

Anne Arundel County's Watershed Protection & Restoration Program: Moving Towards Integrated Water Management

Anne Arundel County Department of Public Works
Magothy River Association, February 23, 2018



The County's Regulatory Mandates

MS4 Permit



- ◆ Municipal Separate Storm Sewer System (MS4) Permit (issued by MDE).
- ◆ Issued to each county (and Baltimore City in the state) with a population over 100,000.
- ◆ 5-year cycle, newest permit issued in February 2014.
- ◆ Requires treatment of 20% of the untreated impervious area in the county during the permit cycle. (5,862 acres)

TMDLs (Total Maximum Daily Loads)

- Think of it as a “recommended annual intake” of pollution required by the Clean Water Act.
- Based on models created by EPA.
- Theoretically, no new loads should be allowed to a waterway unless:
 - The waterway is de-listed for impairments.
 - There is a plan in place for de-listing.

Nutrition Facts	
Serving Size 1 tsp. (0.5g)	
Servings Per Container 550	
Amount Per Serving	
Calories 0	
% Daily Value*	
Total Fat	0g 0%
Sodium	0mg 0%
Total Carbohydrate	less than 1g 0%
Protein	0g
Not a significant source of calories from fat, saturated fat, trans fat, cholesterol, dietary fiber, sugars, vitamin A, vitamin C, calcium and iron.	
*Percent Daily Values are based on a 2,000 calorie diet.	

INGREDIENTS: Nitrogen, Phosphorus, & Sediment









A decorative blue curved graphic at the top of the slide, resembling a stylized wave or a partial arc.

Re-building Resiliency: Our Progress to Date

Current Status of WPRP-Funded Projects

- ◆ 450 Culvert & Storm Drain projects completed.
- ◆ 95 Water Quality Improvement Projects completed thus far in permit term.
- ◆ 175 additional projects underway.
- ◆ Aiming to treat ~3,100 acres through the Capital Program.
- ◆ Includes stormwater retrofits, outfall restoration, as well as stream and wetland restoration.

FURNACE AVE - BEFORE

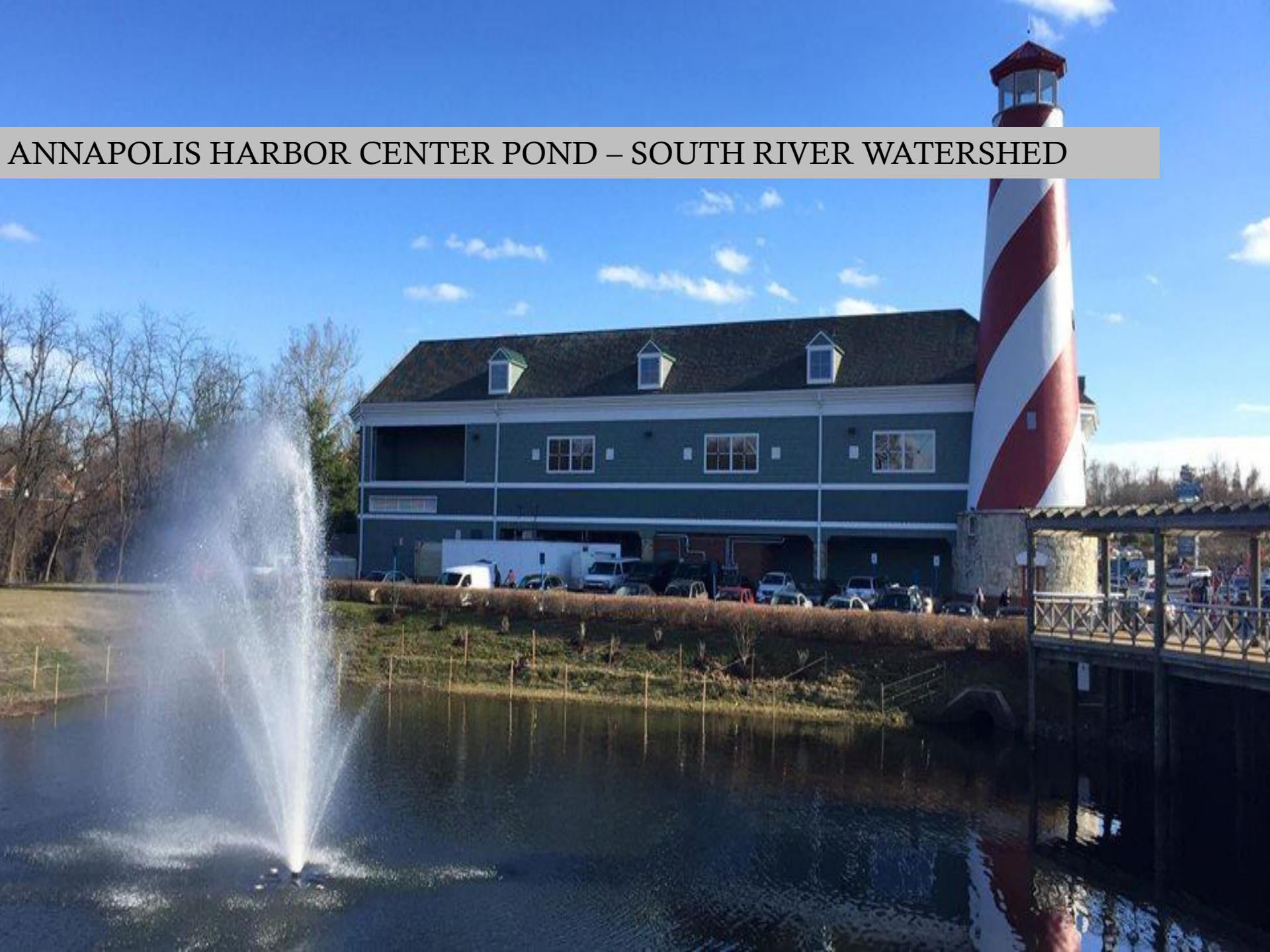


FURNACE AVE - AFTER



8/1/16, 9:50 AM

ANNAPOLIS HARBOR CENTER POND – SOUTH RIVER WATERSHED





LOWER COWHIDE BRANCH RESTORATION – SEVERN WATERSHED



TRI-STATE WETLAND CREATION- HERRING BAY WATERSHED



DIVIDING CREEK RESTORATION- MAGOTHY WATERSHED



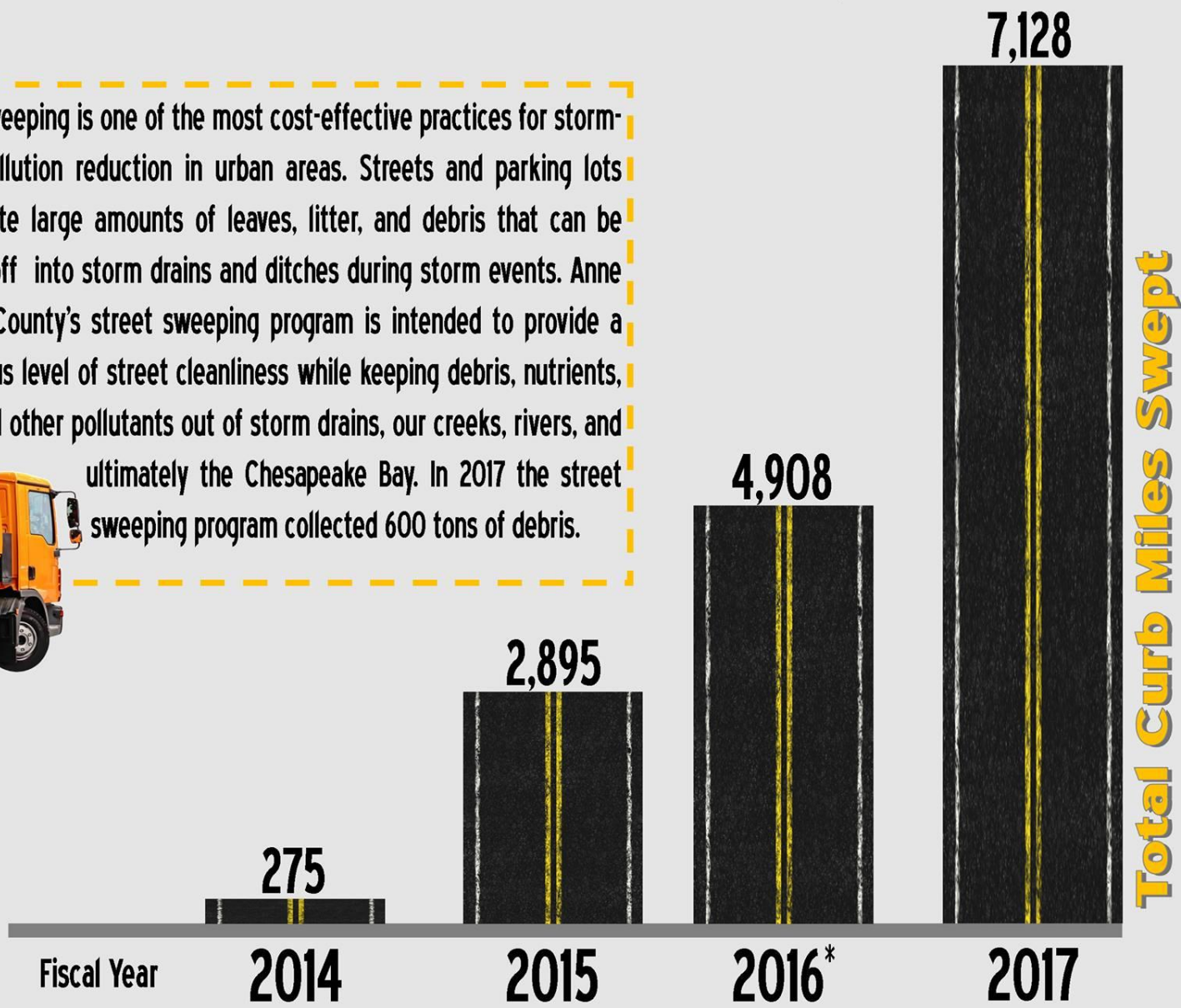


Street Sweeping and Water Quality



Street sweeping is one of the most cost-effective practices for storm-water pollution reduction in urban areas. Streets and parking lots accumulate large amounts of leaves, litter, and debris that can be washed off into storm drains and ditches during storm events. Anne Arundel County's street sweeping program is intended to provide a continuous level of street cleanliness while keeping debris, nutrients, and other pollutants out of storm drains, our creeks, rivers, and ultimately the Chesapeake Bay. In 2017 the street sweeping program collected 600 tons of debris.

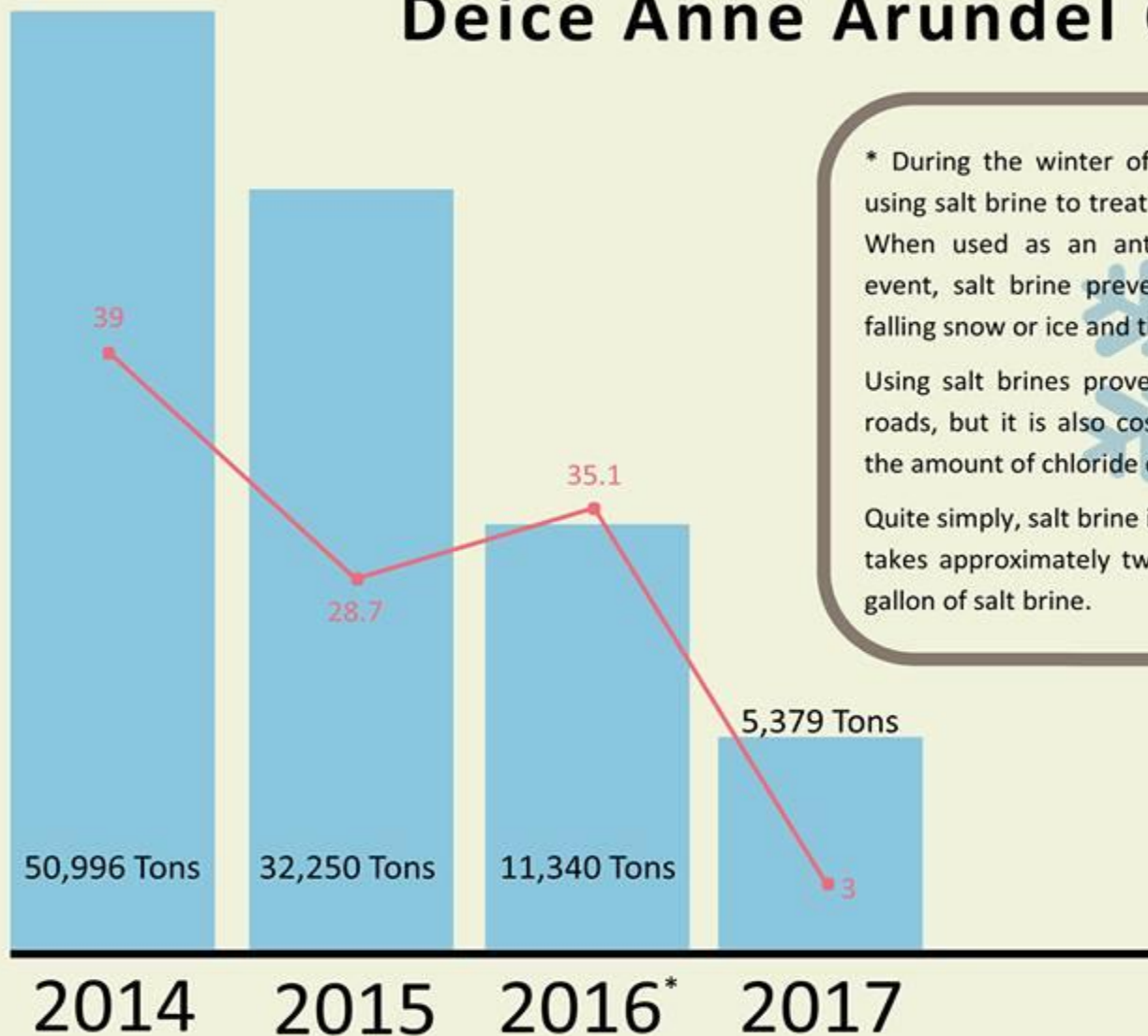
*During 2016 the County transitioned from in-house to contracted street sweeping and significantly increased the number of miles swept. Roads with higher traffic volumes are prioritized to maximize collection.







Total Tons of Road Salt Used to Deice Anne Arundel County Roads



— NWS Total Snow Inches (BWI)

* During the winter of 2016, Anne Arundel County began using salt brine to treat roads in advance of winter weather. When used as an anti-icing application before a winter event, salt brine prevents a bond from forming between falling snow or ice and the road surface.

Using salt brines proves not only to be more effective on roads, but it is also cost effective and significantly reduces the amount of chloride entering our waterways.

Quite simply, salt brine is a mixture of road salt and water. It takes approximately two pounds of road salt to make one gallon of salt brine.





~12,600+ facilities inspected
in the last 4 years.

Integrating Water Management

- Working with Utilities to protect infrastructure long term.
- Working with Highways to devise long term strategies that accommodate changes on the landscape and protect infrastructure.











What's Next?

- Continued implementation of capital restoration projects.
- Partnerships with USGS and UMBC.
- Continue Our Herring Bay/Lower Patuxent Watershed Assessment (Through 2018).

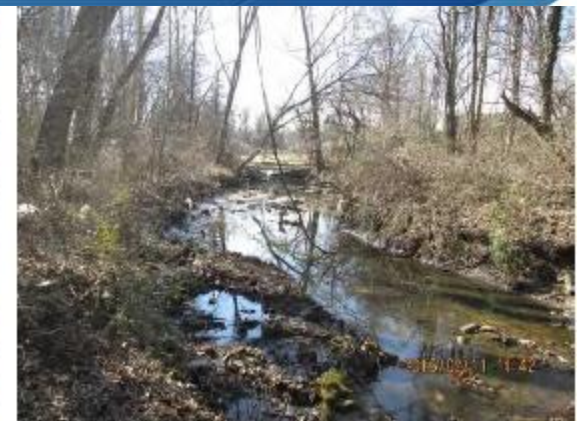


CAT BRANCH- MAGOTHY WATERSHED





CAPE ST. CLAIRE PARK OUTFALL- MAGOTHY WATERSHED



FURNACE CREEK – PATAPSCO WATERSHED





UPPER COWHIDE BRANCH – SEVERN RIVER WATERSHED

Anne Arundel County Restoration Grant Program

- Open to non-profit partners
- Administered through CBT (www.cbtrust.org)
- Awarded \$444,108 in year 1
 - Leveraged \$572,428
 - Cost of about \$14,125 per acre treated
- Awarded about \$900,000 in year 2
 - Leveraging about \$1,135,000
 - Cost of about \$41,000 per acre treated
- Awarded about \$1,000,000 in year 3
 - Cost of about \$16,900 per acre treated
- Year 4 cycle RFP currently under review.



BERRYWOOD STREAM & LIVING SHORELINE – MAGOTHY RIVER WATERSHED



TWIN HARBORS LIVING SHORELINE – MAGOTHY RIVER WATERSHED





Avalon Shores Fire Department Stormwater Wetland
 Awardee: West/Rhode Riverkeeper



Camp Woodlands Pre-Treatment Retrofit
 Awardee: South River Federation



Annapolis Harbour Center Stream Restoration
 Awardee: South River Federation



Hillsmere Bioretention Expansion—Pool
 Awardee: South River Federation



Hillsmere Bioretention Expansion—Kayak Launch
 Awardee: South River Federation

Anne Arundel County Watershed Restoration Grant Program Projects



Randell Road Stormwater Mitigation
 Awardee: Round Bay Community Association



Bonaparte Road Bioswale and CPO
 Awardee: Herald Harbor Citizens Association

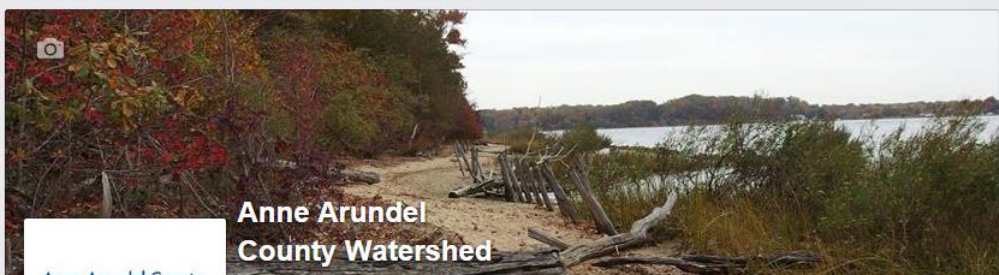
Promote

THIS WEEK

4,523
Post Reach

456
Post Engagement

1



Anne Arundel
County Watershed
Protection and
Restoration Program
Government Organization

Timeline

About

Photos

601 likes +9 this week
Lisa Canter Michelsen and 74 other friends

2 were here 0 this week

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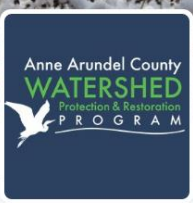
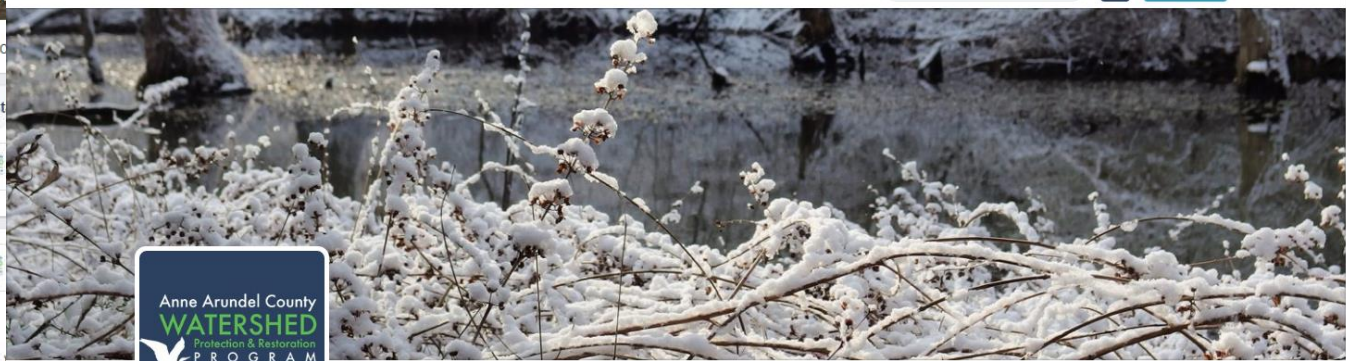
4,523 post reach this week

Want More Phone Calls?

Get people near Anne Arundel County Watershed Protection and Restoration Program to call (410) 222-4240 today.

Promote Local Business

ABOUT



TWEETS 990 FOLLOWING 371 FOLLOWERS 446 LIKES 702 MOMENTS 1

Edit profile

AA Watershed Program
@AAWPRP

Protecting and Restoring Anne Arundel County's Streams, Creeks, and Rivers

Anne Arundel County, MD
aarivers.org
Joined March 2014

152 Photos and videos



Tweets Tweets & replies Media

AA Watershed Program @AAWPRP · Feb 15
Have a drainage ditch, stream, creek flowing through your property? @MarylandDNR offering FREE "Buffer in a Bag." bit.ly/2kx12nS



Your Tweet activity

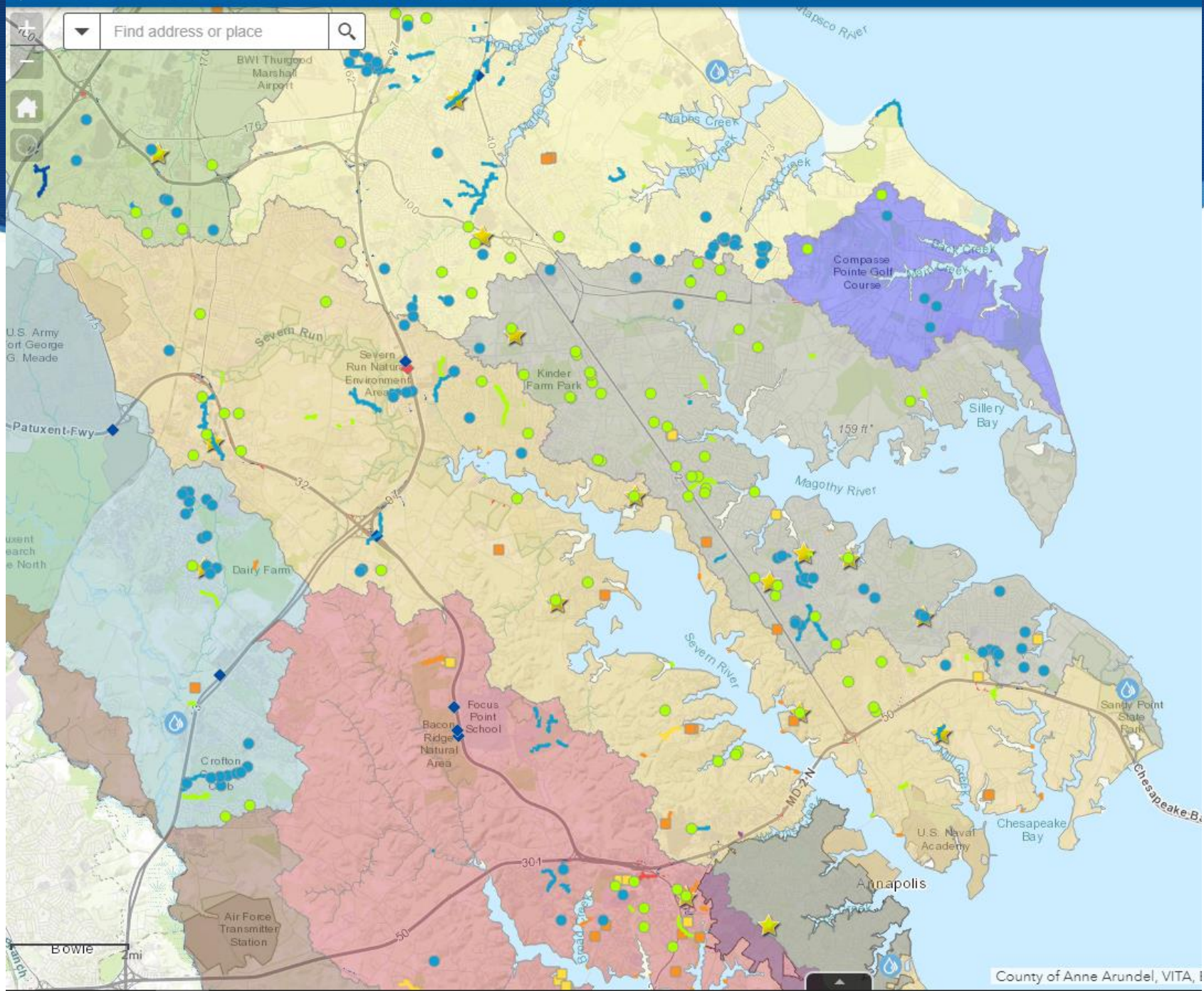
Your Tweets earned 5,566 impressions over the last 28 days

View your top Tweets

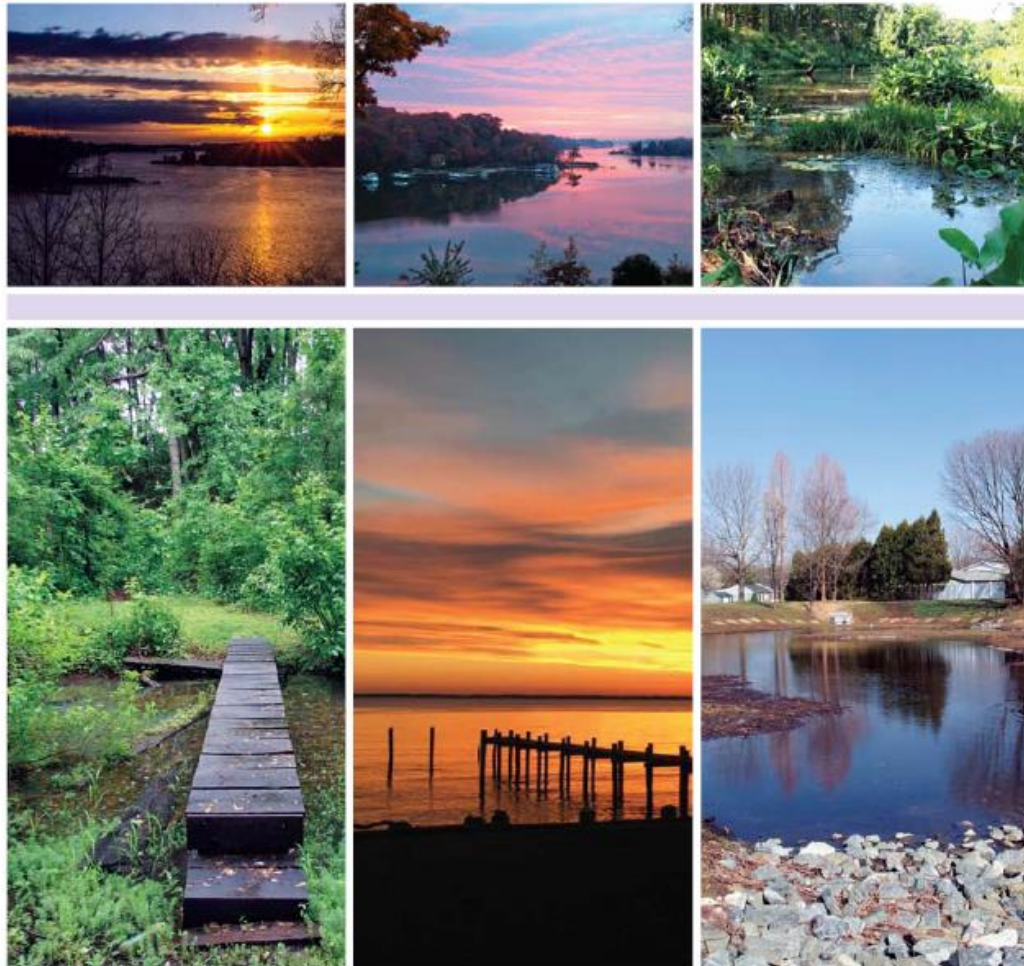
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- Sarah Caldwell @Sarah... Follow
- Kevin Rector @RectorS... Follow
- Luke Broadwater @luk... Follow

Find friends



A LAND OF RIVERS



FY 2017 Report



Anne Arundel County
Maryland



Bureau of Engineering
Department of Public Works

Questions?

Erik Michelsen

Administrator

Anne Arundel County Watershed
Protection & Restoration Program

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aarivers.org