

Publicizing SHA's Commitment to Improving Water Quality Using GIS



Esri Mid-Atlantic User Conference

December 2-4 | Baltimore, Maryland

Introductions



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Overview

- Background
 - SHA's Bay Restoration Program
 - Governor's Event
- Publicity Tools
 - Requirements
 - Implementation
- Live Demo of Bay Restoration Viewer
- Way Ahead



Background – SHA's Bay Restoration

- **Goals:**

- Reduce amount of nitrogen, phosphorous and sediment reaching the Chesapeake Bay
 - Set by Environmental Protection Agency (EPA)
 - Enforced by Maryland Department of Environment (MDE)
- Implementing multiple Best Management Practices (BMPs)
 - Implemented a Spatial Database to track BMPs, fulfill MDE's requirements, and satisfy internal reporting requirements



Background

- **Goals:**

- Promote the Bay Restoration Projects being completed by SHA
- Promote the investment

- Requested tools to communicate the size and scale of the program

- Large Displays
- Website
- Interactive Map



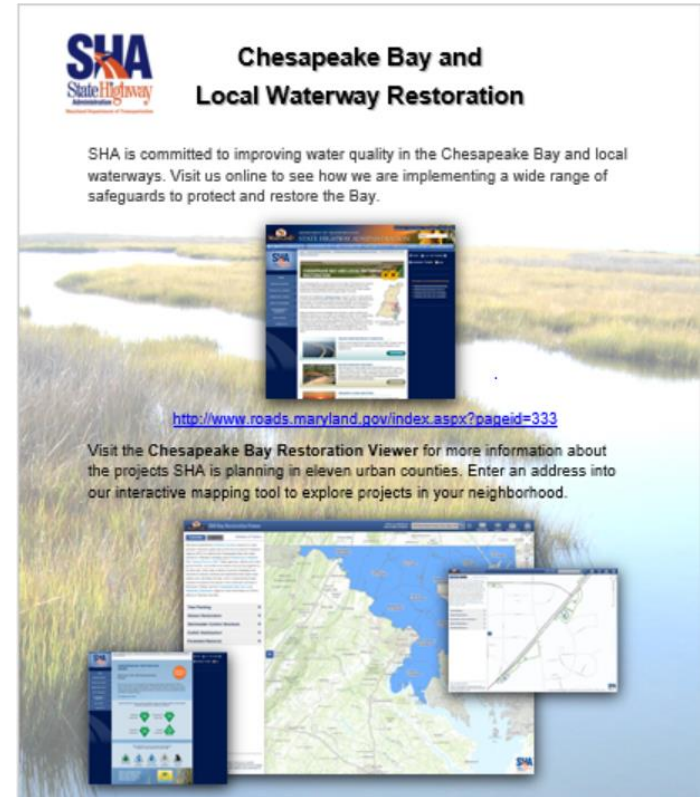
Background – Communication Tools

- **Goals:**

- Inform/ promote transparency(e- government)
- Update
- Provide public access to information and updates on progress (1000 letters mailed 11/25)

- **Audience:**

- Decision Makers
- Local Jurisdictions
- General Public
- Media



SHA
State Highway Administration

Chesapeake Bay and Local Waterway Restoration

SHA is committed to improving water quality in the Chesapeake Bay and local waterways. Visit us online to see how we are implementing a wide range of safeguards to protect and restore the Bay.

<http://www.roads.maryland.gov/index.aspx?pageid=333>

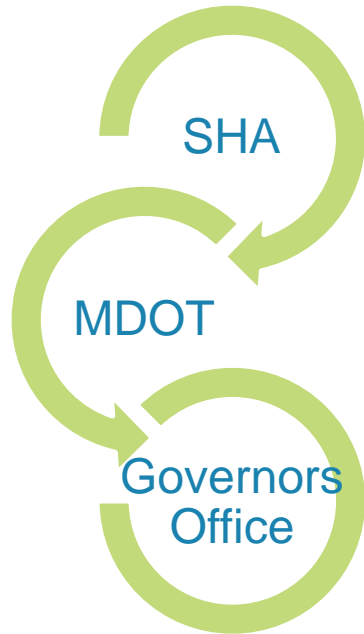
Visit the Chesapeake Bay Restoration Viewer for more information about the projects SHA is planning in eleven urban counties. Enter an address into our interactive mapping tool to explore projects in your neighborhood.

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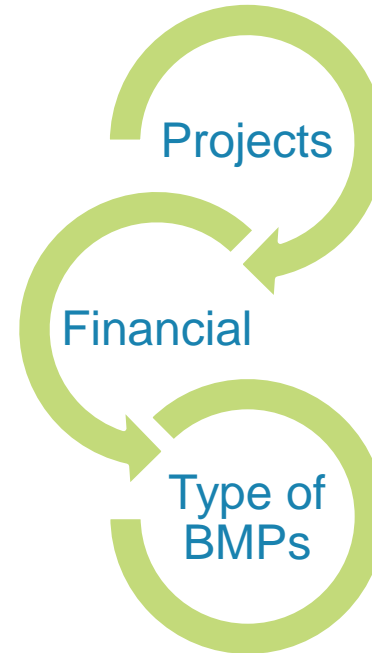
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Background – Coordination

Stakeholders



Content



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Large Displays



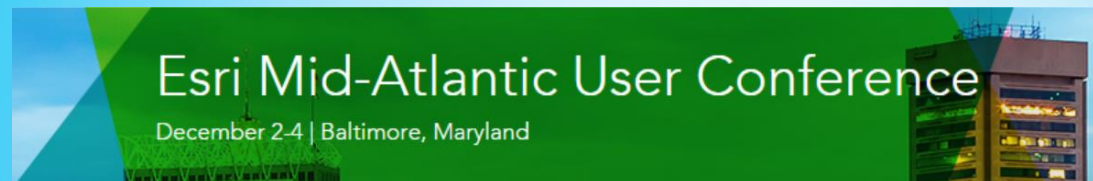
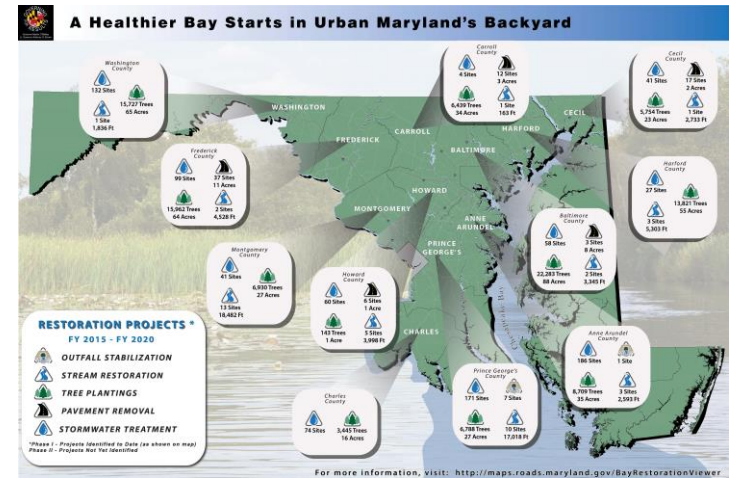
Large Displays

- **Requirements:**

- Map of MS4 Counties
- Number of projects within budget timeframe
- Estimated budget and expenses
- Implemented BMPs

- **Maps:**

- MS4 Counties are Restoration Focus
- Must show all Counties
- Project numbers must match the budget projections



Large Displays

- **Financial:**

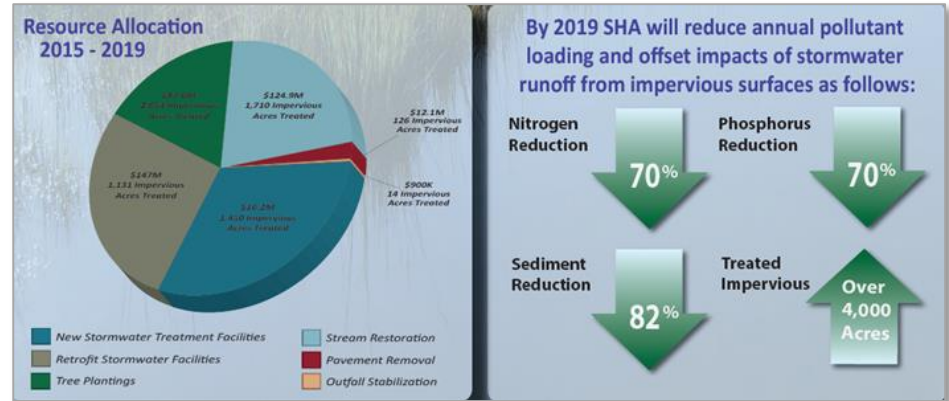
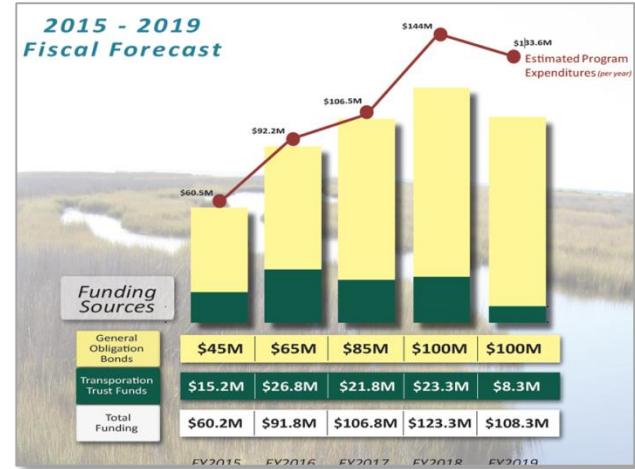
- Estimated Expenditures
- Achievement

- **Types of Projects:**

- BMP Types

- **Stream Location:**

- Way to the Bay



Website



Website

- **Requirements:**

- SHA's Bay Restoration Efforts Overview
- Highlight implemented BMPs
- Launching point for interactive map

- **Design:**

- Within SHA's Website

- **Customer Relations Review:**

- What information and how much detail
- Convey the right message
- User friendly



Website

- Launching to interactive map:
 - Landing page within SHA's Website
 - MD iMap Map Gallery



Chesapeake Bay Restoration Viewer

Maryland's highway system includes over 40,000 acres of impervious surfaces that contribute runoff pollutants to the Bay. Explore the interactive map to view completed and proposed projects being implemented by SHA to improve water quality in the Chesapeake Bay. Provided by the [Maryland State Highway Administration \(SHA\)](#).

The screenshot shows the Maryland State Highway Administration website. The header includes the Maryland logo, the text 'DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION', and a search bar. A navigation menu lists: HOME, BUSINESS CENTER, PROJECTS & STUDIES, COMMUTER & TRAVEL, SAFETY PROGRAMS, ENVIRONMENT & COMMUNITY, and INFO CENTER. The main content area is titled 'CHESAPEAKE BAY RESTORATION VIEWER' and features a 'View the Projects' button. Below this, a welcome message is followed by a paragraph explaining the tool's purpose. A key statistic states: 'By 2020 SHA will reduce annual pollutant loading and offset impacts of stormwater runoff from impervious surfaces as follows:'. This is supported by four green downward arrows with percentages: Nitrogen Reduction (75%), Phosphorus Reduction (75%), Sediment Reduction (75%), and Treated Pavement (OVER 4,000 ACRES). At the bottom, a section titled 'SHA implements various projects and programs to improve water quality across the state:' lists five categories with icons: Tree Planting, Stream Restoration, Stormwater Control Structure, Outlet Stabilization, and Pavement Removal. A disclaimer is visible at the very bottom.



Interactive Map



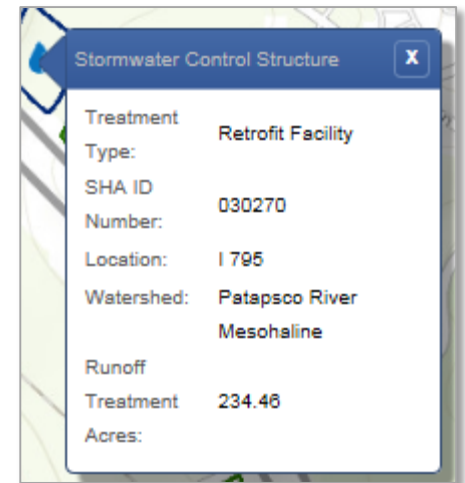
Interactive Map – User Requirements

- Basic map to display project locations
- Track projects by Status and Type
 - **Status:** Completed or Proposed
 - **Type:** Tree Planting, Stream Restoration, Stormwater Control Structure, Outfall Stabilization, Pavement Removal
- Find projects in the vicinity of an area of interest
 - What is planned near me?
- Provide details (identification and basic information) about a project



Interactive Map - Specifications

- Basic Navigation – Zoom in, Zoom Out, Pan
- Location Search Functionality
 - Enter Address or “Zoom to my Location”
- Automatic Query Functionality
 - Results represent all projects by type within map extent
- Identify Functionality
 - Click on result – indicate location on map
 - Click on map feature (project) – display attributes (project details)



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Interactive Map - Specifications

- Map Update Tools
 - Layer Selector and Basemap Switcher
- More Information Tools
 - Reference Tabs: Overview Text and Basic Legend
 - Glossary of Terms
 - Disclaimer and Last Update Date
 - Contact Us
- Print Functionality

Overview Legend Glossary of Terms »

Restoration Focus Area

Tree Planting:
■ Completed □ Proposed

Stream Restoration:
— Completed - - Proposed

Stormwater Control Structure:
■ Completed □ Proposed

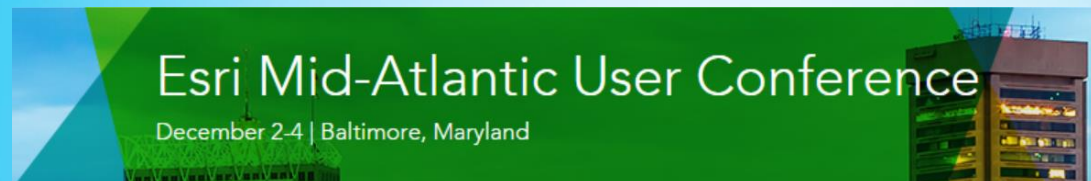
Outfall Stabilization:
□ Proposed

Pavement Removal:
■ Completed □ Proposed

Basemap Layers Contact Us Print

Data Last Updated: 09/24/2014

Disclaimer: This application is intended to serve as a public resource for general reference. The data is preliminary and subject to change. SHA provides this information without any warranty of any kind either expressed or implied.



Interactive Map - Implementation

- 4 weeks to build, test and deploy
 - **Options:** ArcGIS Online or something custom?
- SHA's JavaScript Enterprise GIS framework (Kodiak)
 - Platform for SHA's Public-Facing Enterprise GIS Portal
 - Configurable, expandable, customizable
 - Bay Restoration Viewer is the first public content



Interactive Map - Demonstration

The screenshot displays the 'SHA Bay Restoration Viewer' interface. At the top, there is a search bar with the address '320 West Warren Road Hunt Valley, MD' and navigation icons for 'Basemap', 'Layers', 'Contact Us', and 'Print'. Below the search bar are tabs for 'Overview', 'Legend', and 'Glossary of Terms'. The 'Overview' tab is active, containing a paragraph about Maryland's 'Reclaim the Bay' program. To the left of the map is a filter menu with categories: 'Tree Planting (690)', 'Stream Restoration (28)', 'Stormwater Control Structure (762)', 'Outfall Stabilization (1)', and 'Severn River Mesochaline (ID 0200001UO)'. The map itself shows a geographic area of Maryland with various restoration projects marked by green tree icons and blue stream icons. A 'Data Last Updated: 09/24/2014' notice and a disclaimer are located at the bottom left of the map area. The SHA logo is visible in the bottom right corner of the map.

MARYLAND SHA Bay Restoration Viewer

Enter an address to view nearby projects: 320 West Warren Road Hunt Valley, MD

Basemap Layers Contact Us Print

Overview Legend Glossary of Terms »

Maryland established a Reclaim the Bay program to meet pollution reduction goals set by the Environmental Protection Agency (EPA) to restore the Chesapeake Bay and meet Governor O'Malley's strategic goal of Reaching a Healthier Bay Tipping Point by 2025. State agencies, federal and local governments, non-profits and citizens are joining together to do their part. SHA uses a series of proven strategies and controls to reduce nutrients and sediments that reach local waters and ultimately the Bay, and is implementing these projects throughout the eleven most urbanized counties in Maryland. Please visit the Chesapeake Bay and Local Waterway Restoration page for more information on SHA's efforts to 'Reclaim the Bay'.

Tree Planting (690) ▼

Stream Restoration (28) ▼

Stormwater Control Structure (762) ▼

Outfall Stabilization (1) ▲

Severn River Mesochaline (ID 0200001UO)

Pavement Removal (58) ▼

Data Last Updated: 09/24/2014

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Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment

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Way Ahead



Way Ahead – SHA's Bay Restoration

- SHA's Bay Restoration Program Moving Forward
 - Phase I –SHA has identified 1,617 projects
 - Phase II – Identify Location for Future Restoration Projects
 - SHA right-of-way
 - Most efficient strategies
 - Partnering with local jurisdictions
- Publicity Plans for the Viewer
 - Sending flyer with Survey Letters (completed 11/24)
 - Directing citizens to the site



Way Ahead – SHA's GIS Viewers

- SHA has several Public-facing GIS applications in the works
 - Bay Restoration Viewer – first release on the JavaScript framework
 - Mobility and Economy Dashboard – Early 2015
 - Archived Bridge Photography – Early 2015
- Public Enterprise GIS system to be built on the JavaScript framework
- Key Performance Area (KPA) Dashboards
 - Asset Management Dashboard – Requirements/Design Phase Complete
 - Safety and MAP 21 Dashboards – Future



Q&A



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