HIGH-RESOLUTION LAND COVER

LAND USE UPDATE for the

CHESAPEAKE BAY TMDL

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What are we talking about?

* What is land cover & land use?
* The purpose of land cover & land use data at the Bay Program
* High-resolution land cover & land use update
* How can these data products be useful to you?
What is land cover & land use data?

Adapted from Ches Conservancy website.
Land Cover = Physical type of land

Water, pavement, trees, wetlands, structures, grass, shrubland, tree canopy, etc.

Land Use = How people use the land

- Water
  - Lake, estuary, river, tidal, non-tidal

- Forest
  - Size, canopy, harvested or not, urban

- Wetlands
  - Tidal, non-tidal, isolated, bare shore

- Land in production
  - Agriculture, silviculture, active mines, solar fields

- Developed
  - Impervious roads, structures, driveways, etc.
  - Pervious turf, barren, construction sites, in transition

Adapted from R. Soobitsky webinar, 2021
Two major functions of land cover and land use data

1. Provide information on what is coming off the land in terms of nutrients and sediment to inform the watershed model.

2. Provide metrics to assess progress on land use change patterns over time and inform citizens, local governments, elected officials and stakeholders.
UNDERSTANDING LAND COVER & LAND USE DATA FOR THE BAY

2004 – 2016
Moderate-resolution (30-meter) land use/cover with ancillary data

2016–2020
Produced and began using high-resolution (1-meter) land use/cover based on 2013/14 imagery

2020 – 2023
Produced and began using a second set of high-resolution land use/cover from 2017/18 imagery

2023 and beyond
Continue to produce comparable high-resolution land use/cover data every four years through 2030.

Lower tech, less oversight
Higher tech, more oversight
Trusted data, repeatable process
Current Land Cover & Land Use Development

Partnership in place to develop high quality, accurate data
- 6-year Cooperative Agreement with CBP, USGS, CIC & partners
- 4 Objectives

Chesapeake Conservancy
Conservation Innovation Center (CIC)

Develop 1m Land Cover and Land Use datasets
Map and track BMPs

Delineate stream channels and ditches
Geospatial support
Current Land Cover & Land Use Development

Typical Partnership Approach
- Sector-specific workgroups evaluations
- Land Use Workgroup advises and vets datasets
- Water Quality GIT approves for incorporation into model
Land Cover Data
Production & Review

- Opportunity for detailed review of land cover data by all 206 localities in Bay watershed

- Consistent process across localities and jurisdictions

- Errors identified and corrected to inform land use
Land Use Development

- Opportunity to vet land cover to land use
- 14 prototype counties chosen
- Represented a range of land use types to evaluate
- Automated for remaining Bay watershed localities
Data Availability Timeline

Data Products
- 2017/18 Land Cover & Land Use
- Land Cover & Land Use Change
  - 2017/18 – 2013/14

- Nov. 2021
  Data incorporated into the model (CAST21)
- Feb. 2022
  Data available to the public
- 2022 and beyond
  Repeat process for next model versions and public
Use cases

- Impervious cover calculations to inform policy decisions for design storms
- Impervious cover change metrics
- Tree canopy reports
  - US Forest Service and Forestry Workgroup
  - 2-page Tree cover status and trends local fact sheets
- Regional green infrastructure analyses
- Resilience evaluations
- Chesapeake Conservancy list of use cases
What about your local or regional needs?

- How is this data meaningful to you?
- What can your locality do with high-resolution, 1-m, land use/land cover data?
- Would it replace the need for localities to do this on their own?
- What resources, tools, or products would be helpful to you?

More details about the multi-year effort and potential outcomes can be found at the [Chesapeake Conservancy’s website](https://www.chesapeakeconservancy.org).