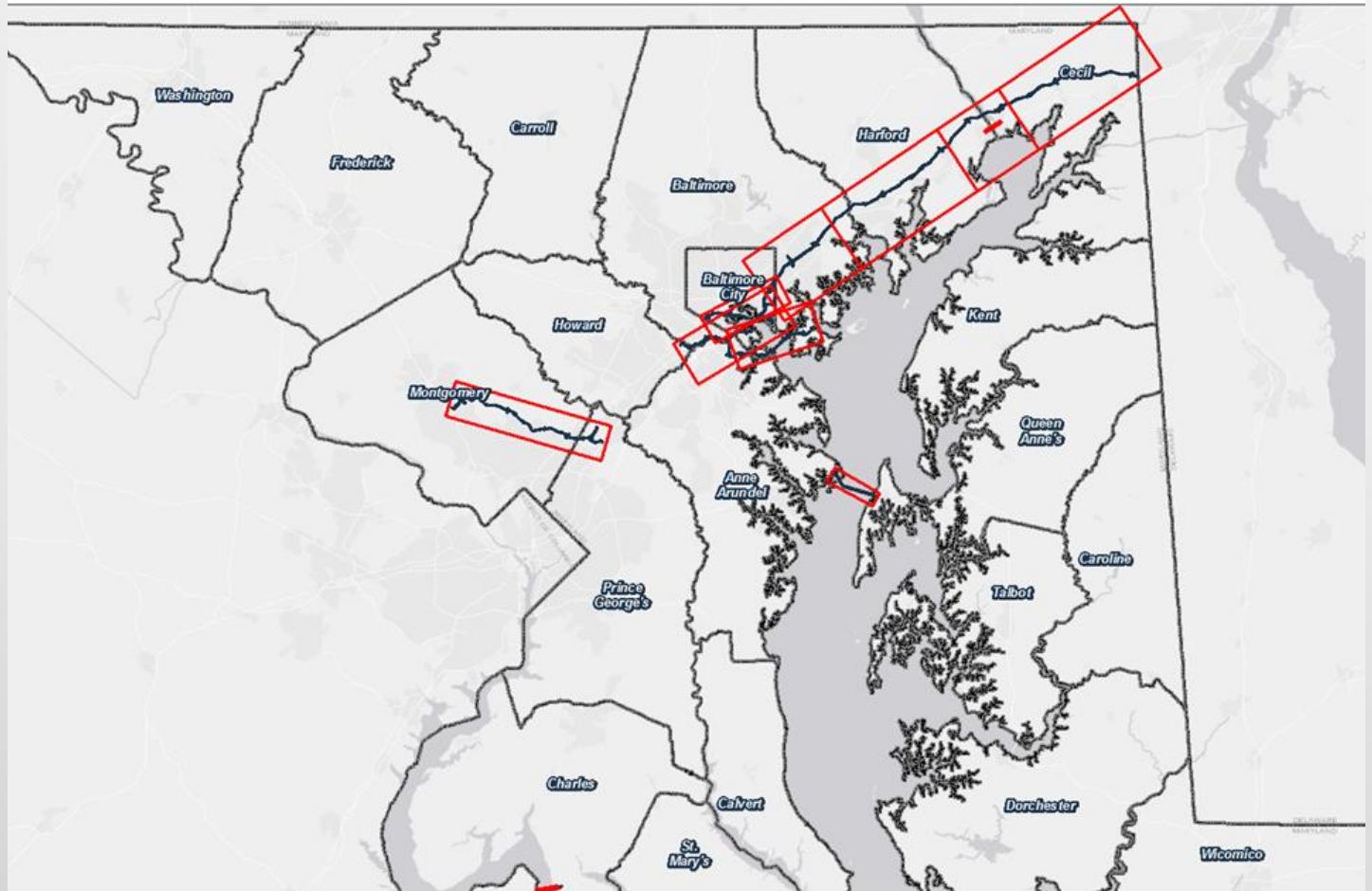
- Overview
- Stormwater BMP (Current)
- Other Assets (On-Going)

Overview - MDTA

- Safe + efficient transport via tolled highways, bridges, & tunnels
- Self funded with a Governing Board
- State agency in an environmentally progressive state
- Linear & highly impervious, close proximity to Chesapeake Bay
- Comply with stormwater NPDES permits (MS4 and Industrial Stormwater)
- Two recent mega roadway projects triple stormwater infrastructure more coming due to Chesapeake Bay TMDL Restoration



MDTA's Footprint



Overview – MDTA Environmental

Environmental Assets

- Stormwater Best Management Practices
- Small Drainage (<48") + Large Drainage
- Natural Resources (Trees, Stream Restoration, Wetlands)

Overview – NPDES Permits

MS₄ Phase II General Permit

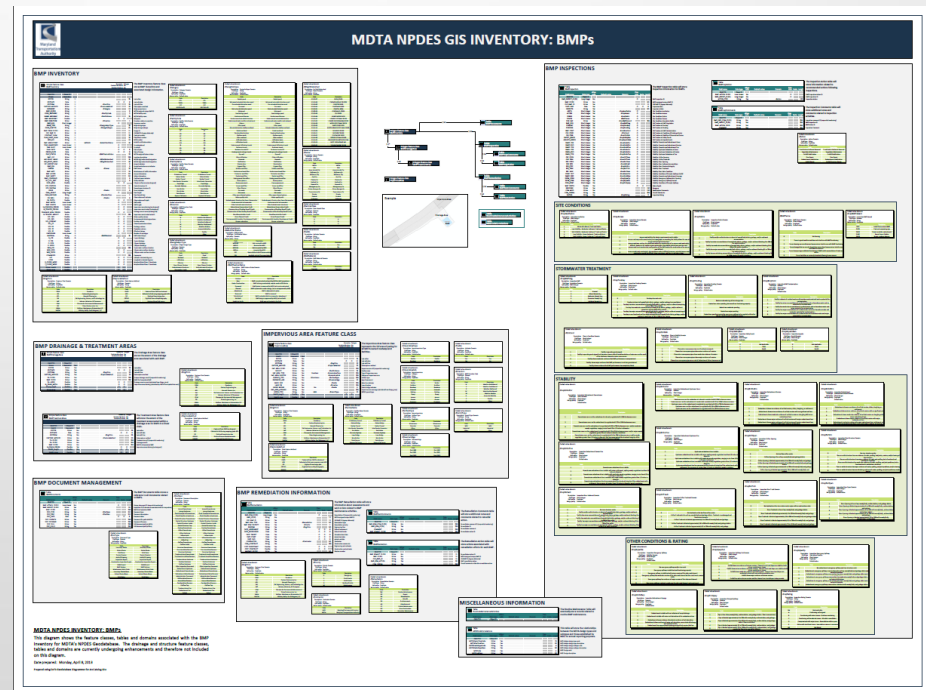
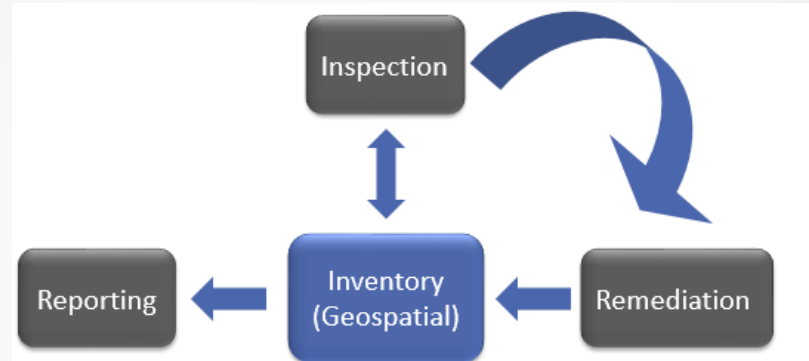
- Covers Toll Highways + Campuses
- 2018 renewal + adds Chesapeake Bay TMDLs
- Manage stormwater Best Management Practices (BMPs) & drainage systems

Industrial Discharge General Permits

- Maintenance Facilities + Truck Weigh Stations
- 2014 renewal includes Bay TMDLs
- Interface with Office of Maintenance and Structures Division (drainage structures $\geq 36"$)

Stormwater BMP - Geodatabase

- Inventory
- Inspection
- Remediation
- System Preservation
- Compliance Reporting



Stormwater BMP - Inventory

Stormwater BMPs

- Footprints, drainage areas
- Attributes
- Existing, Proposed, Planned

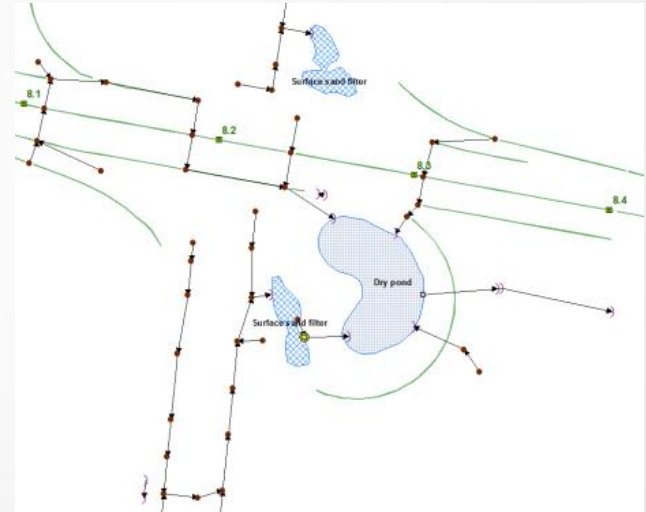
Storm Drains

- structures, drainage areas
- Attributes

Impervious Area

Related Documents

- Site maps + photos
- Design plans & reports



Stormwater BMP - Inventory

<div> <div>FILE</div> <div>HOME</div> <div>INSERT</div> <div>PAGE LAYOUT</div> <div>FORMULAS</div> <div>DATA</div> <div>REVIEW</div> <div>VIEW</div> <div>ADD-INS</div> <div>ARCGIS MAPS</div> <div>PROJECTWISE</div> </div> <div> <div> <div>Cut</div> <div>Copy</div> <div>Paste</div> <div>Format Painter</div> </div> <div> <div>Calibri</div> <div>11</div> <div>A</div> <div>A</div> <div>B</div> <div>I</div> <div>U</div> <div></div> <div></div> <div></div> </div> <div> <div>Wrap Text</div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> </div> <div> <div>General</div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> </div> <div> <div>Conditional Formatting</div> <div>Format as Table</div> </div> <div> <div>Normal_Inspe...</div> <div>Normal</div> <div>Bad</div> <div>Good</div> <div>Neutral</div> <div>Calculation</div> <div>Check Cell</div> <div>Explanatory...</div> <div>Input</div> <div>Linked Cell</div> </div> </div> <div>Clipboard</div> <div>Font</div> <div>Alignment</div> <div>Number</div> <div>Styles</div>
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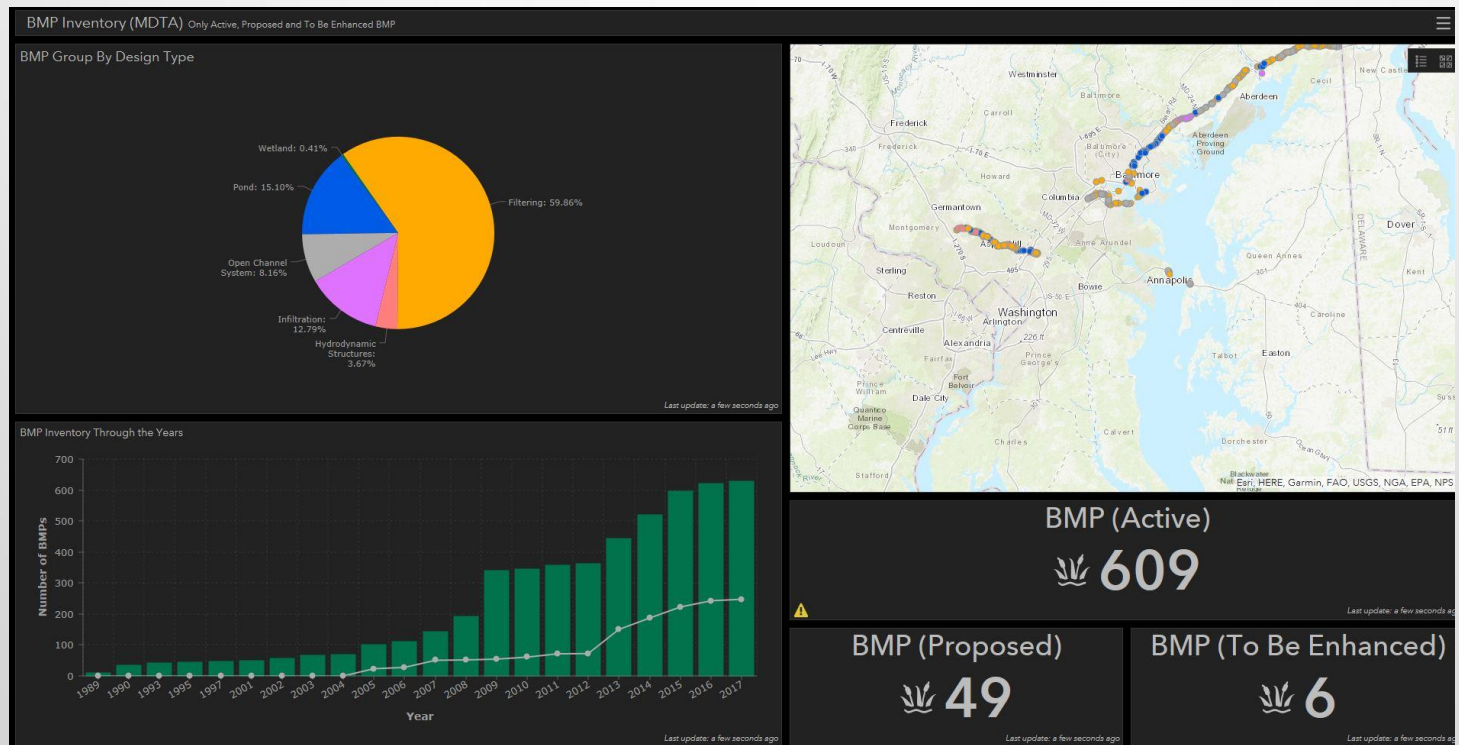
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Stormwater BMP - Inventory

- ArcGIS Online (AGO) Dashboard
- Oversight of Inventory
- Multiple Users



Stormwater BMP - Inspection

- Maximum 3-year cycle, more frequent for specific types
- Inspect newly constructed as part of As-Built certification
- Inspect post-remediation to log improved condition
- BMPs at Maintenance facilities require annual investigation
- Long-term monitoring / trends

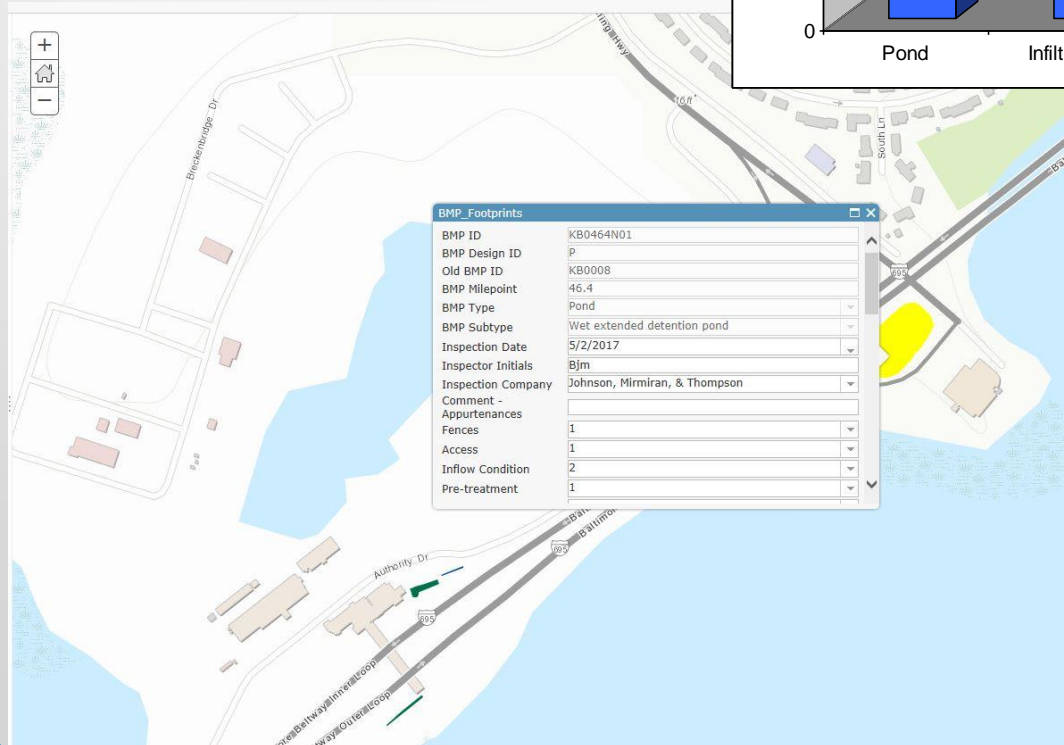
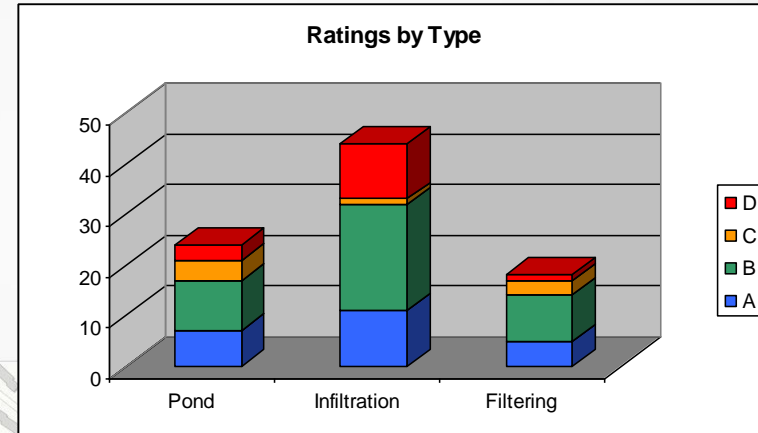
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	A	B	C	D	E	F
1	BMP_ID	BMP_DSGN_ID	OLD_BMP_ID	NAME_MDTAFAC	BMP_MILEPOINT	DSGN_TYPE
2	FT0561F01	P	FT0002	Ft McHenry Tunnel	56.1	Pond
7	IC0066W05	D1-C1		InterCounty Connecto	6.6	Filtering
8	IC0072E03	D3-L		InterCounty Connecto	7.2	Filtering
9	IC0073E02	D3-P		InterCounty Connecto	7.3	Filtering
10	IC0151M08	E3-250		InterCounty Connecto	15.1	Filtering
11	IC0155W02	E3-273		InterCounty Connecto	15.5	Filtering
12	IC0137M02	E3-2A		InterCounty Connecto	13.7	Filtering
13	IC0141W07	E3-22		InterCounty Connecto	14.1	Filtering
14	IC0154W02	E3-271		InterCounty Connecto	15.4	Infiltration
15	KH0815F01	109	109	Kennedy Highway	81.5	Filtering
16	KH0817F04	503	503	Kennedy Highway	81.7	Filtering
17	KH0818F02	401	401	Kennedy Highway	81.8	Filtering
18	KH0816F07	111	111	Kennedy Highway	81.6	Filtering
19	KH0817F06	301	301	Kennedy Highway	81.7	Filtering
20	IC0145W01	E3-98		InterCounty Connecto	14.5	Infiltration
21	IC0145E05	E3-113		InterCounty Connecto	14.5	Infiltration
22	PB0000F01	F	PB0001	Point Breeze	0	Filtering
23	PB0000F02	F	PB0002	Point Breeze	0	Filtering
24	PB0000F03	F	PB0003	Point Breeze	0	Filtering
27	IC0154W03	E3-270		InterCounty Connecto	15.4	Filtering
28	IC0150M01	E3-222		InterCounty Connecto	15	Filtering
29	IC0149E02	E3-240A		InterCounty Connecto	14.9	Filtering
30	IC0153M05	E3-274		InterCounty Connecto	15.3	Filtering
31	IC0146W02	E3-100A		InterCounty Connecto	14.6	Filtering
32	IC0146E04	E3-117		InterCounty Connecto	14.6	Filtering
33	IC0141E10	E3-53		InterCounty Connecto	14.1	Filtering
34	FT0560F01	P	FT0001	Ft McHenry Tunnel	56	Pond
35	LB0319F03	F	LB0010	Lane Bridge	31.9	Filtering
36	IC0142W04	E3-30		InterCounty Connecto	14.2	Filtering
37	IC0145W05	E3-99		InterCounty Connecto	14.5	Filtering
38	HT0026M01			Harbor Tunnel	2.6	Filtering
44	IC0155M07	E3-298		InterCounty Connecto	15.5	Filtering
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49	IC0064W02	D1-J		InterCounty Connecto	6.4	Filtering
50	IC0064M02	D1-K		InterCounty Connecto	6.4	Filtering
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55	IC0023F02			InterCounty Connecto	2.3	Filtering
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Summary_Counts ALL BMP All Inspections Fiscal Year 2018 Inspections Required FY2018

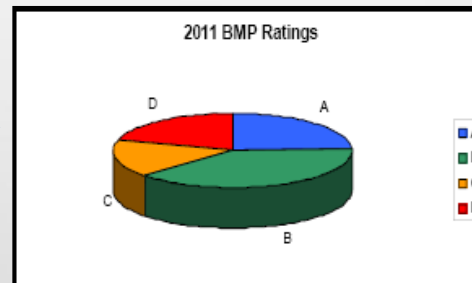
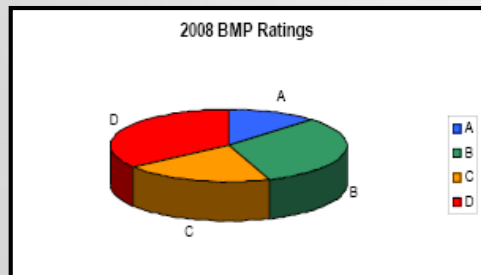
Stormwater BMP - Inspection

- AGO Collector Application
- Tablet and Smart Phone
- Assign Subsets of BMPs



Stormwater BMP - Remedial

- Preventative Maintenance
- Repair
- Rehabilitation
- Enhancement
- Abandon



Before Remediation



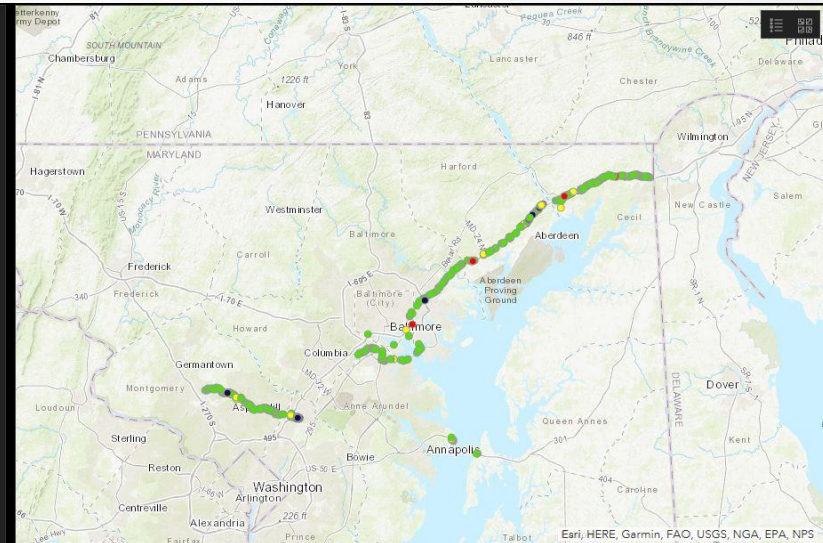
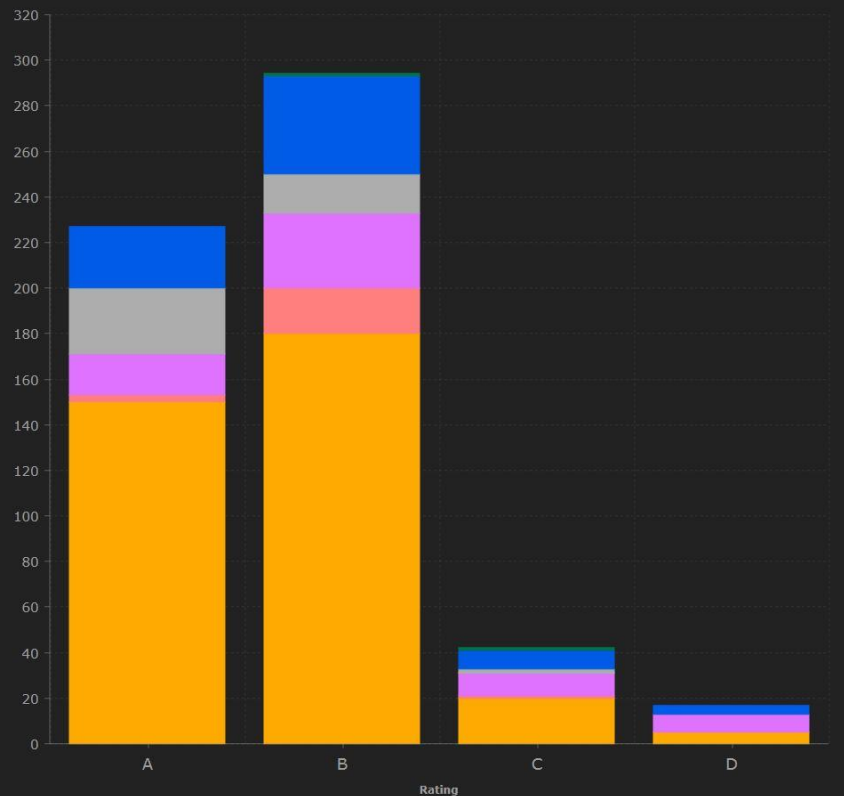
Remediation On-going



Remediation Complete

Stormwater BMP - Remedial

Last Inspection Rating for each BMP Group by Design Type



Rating A

227

Last update: 4 minutes ago

Rating B

294

Last update: 4 minutes ago

Rating C

42

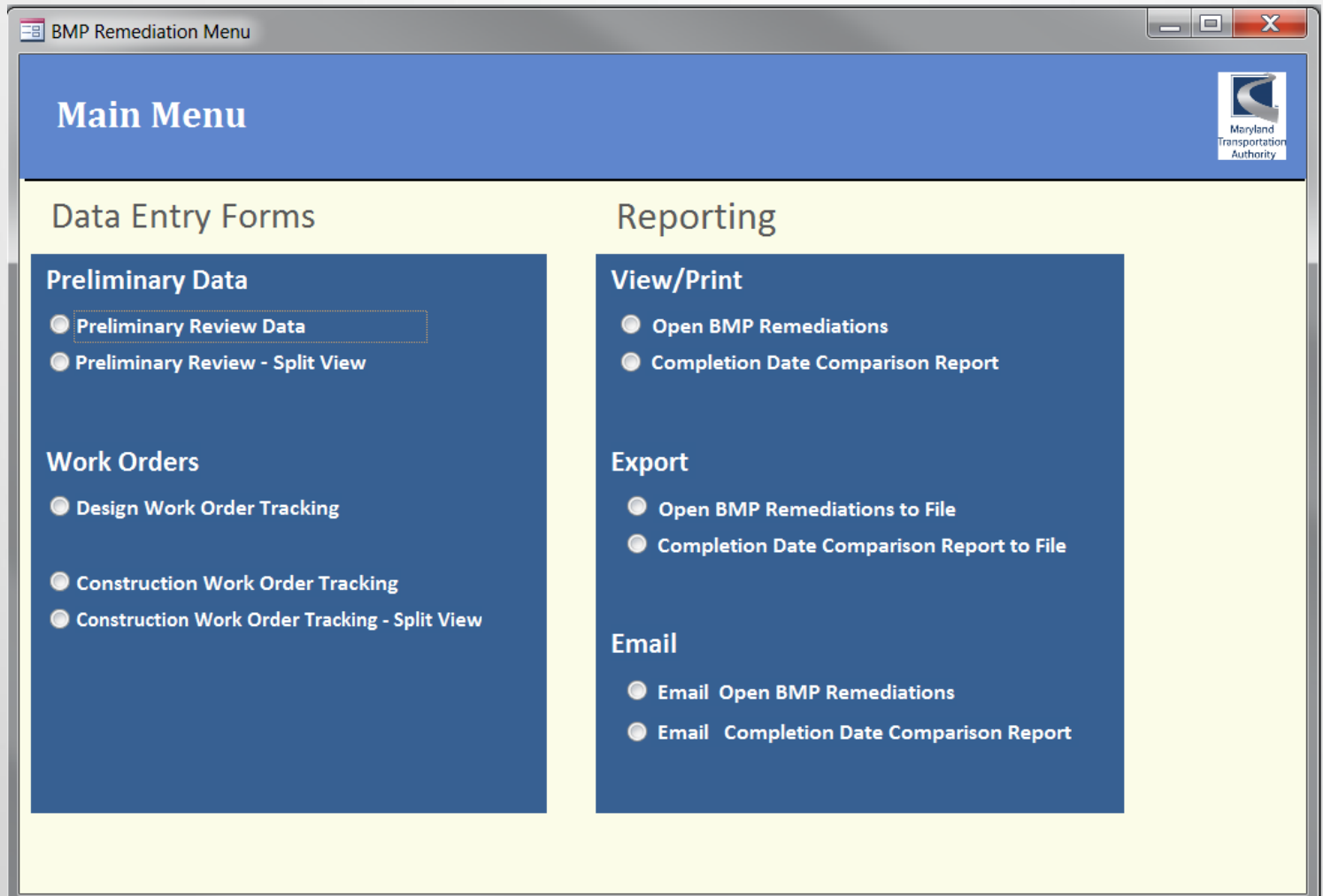
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Rating D

17

Last update: a few seconds ago


Stormwater BMP - Remedial



Stormwater BMP - Remedial

BMP Remediation Form

Remediation - Preliminary Review - Split View



BMP Id: KB0464N01 *

BMP Inspection ID: 20150413KB0464N01 *

BMP Remediation Type: Enhancement *

Remediation Description: MA-3004 Capital Project Enhancement

BMP Remediation Priority: High Priority

Estimated NTP: 2018-Summer

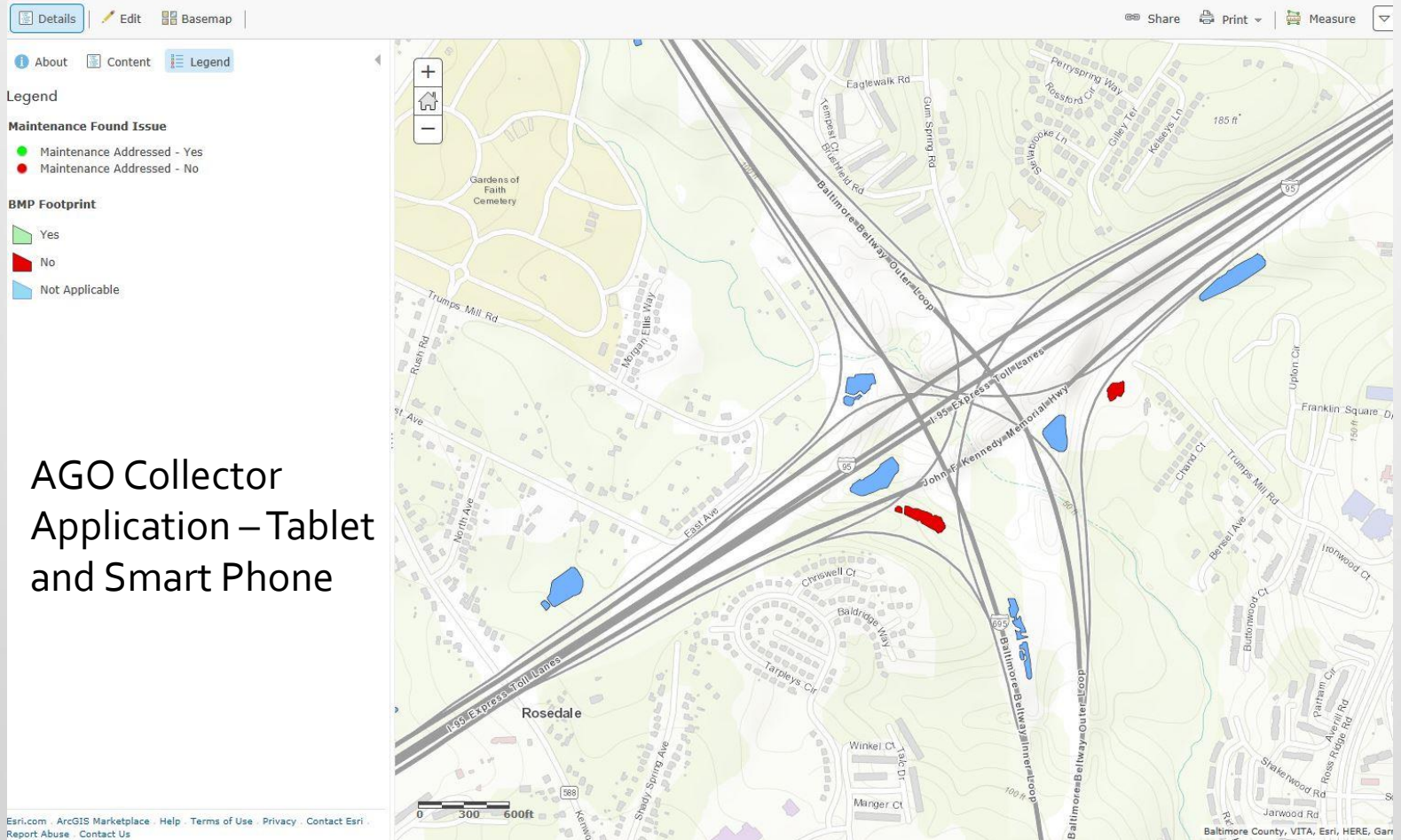
[Add/Update Record](#) [Delete Record](#) [Cancel Update](#) [Open Main Menu](#)

BMP Id	BMP Inspection ID	BMP Remediation Type	Remediation Description	Estimated NTP	BMP Remediation Priority
KH0847S01	20150116KH0847S01	Corrective Maintenance	Add orifice plate	2015-Fall	Medium Priority
KB0467F01	20150714KB0467F01	Repair	Erosion Repair at Inflow	2015-Summer	High Priority
KH0926O03	20141104KH0926O03	Repair	Erosion repair at inflow, new inlet and pipe	2015-Spring	High Priority
NB0019F01	20140617NB0019F01	Corrective Maintenance	Flow from parking lot bypassing BMP	2015-Spring	Medium Priority
FT0560F01	20140610FT0560F01	Rehabilitation	Gabion Forebay	2015-Spring	Medium Priority
KB0464N01	20150413KB0464N01	Enhancement	MA-3004 Capital Project Enhancement	2018-Summer	High Priority
FT0560F01	20140610FT0560F01	Rehabilitation	Gabion Forebay	2015-Spring	Medium Priority
FT0560F01	20150610FT0560F01	Enhancement	MA-3004 Capital Project for Enhancement	2018-Summer	High Priority
KB0467F01	20140610KB0467F01	Rehabilitation	New landscaping and BSM replacement	2015-Summer	Medium Priority
FT0560F01	20151006FT0560F01	Corrective Maintenance	Phragmite Spraying	2015-Summer	Medium Priority
HT0139N01	20151015HT0139N01	Corrective Maintenance	Phragmite Spraying	2015-Summer	Medium Priority
KB0434A01	20150925KB0434A01	Corrective Maintenance	Phragmite Spraying	2015-Summer	Medium Priority
KB0435S01	20151005KB0435S01	Corrective Maintenance	Phragmite Spraying	2015-Summer	Medium Priority

Record: 13 of 48 No Filter Search

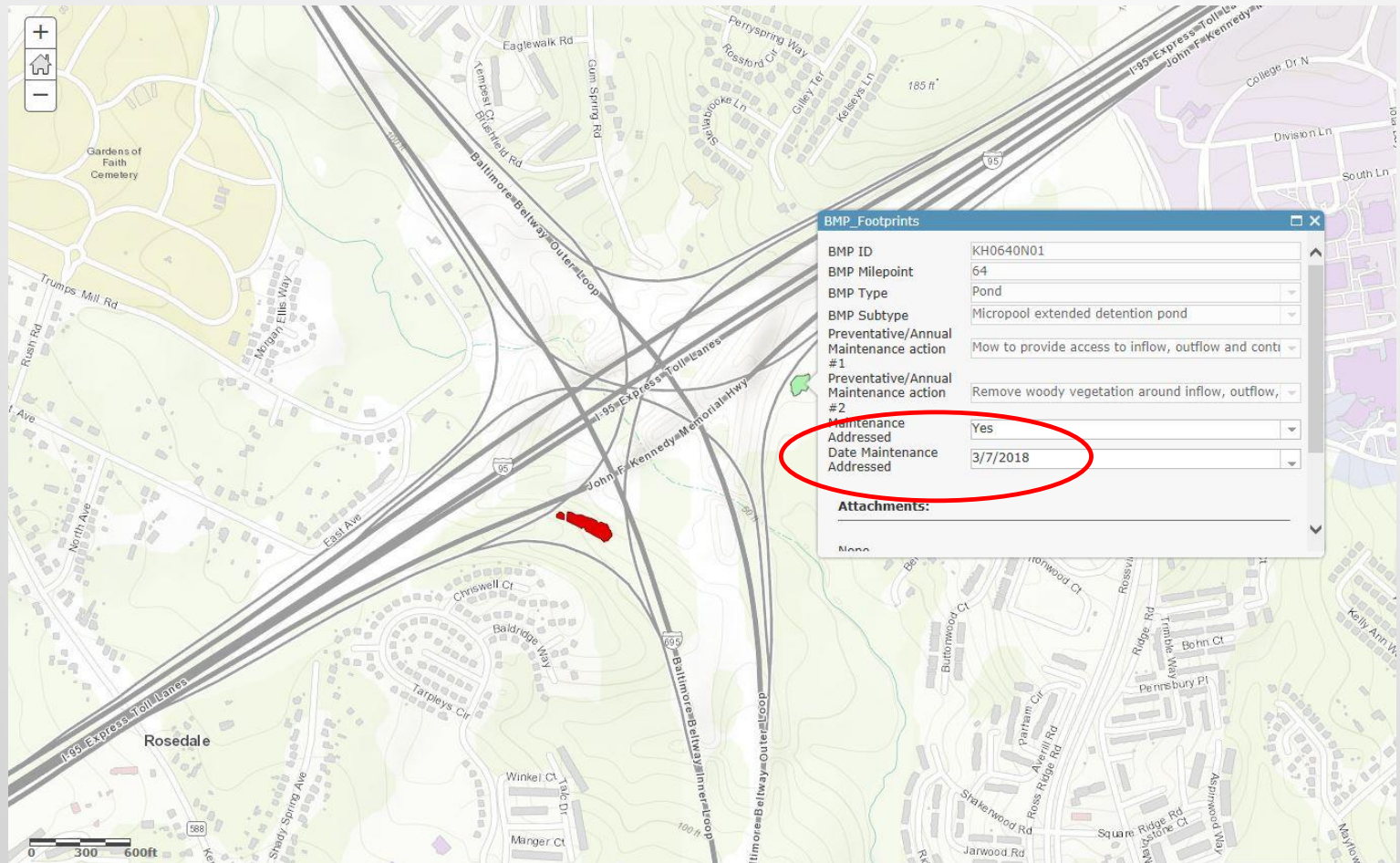
Stormwater BMP - Remedial

View Maintenance Needs



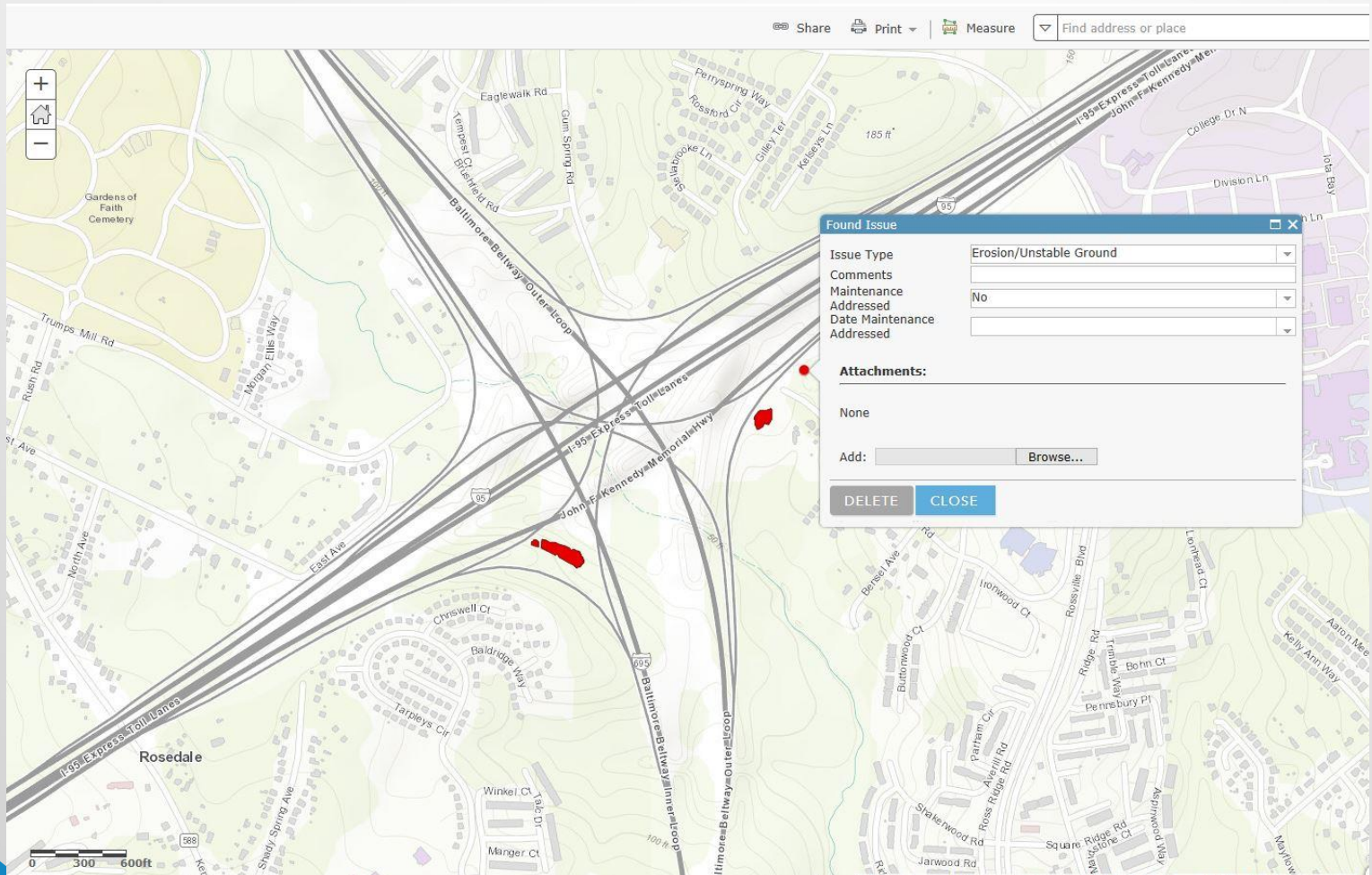
Stormwater BMP - Remedial

Address Maintenance Needs



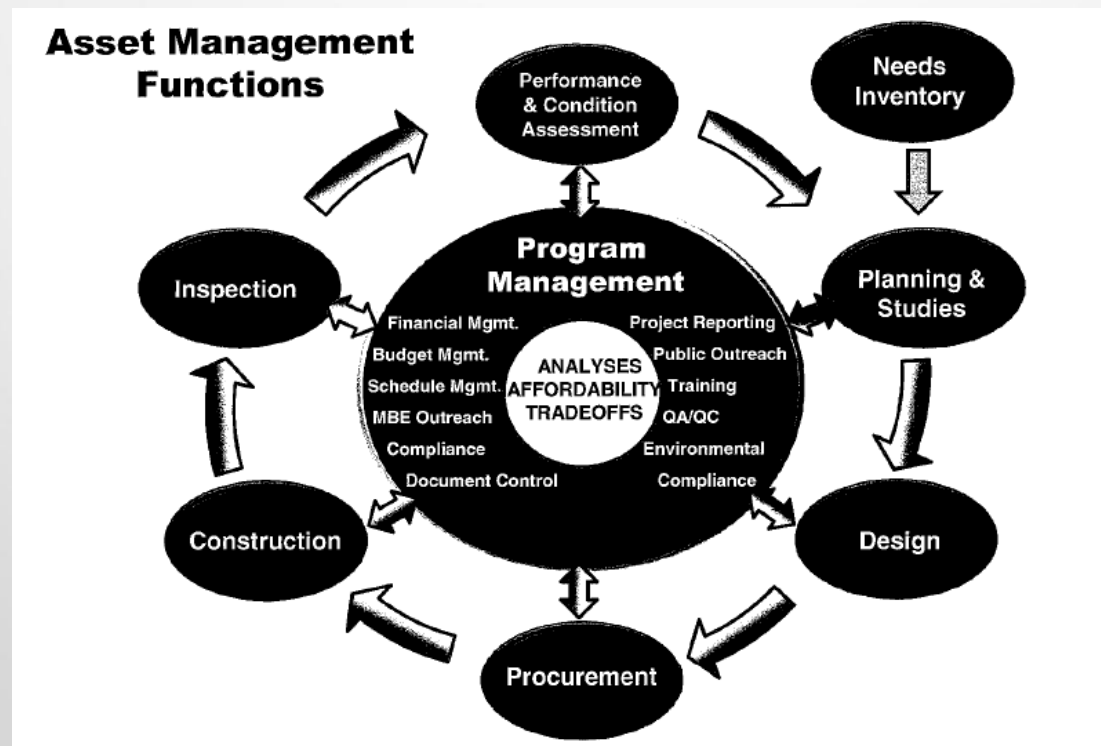
Stormwater BMP - Remedial

Report Other Needs



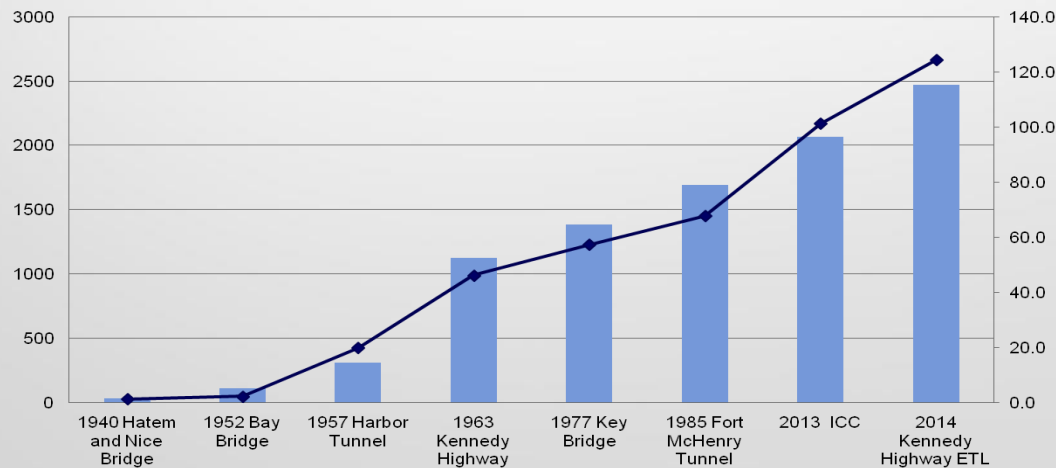
Stormwater BMP – Asset Management

- Life-Cycle Approach
- Data collection / evaluation
- System Preservation / Stormwater Compliance
- Integrate in highway setting



Other Assets - Drainage

- Small Drainage - verify inventory & video inspection
- Drainage Outfalls - Assess for Restoration + TMDL credit
- Roadside Ditch - Assess for Restoration + TMDL credit
- Drainage Investigation Program
- Large Drainage – support system preservation



Other Assets – Natural Resources

Tree Plantings

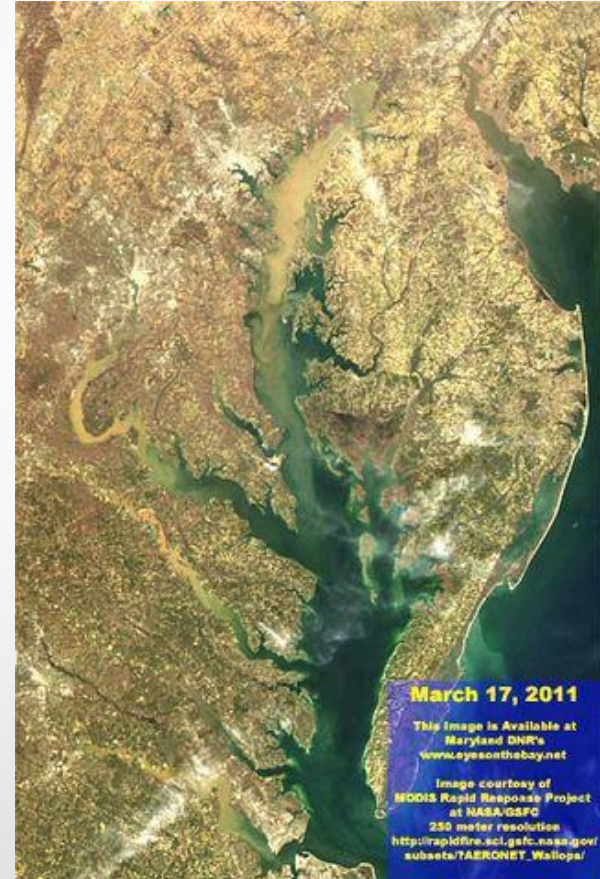
- verify installation & survivability
- Bay TMDL stormwater credits
- Bay Critical Area mitigation bank

Stream Restoration : 5-yr monitoring & repairs

Invasive Vegetation Management: inventory & remediate

Ecological Resources Bank: pending CAC

Closing



Chesapeake Bay:
Economic - Environmental – Cultural Resource