



DNR Applications using LiDAR Data

The Big Picture

Christine Conn

Integrated Policy and Review

Maryland Department of Natural Resources

CMS Policy Speaker Series

September 25, 2014

Shoreline Mapping and Change Analysis

Coastal Geology

Oyster Habitat Restoration
Coastal Resources
Sediments of Chesapeake Bay
Reservoir Bathymetry

Coastal and Environmental Geology Program

Current Projects
Select Past Projects
Bibliographies
Related Pages

High Resolution Shoreline Map Data for Tidewater Maryland


contact: Bob Conkwright (bob.conkwright@maryland.gov)

PLEASE NOTE: These data are for illustration purposes only. Do not use these documents for navigation, legal purposes, or any critical applications. They were created only to illustrate our publications and are not accurate enough to be used for any other purposes.

These are vector format maps. Unlike raster images, they can be rescaled without distortion. The maps were created in ArcGIS 8.3 and consist of polyline segments. The dates of these shorelines are fairly recent, ranging from 1988 to 1995. Three file formats are available: Autodesk's Drawing Exchange Format (.DXF), ESRI's Shapefile (.SHP) and Arc Export (.E00) formats. These are widely accepted vector data standards and are used by programs such as AutoCAD, ArcGIS, ArcInfo, CorelDraw, Adobe Illustrator, JASC's Paint Shop Pro, Bryce 3D, 3D Studio Max, and many Intergraph programs. The .shp file format contains shoreline attribute data.

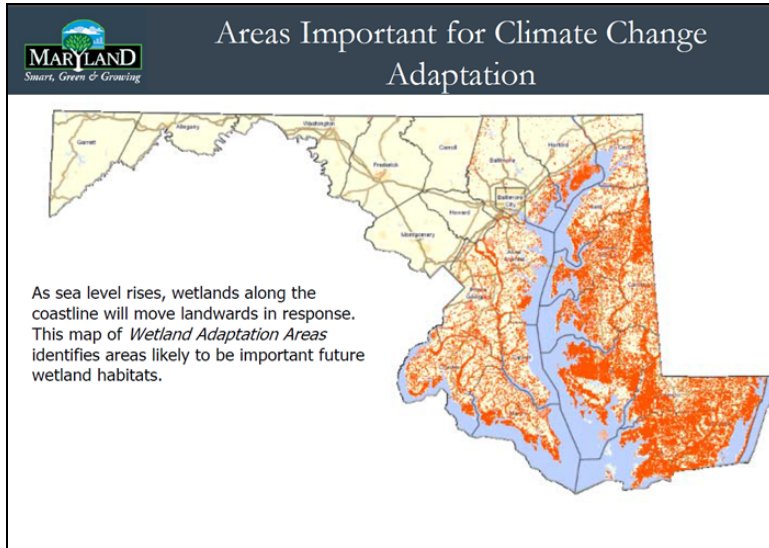
A complete metadata file accompanies each file. The metadata describe map projections, attributes, compilation procedures and all other critical parameters necessary to the proper use of the data. A summary of the metadata is presented at the end of the table below.

To download data click on the desired file format in the table below. Files have been compressed with Winzip to decrease download times. You will not be able to view the files on-line.

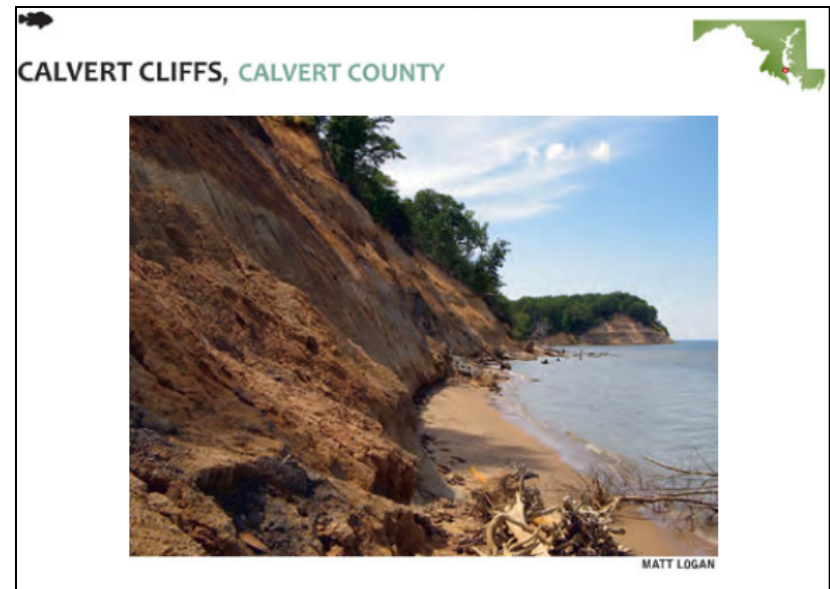
Click on a county to see a thumbnail preview of the vector shoreline map.	County / City	format (file size, kilobytes)		
	Anne Arundel	dxg (518)	shp (1,064)	e00 (693)
	Baltimore	dxg (192)	shp (384)	e00 (273)
	Baltimore City	dxg (68)	shp (123)	e00 (94)
	Calvert	dxg (368)	shp (735)	e00 (508)
	Caroline	dxg (146)	shp (277)	e00 (187)
	Cecil	dxg (117)	shp (221)	e00 (170)
	Charles	dxg (312)	shp (613)	e00 (450)
	Dorchester	dxg (1,712)	shp (3,411)	e00 (2,236)
	Harford	dxg (353)	shp (687)	e00 (464)
	Kent	dxg (339)	shp (655)	e00 (452)
	Prince Georges	dxg (246)	shp (474)	e00 (361)
	Queen Annes			
	Talbot			
	Wicomico			
	Worcester			

- Navigation
- Tidal Wetlands Management
- Critical Area Program

Shoreline Mapping and Change Analysis



- Land Conservation
- Puritan tiger beetle habitat mitigation
- Shoreline stabilization



Coastal Hazards and Floodplain Management





DFIRM OUTREACH PROGRAM
DIGITAL FLOOD INSURANCE RATE MAPS

[Maryland.gov](#) [Phone Directory](#) [State Agencies](#) [Online Services](#)

[Email Friend](#) [Print Page](#)

[HOME](#) [HOMEOWNERS/TENANTS](#) [COMMUNITIES](#) [MORE INFORMATION](#)

ABOUT DFIRM
FAQs
Glossary

Participants
FEMA
MDE

National Flood Insurance Program
nfip.gov

FEMA Insurance Information Site
floodsmart.gov


Maryland DFIRM Release Schedule

KNOW YOUR RISK

DFIRM Outreach

The State of Maryland in conjunction with the Federal Emergency Management Agency (FEMA) has been systematically updating Flood Insurance Rate Maps (FIRMs) for communities over the past several years. This site is designed to guide homeowners/renters as well as communities through the process of determining their current flood risk as well as future flood risk based on the preliminary Digital Flood Insurance Rate Maps (DFIRMs).

The DFIRMs are digitally converted flood insurance rates maps that will be compatible with GIS (Geographic Information Systems). The improvements in spatial accuracy provided by the new base map, and the availability of electronic floodplain information should greatly enhance the ability to use the maps for planning, permitting, and insurance applications.

Researching Your Future Flood Risk

The DFIRMs are being released on a community by community basis. It is important to investigate your flood risk status and contact your insurance agent to make necessary modifications to your coverage while the maps are still preliminary. The digital files will be available when these maps become effective.

Using This Website

To use this website we recommend starting with your area of interest. If you are a homeowner, please visit the HomeOwners/Tenants section. If you are interested in an entire community, please visit the Communities section.

Technical Requirements

To use this website we recommend using a high-speed internet connection using Internet Explorer 7.0 or 8.0. Additionally, Adobe PDF Reader 9.0 and Adobe Flash Player 10.0 are required. The resolution of your monitor is also important, make sure your resolution is 1024 x 768 or above.

Governor Martin O'Malley
Lt. Governor Anthony G. Brown

 **Flood Risk Application**
[View Maryland Flood Maps Here](#)

 **Flood Risk Beta Application**
[View Maryland Flood Maps Here](#)

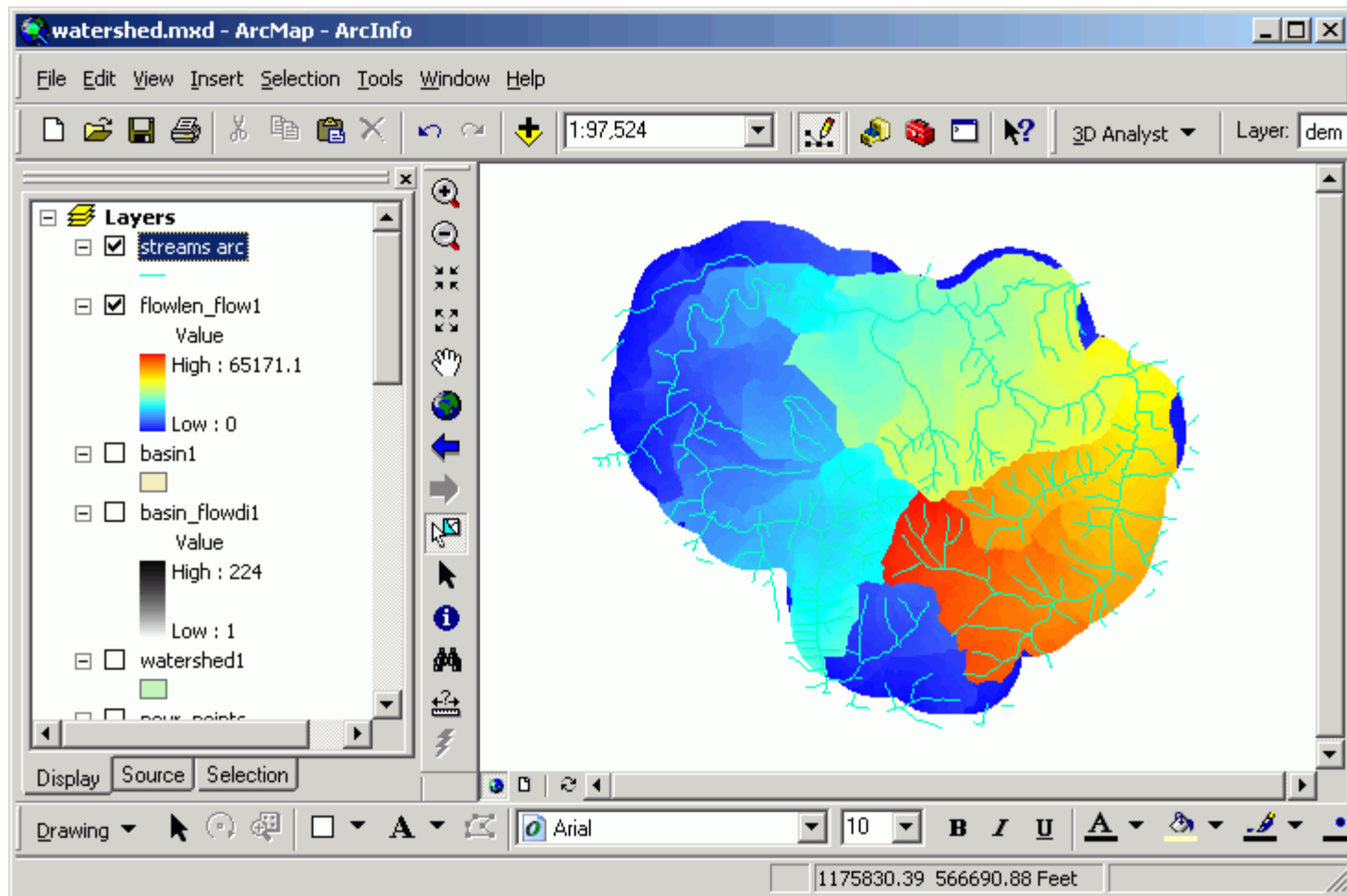
 **Preliminary Schedule**

Harford	- June 2014:	Coastal
Washington	- January 2015:	Riverine
Allegany	- TBD:	Riverine

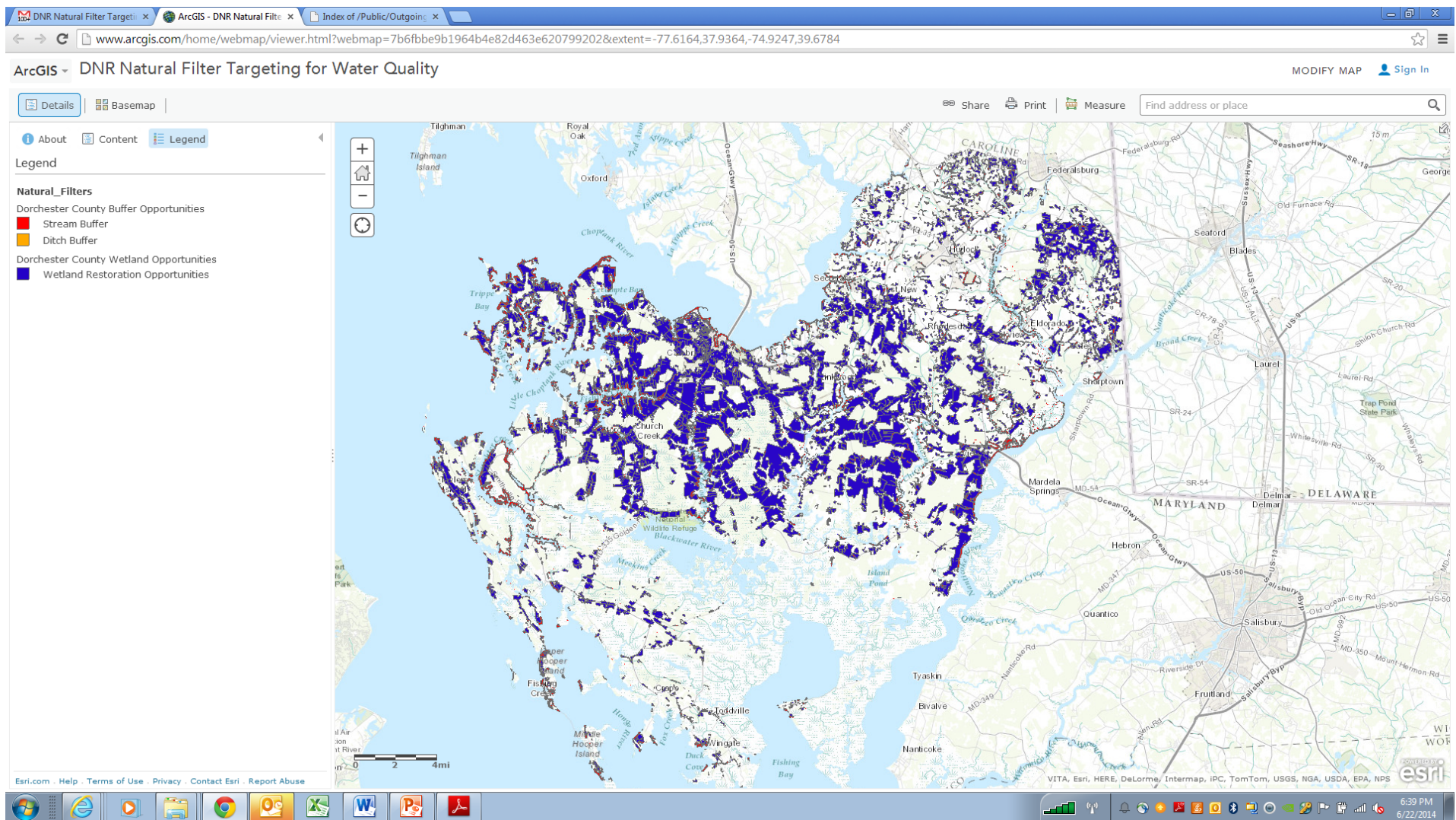
 **Effective Schedule**

Baltimore City	- April 2014:	Coastal
Baltimore County	- May 2014:	Coastal
Kent	- June 2014:	Riverine/Coastal
St. Mary's	- November 2014:	Coastal
Queen Anne's	- November 2014:	Riverine/Coastal
Calvert	- November 2014:	Coastal
Caroline	- January 2015:	Riverine
Somerset	- February 2015:	Coastal
Prince George's	- July 2015:	

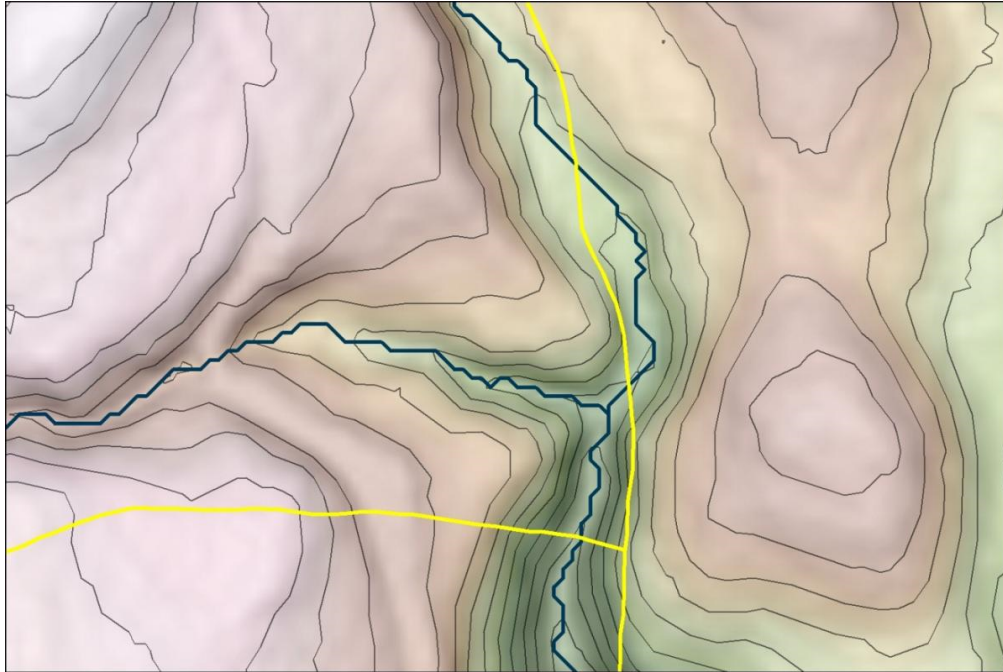
Flow Path Analysis and Accumulation



Flow Path Analysis and Accumulation



Stream Network Analysis



Impervious Surface Assessments



Watershed Protection and Restoration Program (Stormwater Utility Fee: HB 987: 2012)

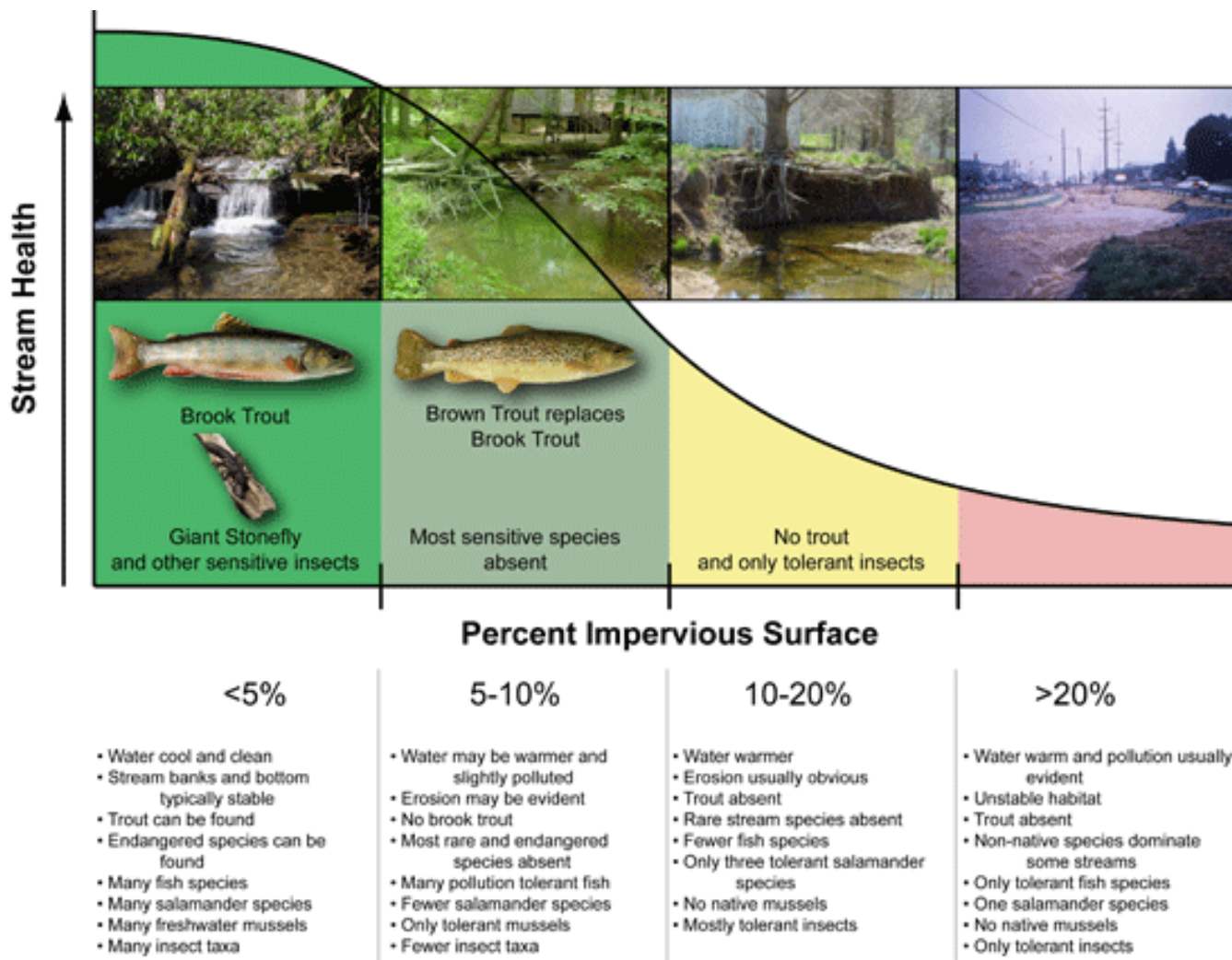


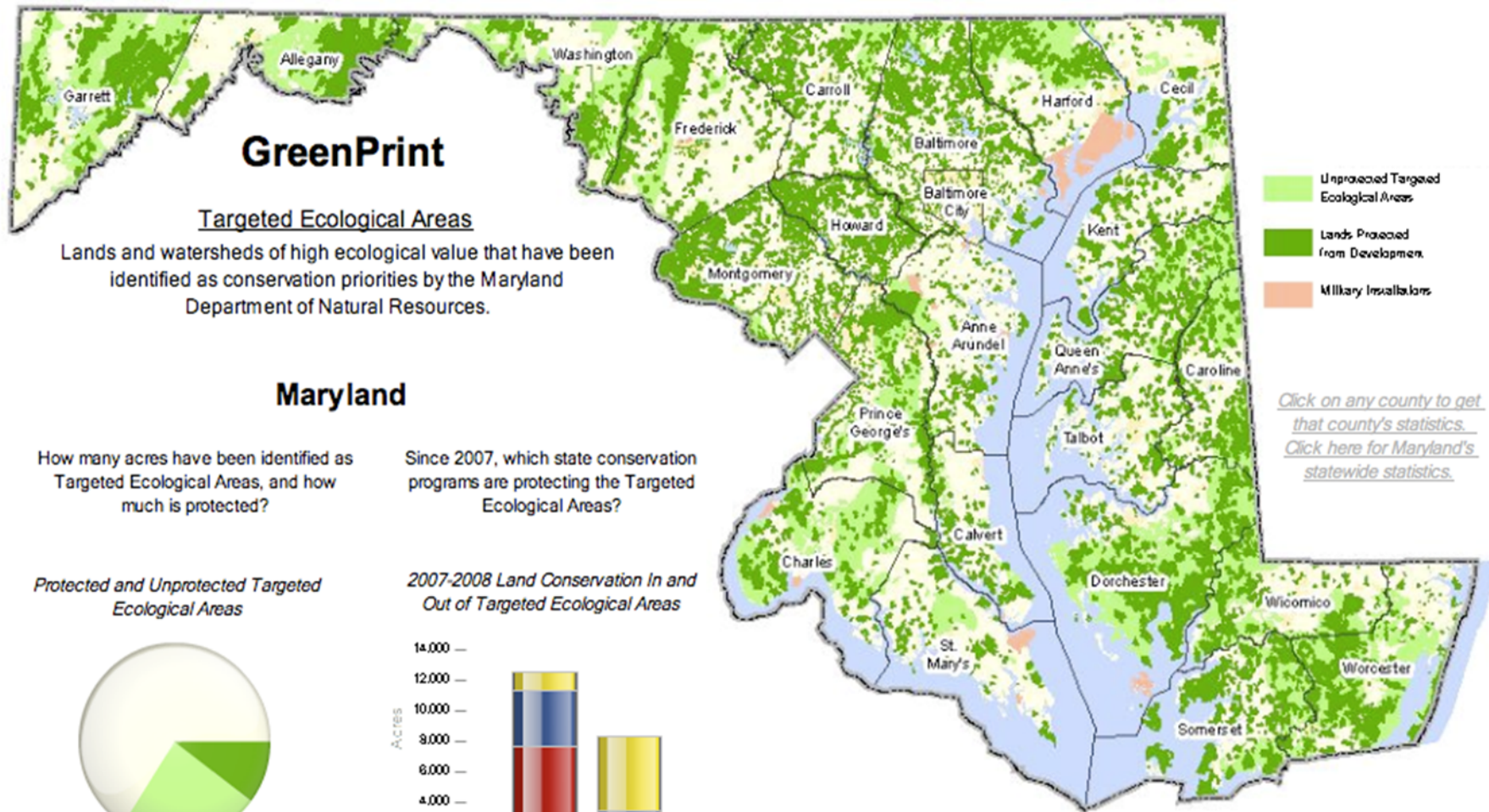
- All NPDES jurisdictions must charge a fee
- Various approaches including assessment of impervious surface footprint
- Funds stormwater management and stream restoration

Stream Restoration: Stability Analysis and Geomorphic Assessments



Land Use Planning and Ecological Thresholds





Unprotected Targeted Ecological Areas

Lands Protected from Development

Military Installations

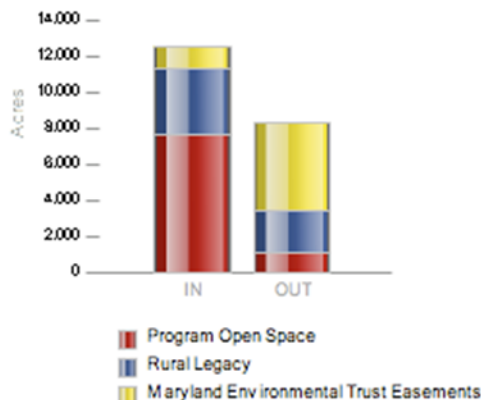
Protected and Unprotected Targeted Ecological Areas



Protected

Unprotected

Other



Program Open Space

Rural Legacy

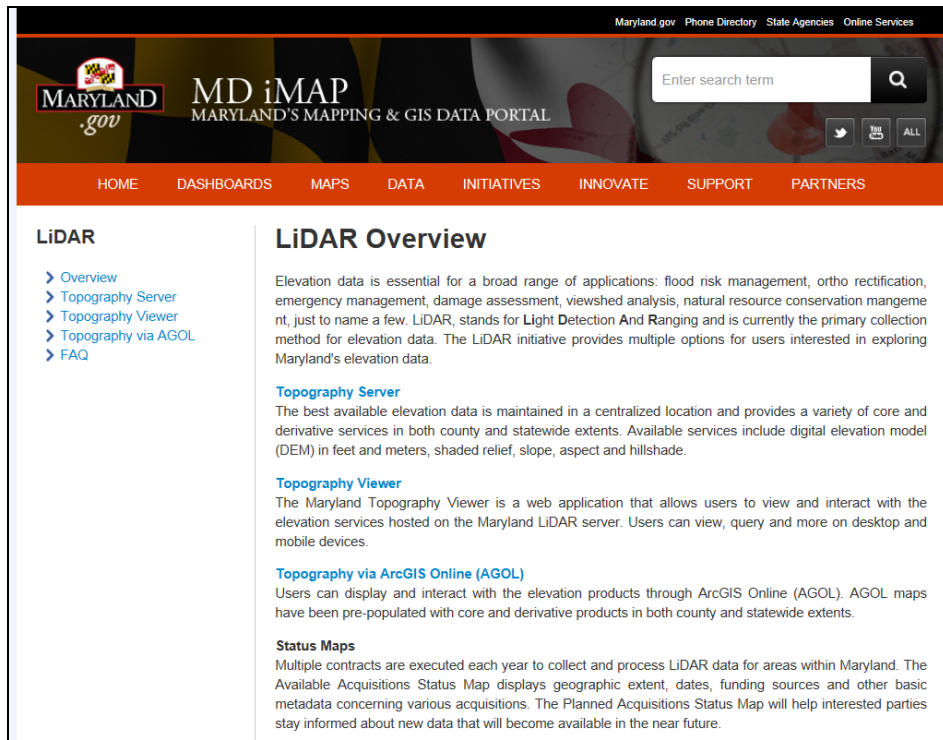
Maryland Environmental Trust Easements

Martin O'Malley
Governor
Anthony G. Brown
Lt. Governor

0 5 10 20
Miles



Maryland LiDAR Collection Program



The screenshot shows the MD iMAP website with a navigation bar and a sidebar. The sidebar contains a 'LiDAR' section with links to Overview, Topography Server, Topography Viewer, Topography via AGOL, and FAQ. The main content area is titled 'LiDAR Overview' and contains text about the importance of elevation data, links to various services, and information about data acquisition status.

LiDAR

- Overview
- Topography Server
- Topography Viewer
- Topography via AGOL
- FAQ

LIDAR Overview

Elevation data is essential for a broad range of applications: flood risk management, ortho rectification, emergency management, damage assessment, watershed analysis, natural resource conservation management, just to name a few. LiDAR, stands for **Light Detection And Ranging** and is currently the primary collection method for elevation data. The LiDAR initiative provides multiple options for users interested in exploring Maryland's elevation data.

Topography Server

The best available elevation data is maintained in a centralized location and provides a variety of core and derivative services in both county and statewide extents. Available services include digital elevation model (DEM) in feet and meters, shaded relief, slope, aspect and hillshade.

Topography Viewer

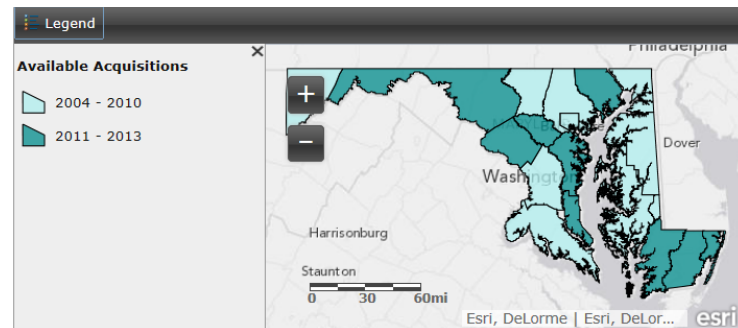
The Maryland Topography Viewer is a web application that allows users to view and interact with the elevation services hosted on the Maryland LiDAR server. Users can view, query and more on desktop and mobile devices.

Topography via ArcGIS Online (AGOL)

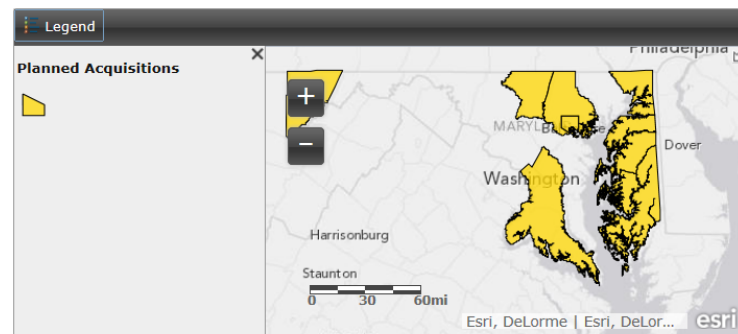
Users can display and interact with the elevation products through ArcGIS Online (AGOL). AGOL maps have been pre-populated with core and derivative products in both county and statewide extents.

Status Maps

Multiple contracts are executed each year to collect and process LiDAR data for areas within Maryland. The Available Acquisitions Status Map displays geographic extent, dates, funding sources and other basic metadata concerning various acquisitions. The Planned Acquisitions Status Map will help interested parties stay informed about new data that will become available in the near future.



[View Larger Available Acquisitions Map](#)



Good Data...Good Decisions

