Chesapeake Bay Program's New Land Cover Map (and some other neat stuff)

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Geospatial Project Manager
Chesapeake Conservancy

December 6, 2016
Potomac Watershed Partnership

Chesapeake Conservancy

Conservation & Community

Combining Community Input with Landscape Analysis

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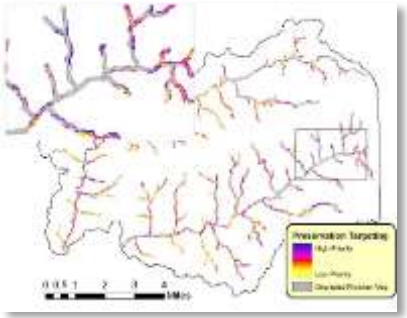
Community Engagement

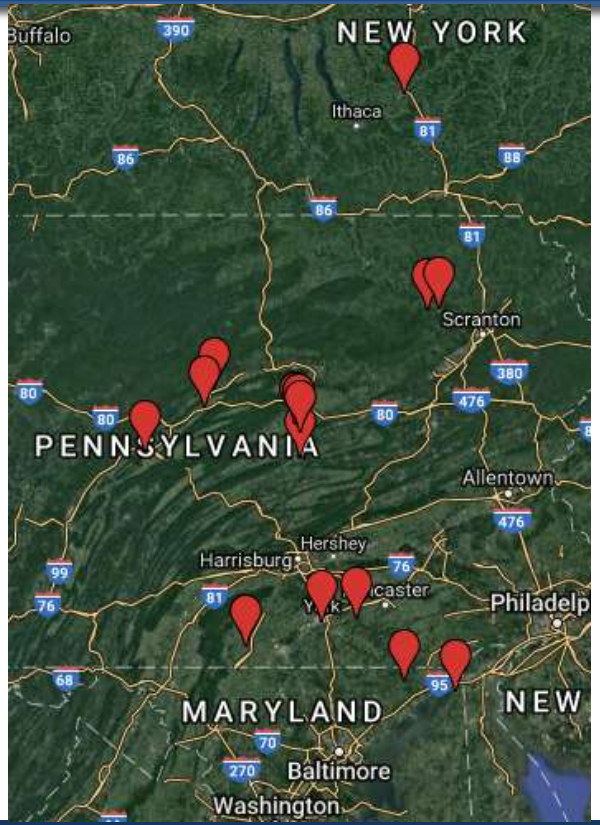
Conservation Prioritization



Community supported, evidence based conservation solutions

Need for data to address specific challenges

2015-2016 Community Engagement Workshops



Enabling Partners

Data

Land Cover/Use

Stream Maps

Web-based tools

Access

Products

Enabling Partners

Data

Land Cover/Use

Stream Maps

Web-based tools

Access

Products

Bay-wide land cover data

What's on the landscape?

How much pollution is contributed, and how much is reduced from projects?

How do we standardize project reporting?

Dataset development drivers

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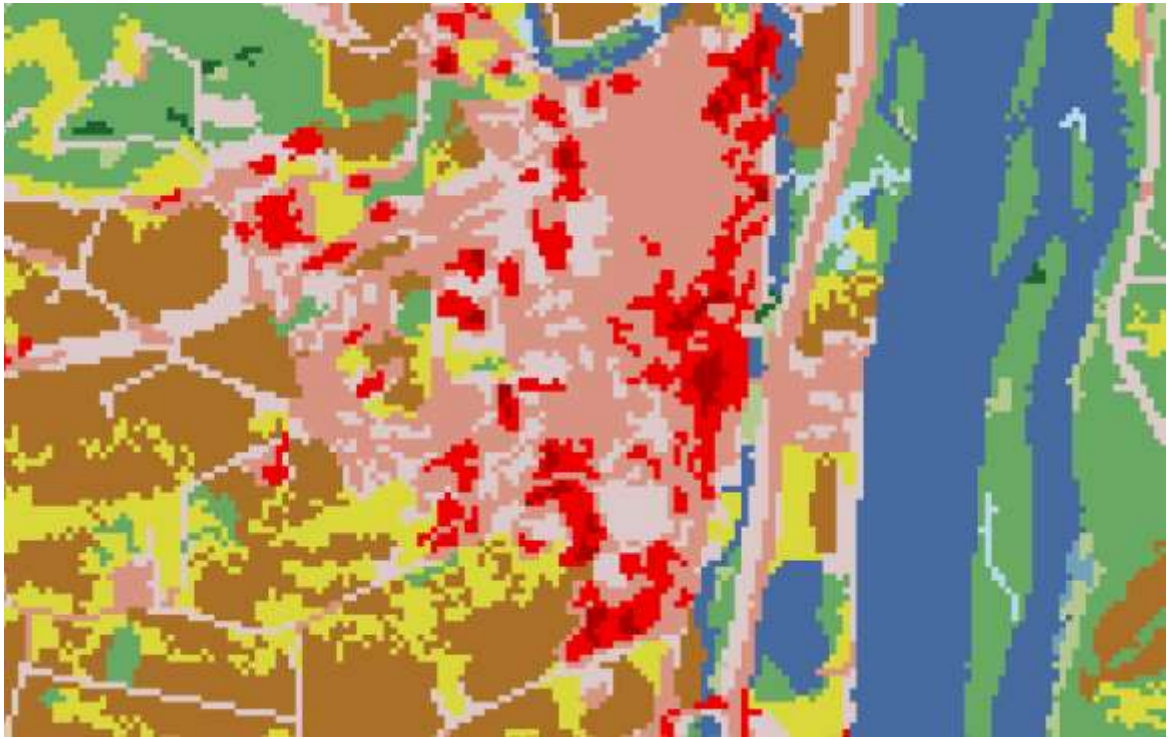
National Land Cover Data

30-meter resolution

No local engagement



Dataset development drivers

Chesapeake Conservancy
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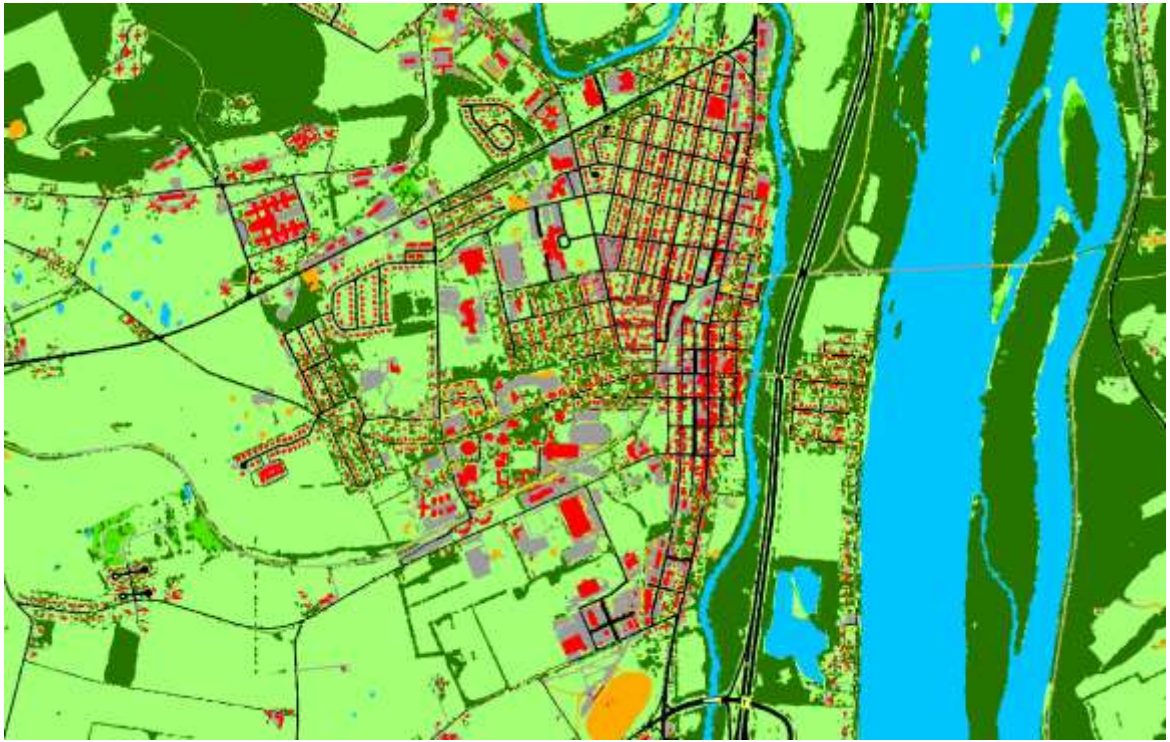
CBP Land Cover

Incorporates local data

Stakeholder review



Dataset development drivers

Land cover dataset specs

Raster format

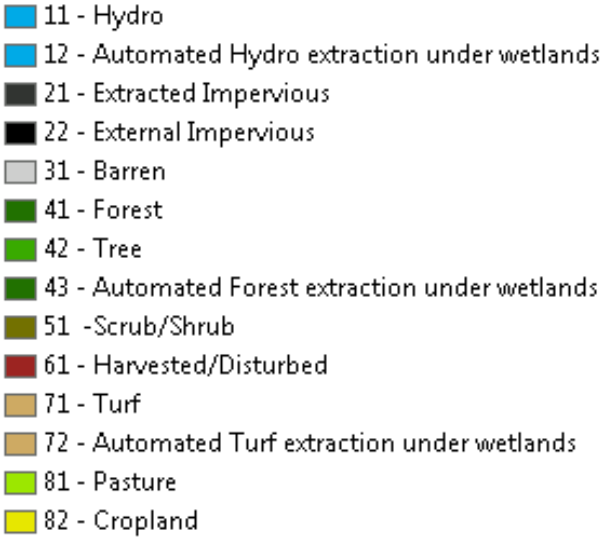
1 meter pixel size

4-bit pixel depth

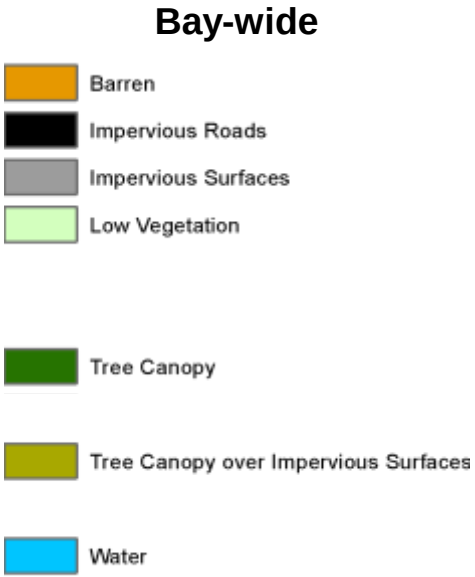
Projection: Albers Equal Area – USGS version

MD, WV, PA, NY, DE, D.C.

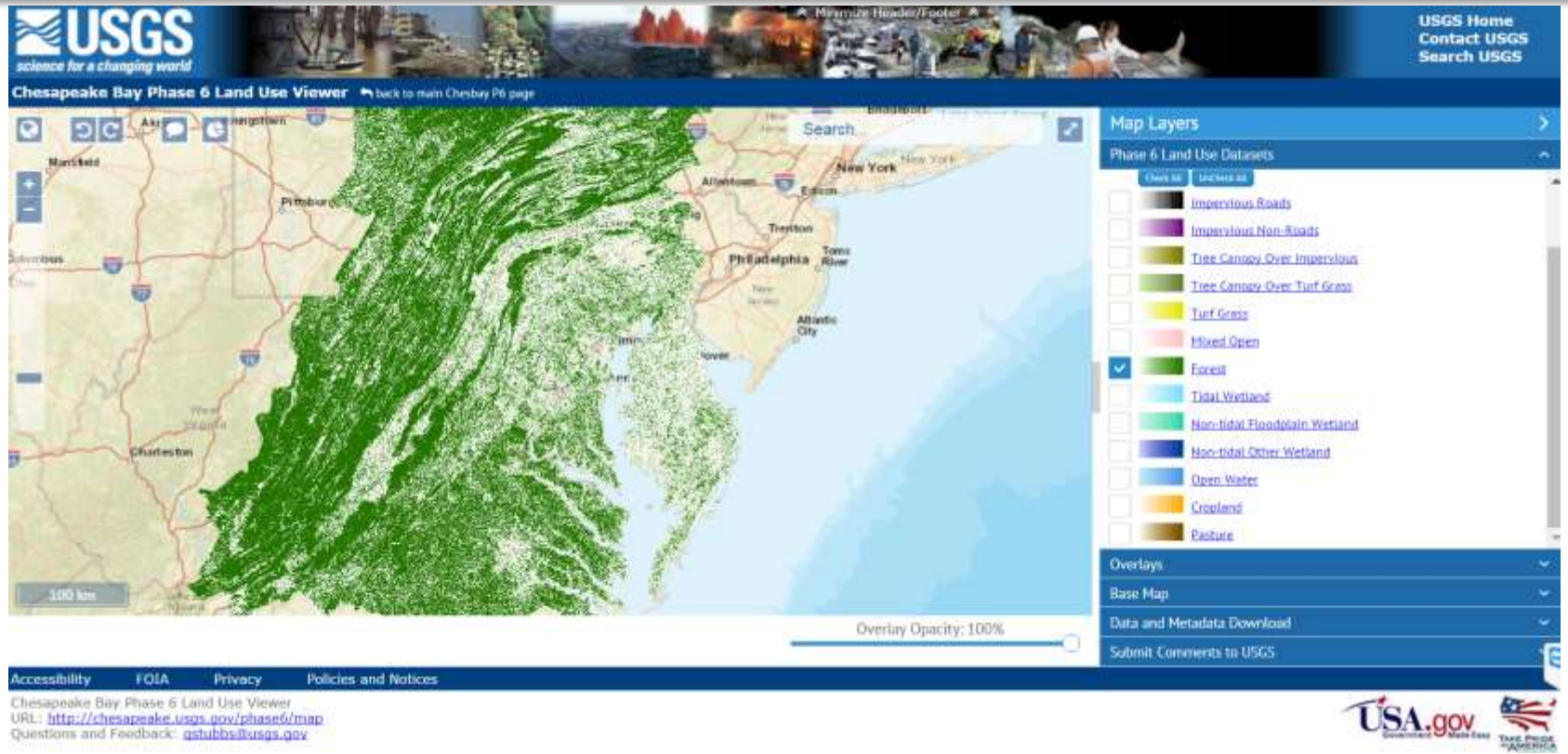
VA



Land cover dataset specs



Bay-wide land use data



Learn more?

Chesapeake Bay Program Land Use Work Group:

http://www.chesapeakebay.net/groups/group/land_use_workgroup

Webinars (land cover):

https://epawebconferencing.acms.com/cc_landcover/

Thursday, 12/8 from 1-2 PM
Monday, 12/12 from 10-11 AM
Wednesday, 12/14 from 10- 11 AM

Contact - Margaret Markham mmarkham@chesapeakeconservancy.org to register

Download data:

http://chesapeakeconservancy.org/conservation-innovation-center-2/land-cover-data-project/

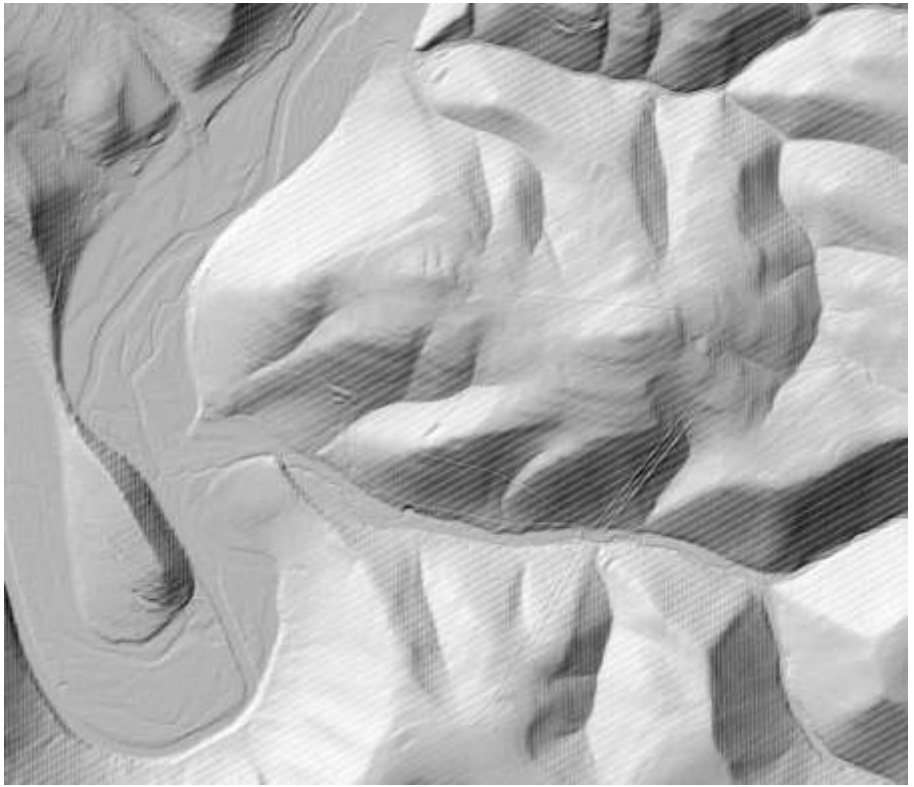
Stream dataset development drivers

NASA Satellite Imagery

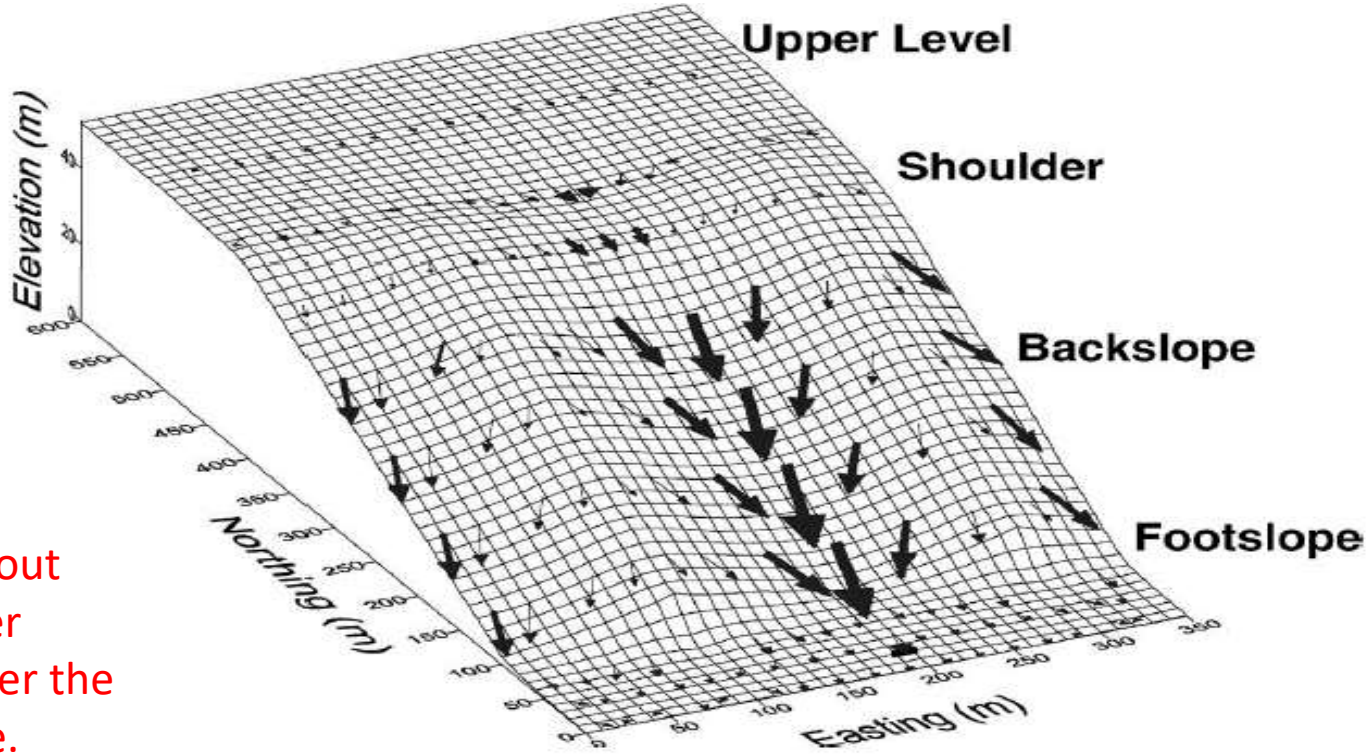
York County Planning Commission

Dataset development

1) Start with a Digital Elevation Model.



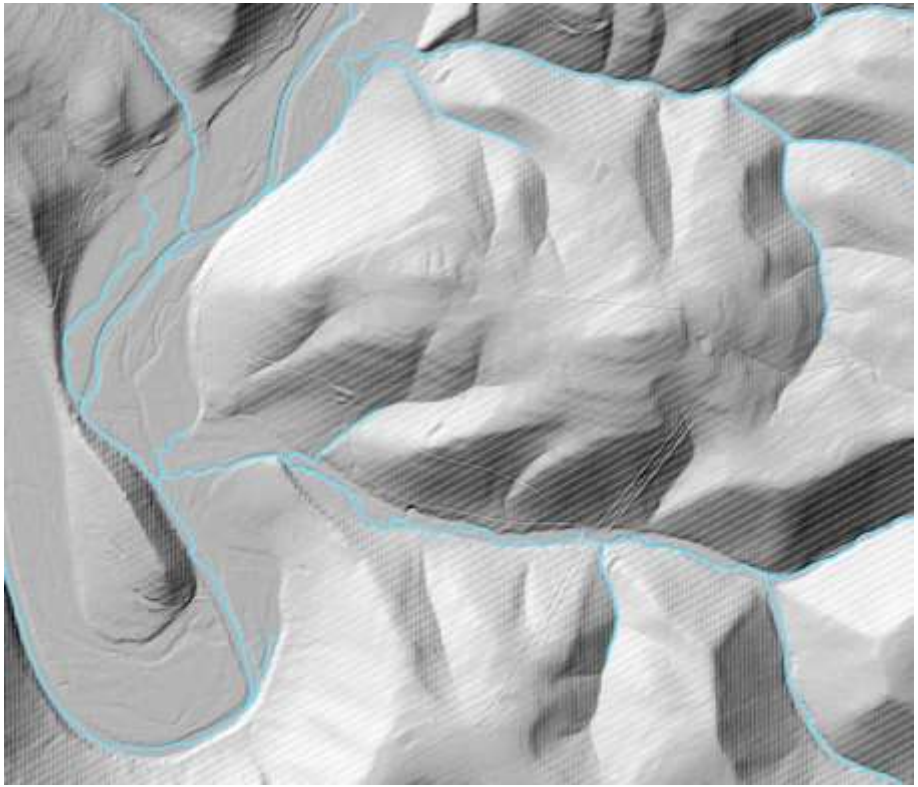
Dataset development



2) Figure out how water moves over the landscape.

Dataset development

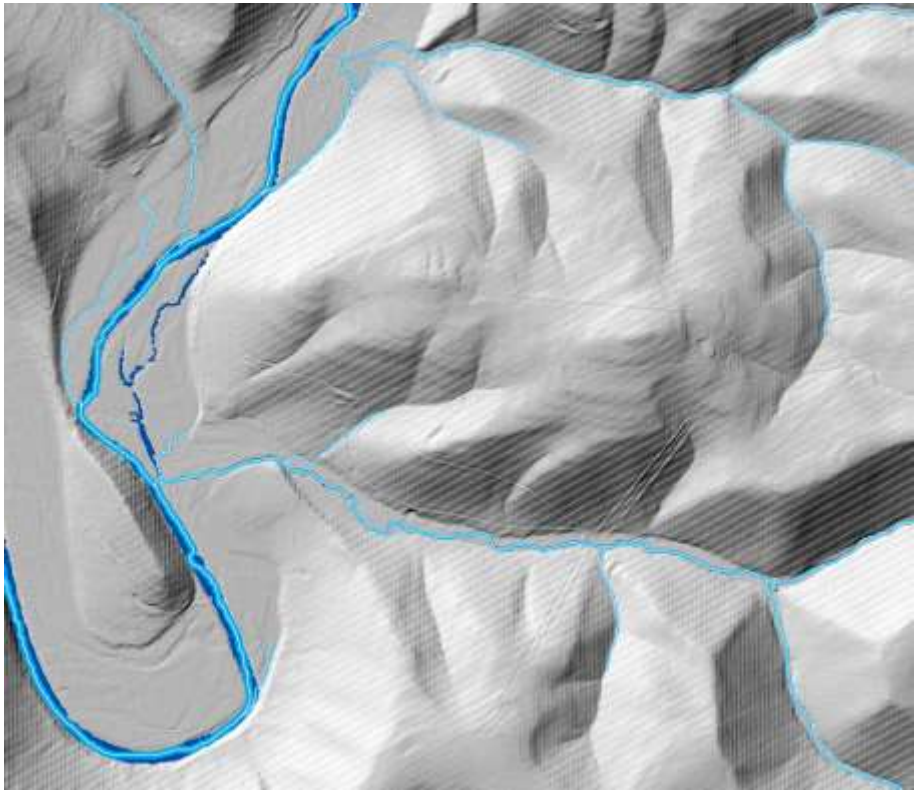
3) Find the areas where water accumulates.



Flow path

Dataset development

4) Determine stream width.



Dataset specs

High resolution &
Large scale

Will facilitate:

- Buffer gap identification
- Goal setting
- Prioritization

Case study from analysis to action

USES IN PLANNING

Buffers, Water quality, Reporting

PA Department of Environmental Protection Chesapeake Bay Restoration Strategy ("Reboot")

- "Accelerate the installation of forest riparian buffers"
- "Putting science-based, high-impact, low cost projects on the ground and working with partners in a focused manner"
- "Improving reporting, record keeping, and data systems"

From analysis to action: PA Buffers

Bay Agreement: Restore and Conserve Riparian Forested Buffers until 70% buffer coverage is achieved

PA DCNR Buffer Initiative: the goal is to plant an additional 95,000 acres of buffers by 2025

How were these goals determined?

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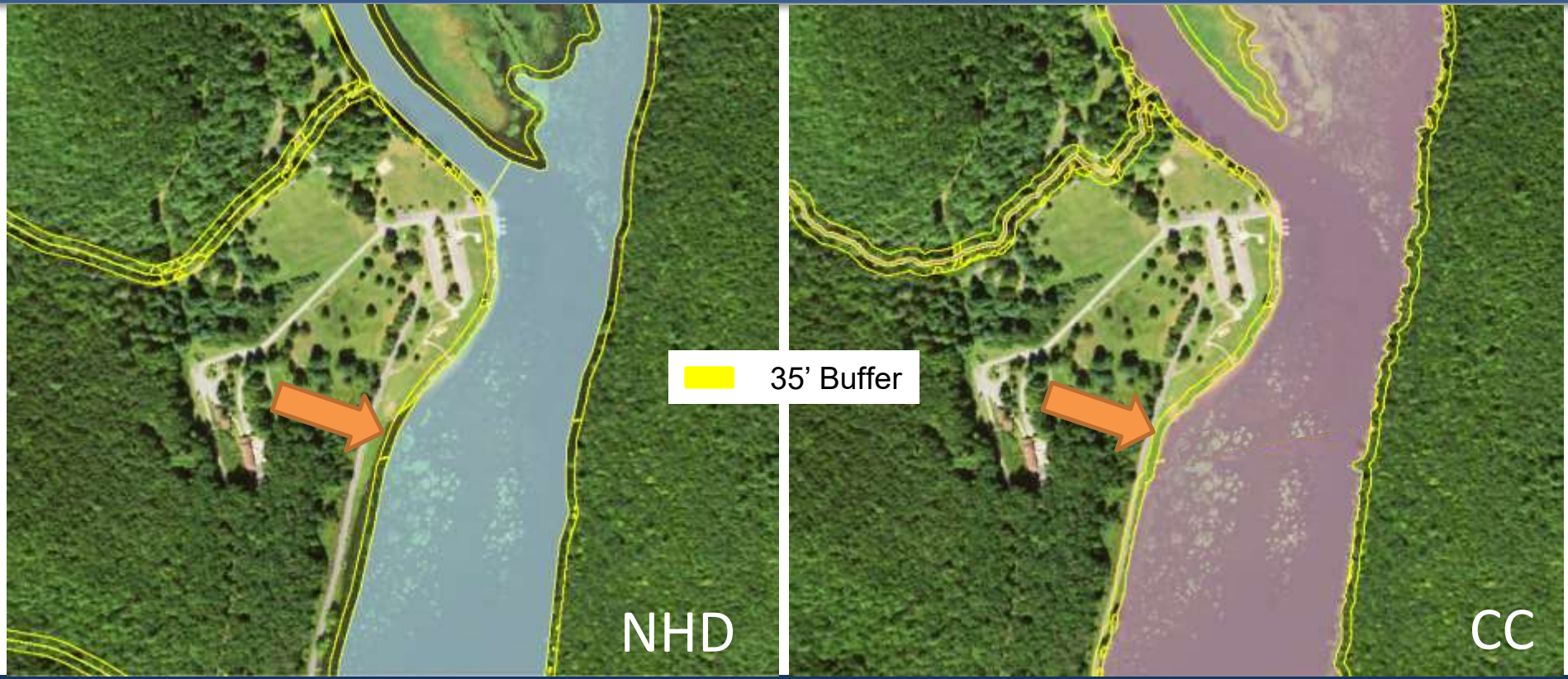
How were these goals determined?



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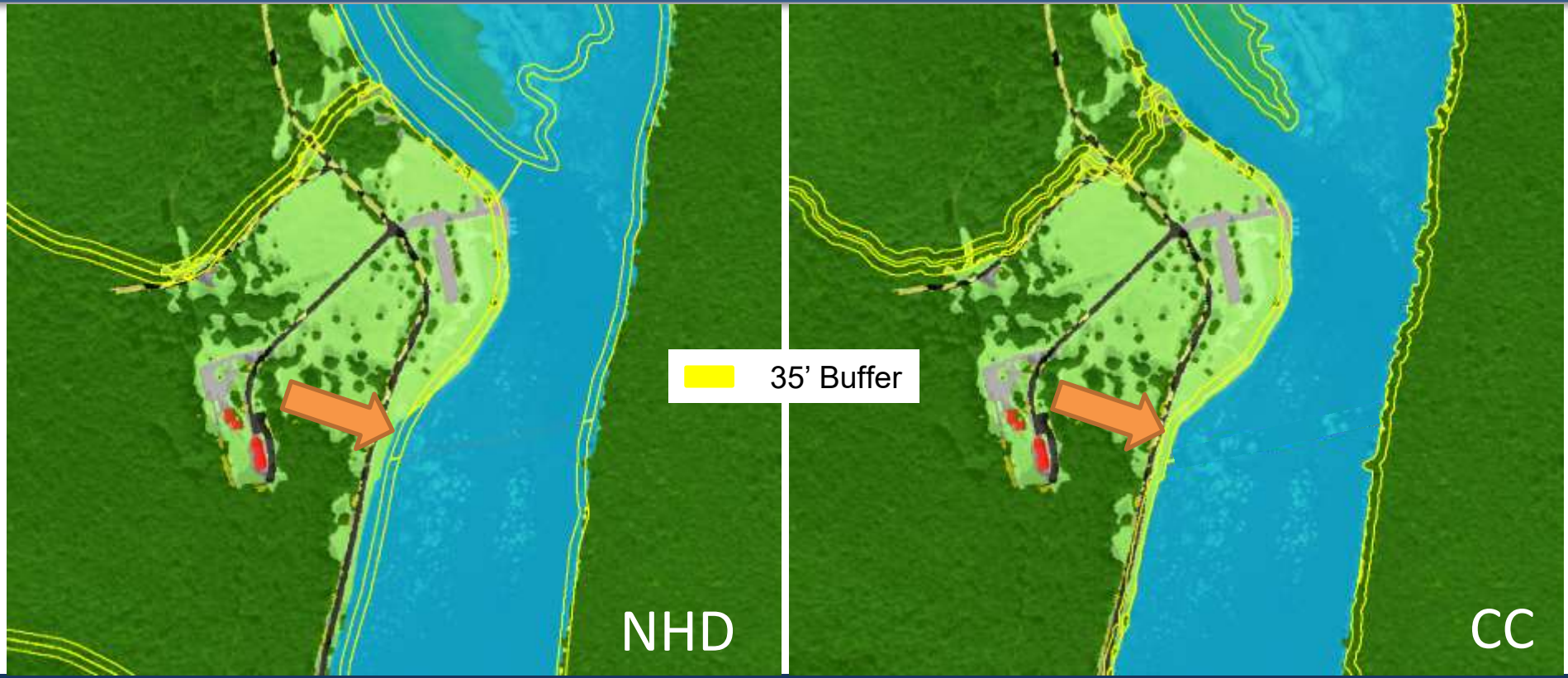


Kettle Creek case study – Buffer gaps

Riparian Buffer Gaps

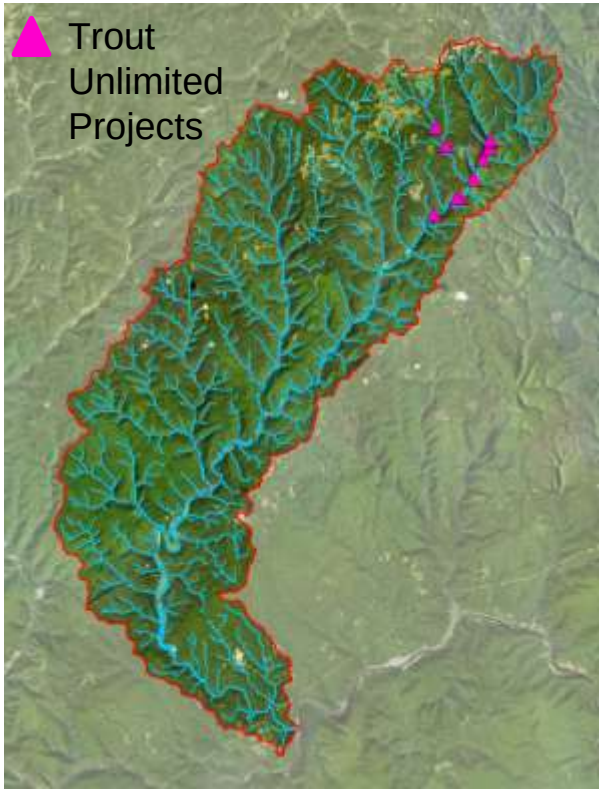
2.95 acres CC

1.5 acres NHD

Kettle Creek case study – Buffer gaps

Kettle Creek HUC 10

- 157,689 acres
- NHD = 7,800 gaps
- CC = 11,613 gaps

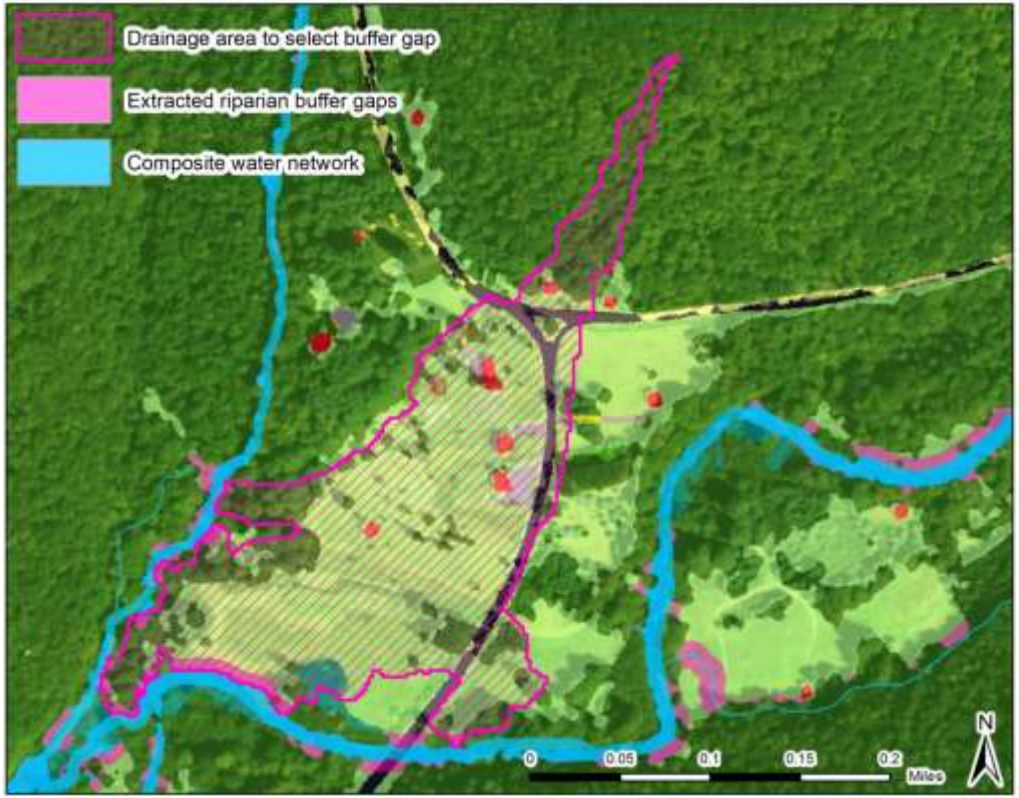


CC streams identified 20%
more buffer gaps
= 100 acres of additional opportunities

Kettle Creek case study – Prioritization

Kettle Creek case study – Prioritization

Kettle Creek case study – Prioritization



Land Cover	Area (acres)	% of Total Drainage Area
Low Vegetation	15.17	64.76
Tree Canopy	6.10	26.03
Roads	1.05	4.46
Other impervious surfaces	0.42	1.81
Wetlands	0.28	1.21
Structures	0.26	1.12
Tree canopy over structures	0.05	0.22
Scrub-shrub	0.04	0.19
Tree canopy over other impervious	0.03	0.12
Tree canopy over roads	0.01	0.05
Water	0.01	0.03
All Land Cover	23.42	100.00

Kettle Creek case study – Prioritization

Enabling Partners

Data

Land Cover/Use

Stream Maps

Web-based tools

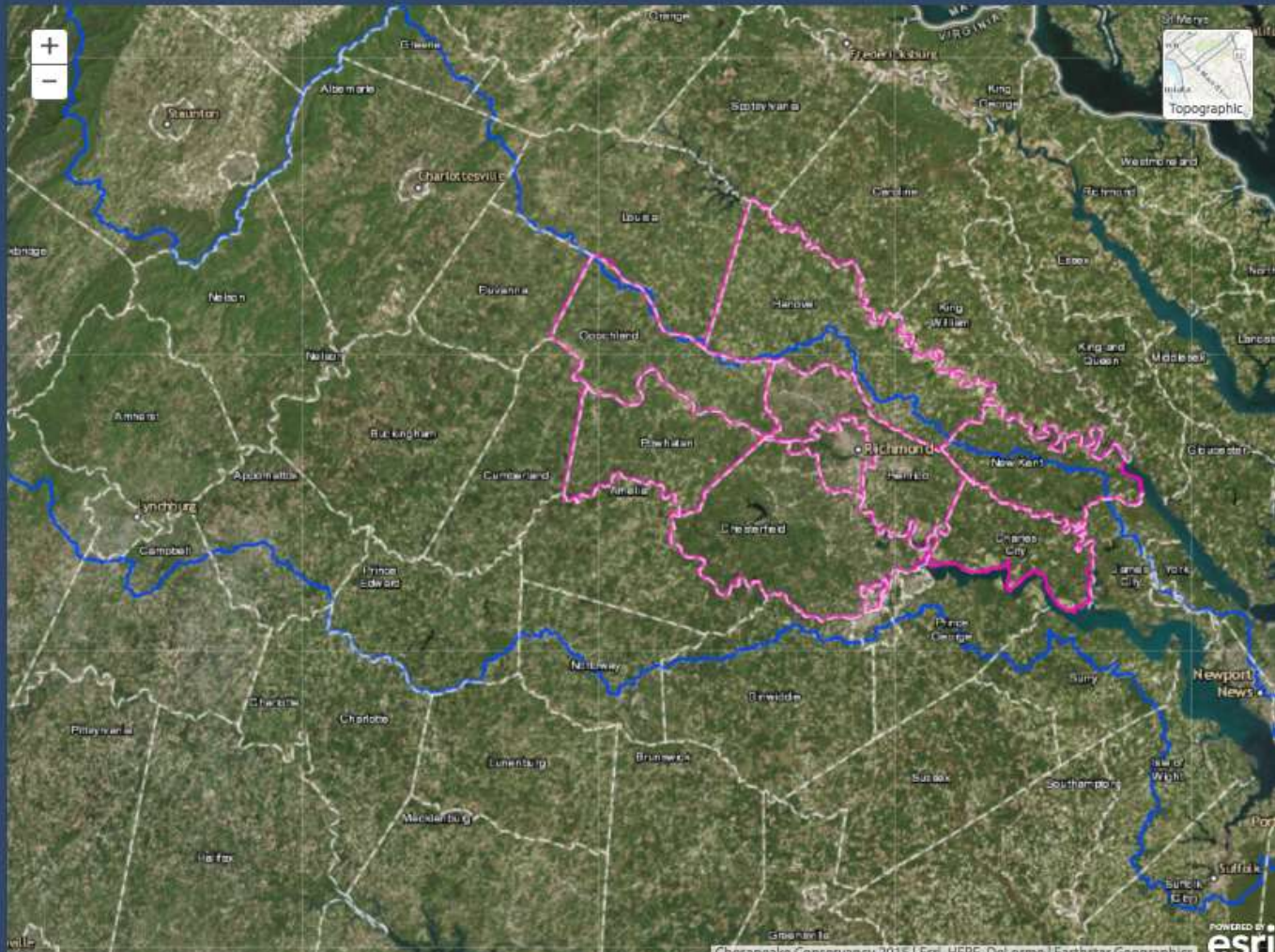
Access

Products

Chesapeake Conservancy

CONSERVATION TOOLBOX

- Map Layers
- Search
- Filter
- Land Cover
- Report Generator
- Watershed Delineation



Map Layers

Chesapeake Conservancy

- Major Roads
- NHD Streams
- 35 ft Buffer
- 100 ft Buffer

Flowline - Large Scale

Roads

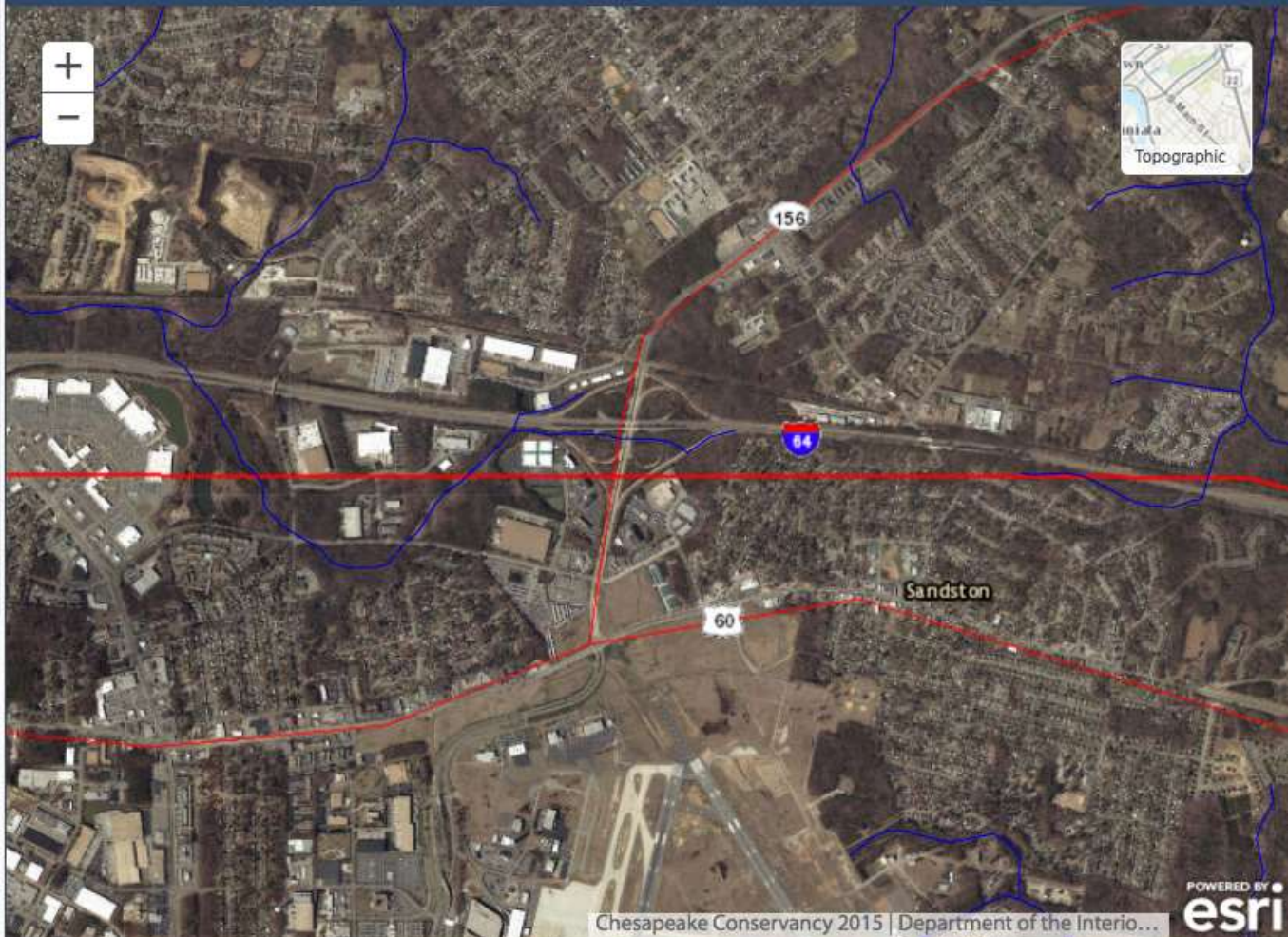
States

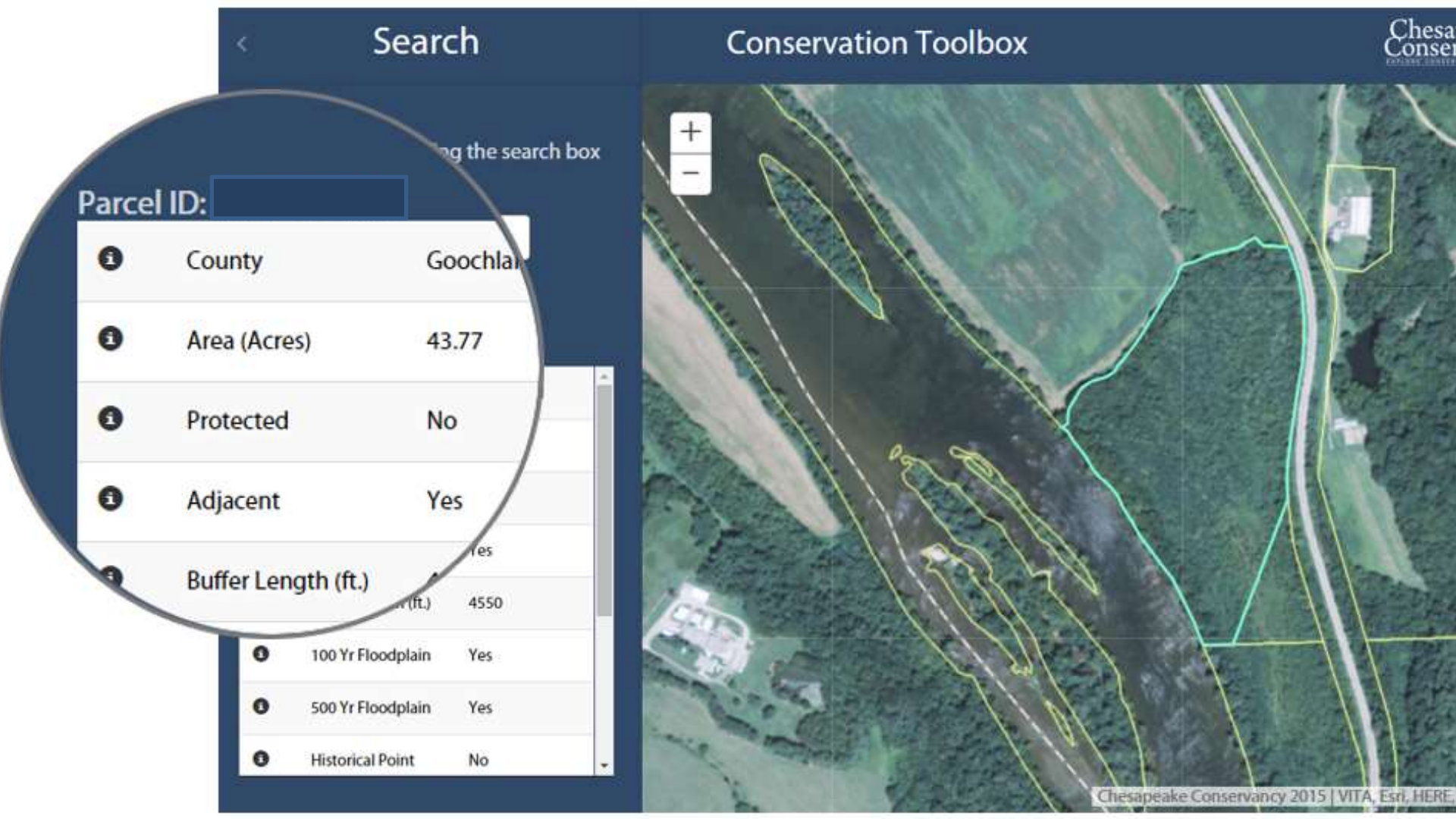
Interstate Labels

Major Roads Labels

US Highways Labels

Other Roads Labels




Search
Conservation Toolbox
g the search box
Parcel ID:
County
Goochlan
Area (Acres)
43.77
Protected
No
Adjacent
Yes
Buffer Length (ft.)
Yes
(ft.)
4550
100 Yr Floodplain
Yes
500 Yr Floodplain
Yes
Historical Point
No
Chesapeake Conservancy 2015 | VITA, Esri, HERE

Demo

http://jamesswcd.cicapps.org/

Username: monacan

Password: M0n@can

DUMBARTON OAKS PARK CONSERVANCY

Map | Documents | Login

Map layers

- (•) Basemap
- ( ) Elevation model (DEM)
- ( ) Surface model (DSM)
- ( ) Hillshade

Trail features

Stormwater features

Drawing

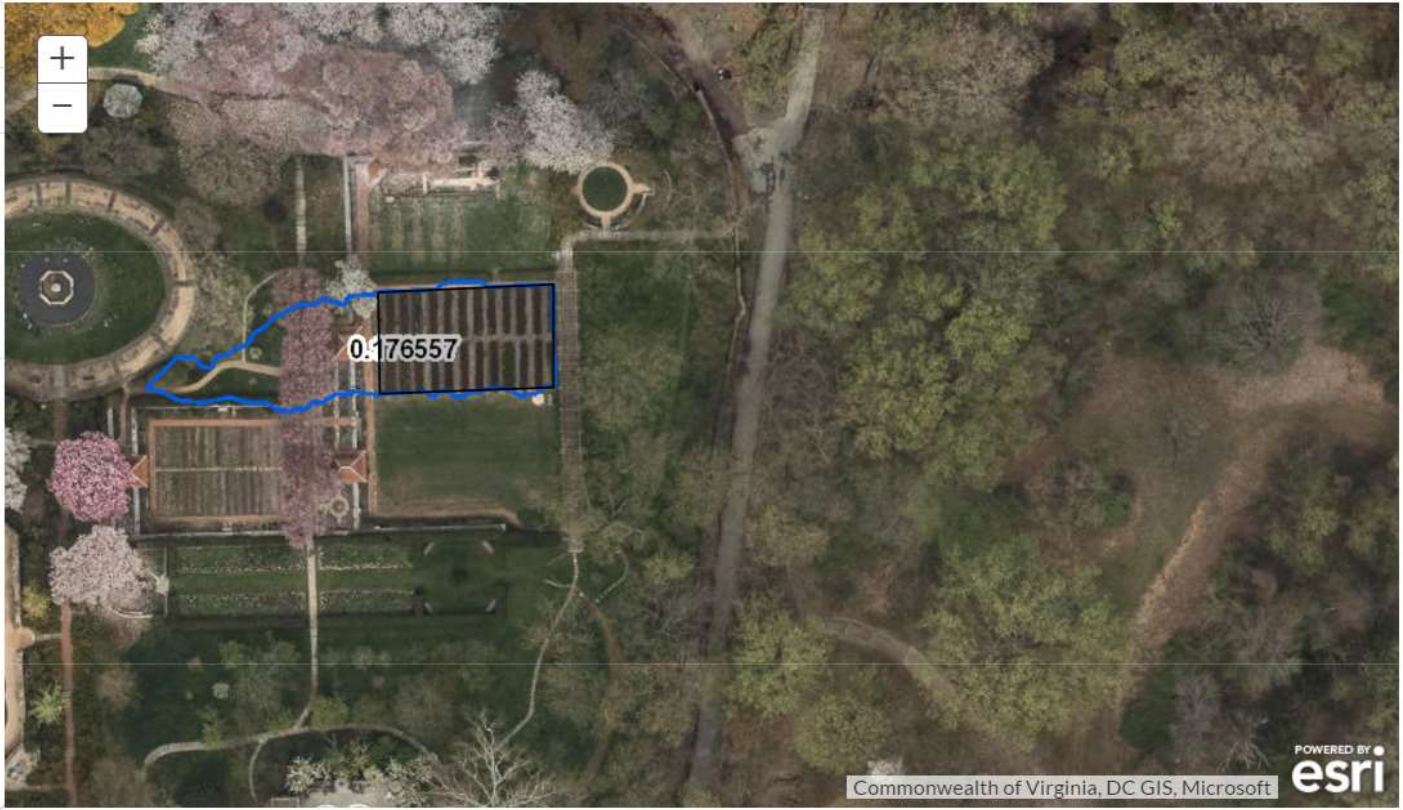
Hydrology

Printing

DUMBARTON OAKS PARK CONSERVANCY

Map | Documents | Login

- Map layers
- Drawing
- Hydrology
  - Shape
  - Draw drainage area
- Printing



Demo

http://dev.cicapps.org/

Welcome to i-Tree Landscape! v2.0 beta

Offering more than just beauty and shade, trees provide intangible benefits, such as removal of atmospheric carbon dioxide and pollution, stormwater reduction, temperature modification, and more. i-Tree Landscape allows you to explore tree canopy, land cover, and basic demographic information in a location of your choosing. With the information provided by i-Tree Landscape, you will learn about the benefits of trees in your selected location, see how planting trees will increase the benefits provided, and map the areas where you decide to prioritize your tree planting efforts.

i-Tree Landscape

Get Started

By removing carbon dioxide, trees help mitigate climate change. The shade provided by urban tree canopies can also help minimize the urban heat island effect. In addition, trees intercept stormwater, which can reduce flooding and improve water quality, and reduce air pollution, such as ozone, carbon monoxide, sulfur dioxide, nitrogen dioxide, and fine particulate matter. Reduction of air pollution has proven benefits to human health - trees truly can enhance our lives! Click **Get Started** to begin an i-Tree Landscape project now.

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i-Tree and its partners do not endorse any specific web-browser, but i-Tree Landscape has been tested to work well with modern versions of Chrome, Firefox, Internet Explorer, and Safari. Currently, the i-Tree Landscape map **does not** work with most (capacitive) touch-screens, in any browser. Please, use the Feedback form to report issues.

https://landscape.itreetools.org/

Stormwater BMP Prioritization Tool

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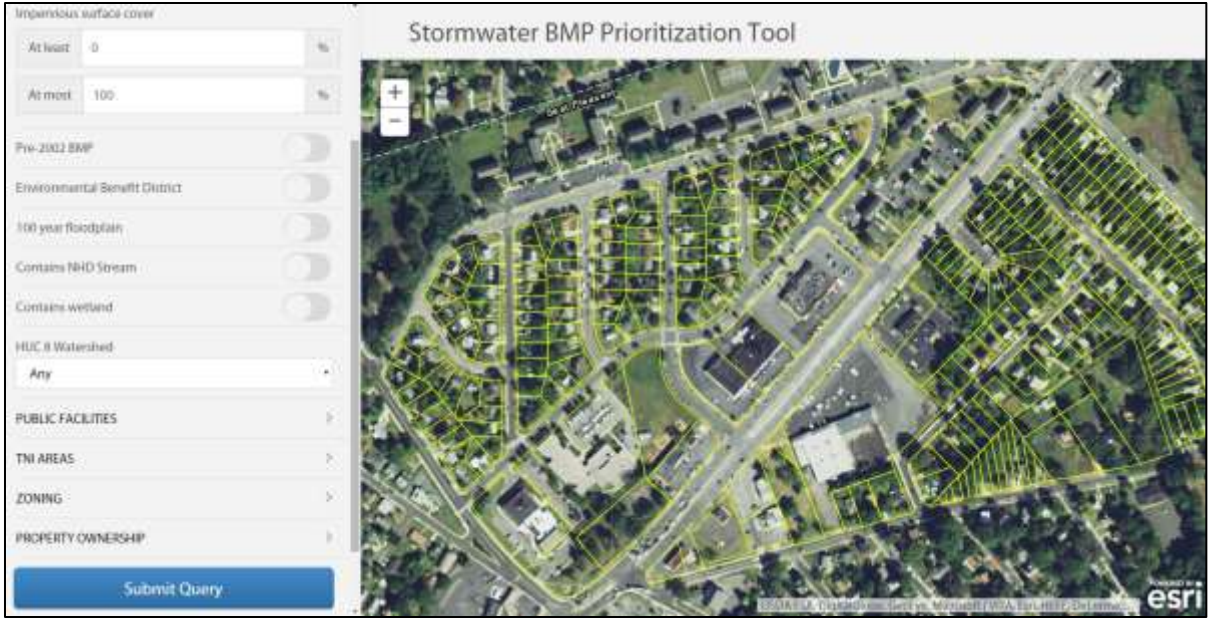
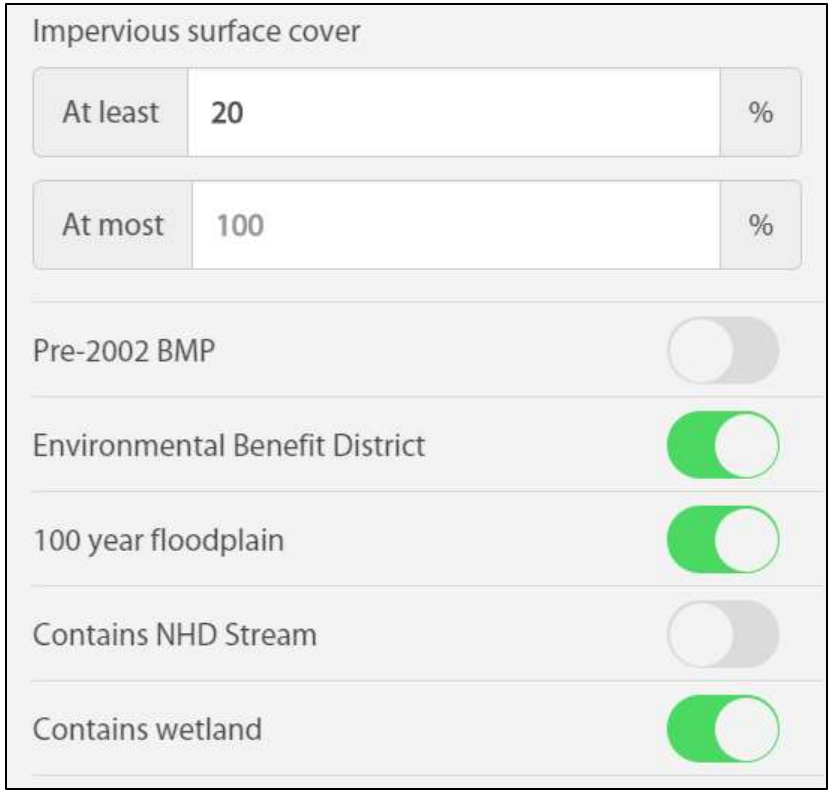
Web-based application
–Non-GIS users

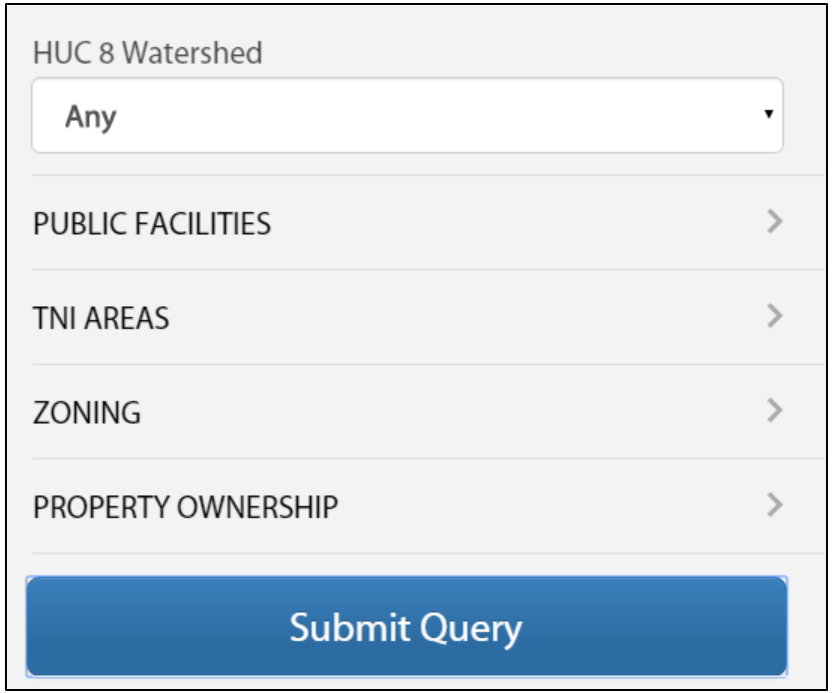
BMP site identification
–Dynamic queries

Product generation
–Spreadsheets



Stormwater BMP Prioritization Tool





Stormwater BMP Prioritization Tool

Chesapeake Conservancy
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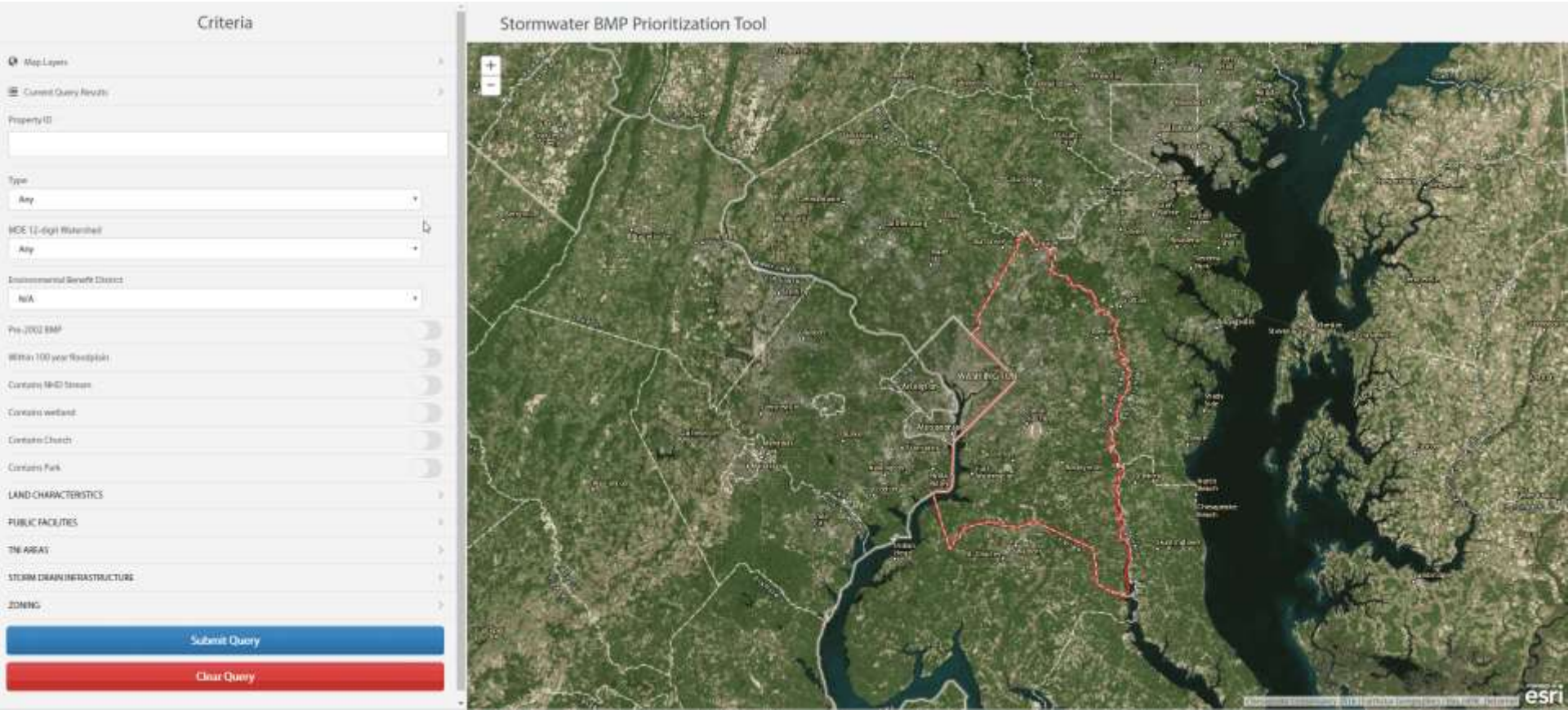
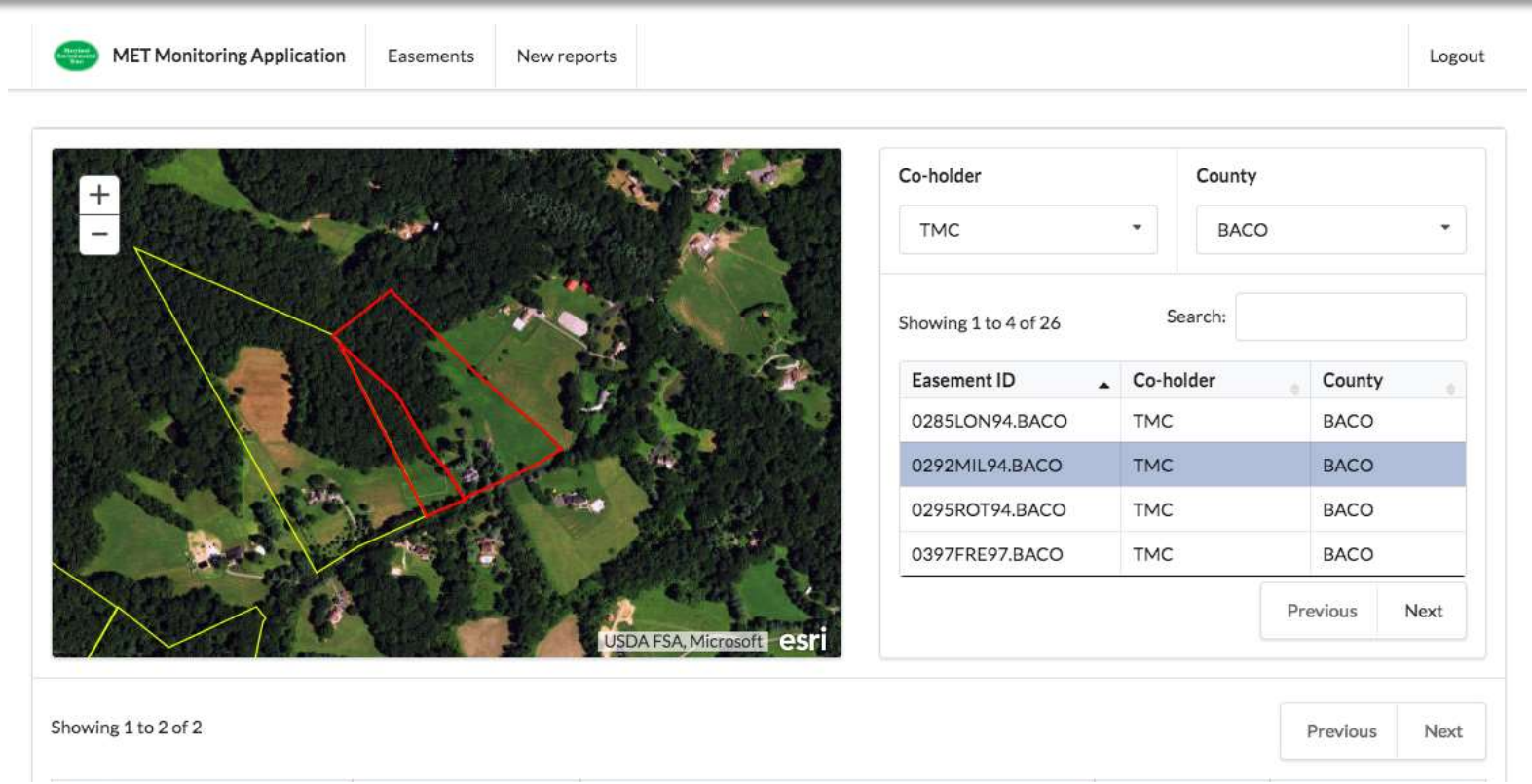


Easement Monitoring - MET



Easement Monitoring - MET

Account ID	Project	Acres (GIS/MET/MPV)	Map	Parcel
1007179812	[redacted]	136.29 / 200.00 / 160.75	0029	0003
1007196717		39.98 / 200.00 / 40.00	0029	0108
1008185417		4.65 / 200.00 / 3.50	0018	0029

+ Upload report for selected accounts | Create map | View reports for all accounts

Uploading report for the following accounts:

- 1007179812
- 1007196717

Reporter *

Cass Pallai

Report type *

Abbreviated

Easement Monitoring - MET


Thank you!
Cassandra Pallai
cpallai@chesapeakeconservancy.org