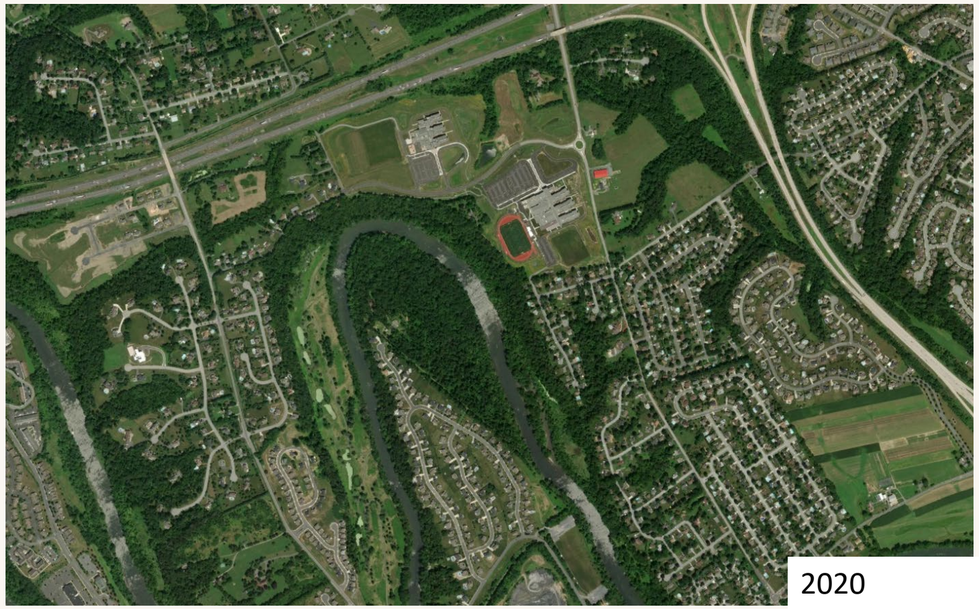
HIGH-RESOLUTION LAND COVER

LAND USE UPDATE for the

CHESAPEAKE BAY TMDL

KC Filippino, Senior Water Resources Planner
Hampton Roads Planning District Commission

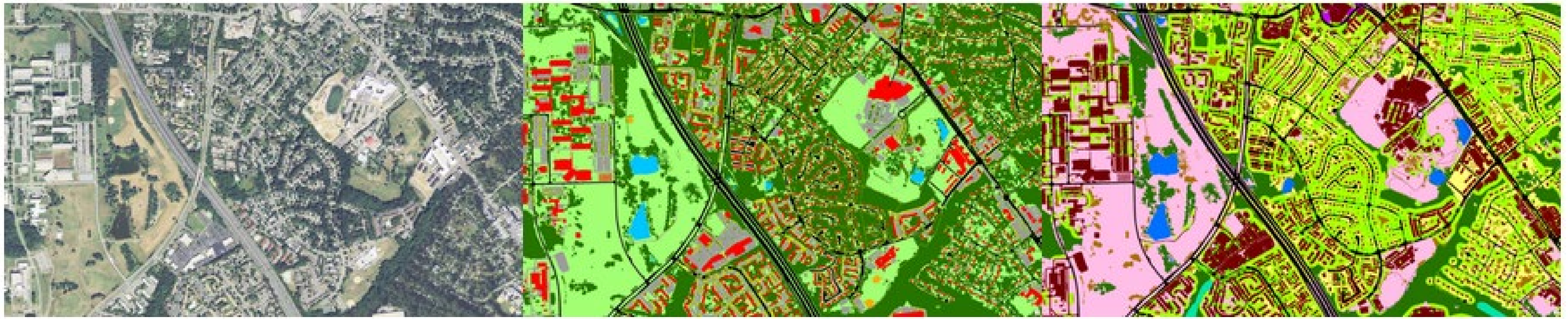


Images from P. Claggett Mgmt. Board meeting 2/11/21

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?



NAIP Imagery | 1m Land Cover | 1m Land Use

Adapted Ches Conservancy website

Adapted from R. Soobitsky webinar, 2021

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**

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

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

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

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

Adapted from P. Claggett Mgmt. Board meeting 2/11/21

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

Delineate stream channels and ditches

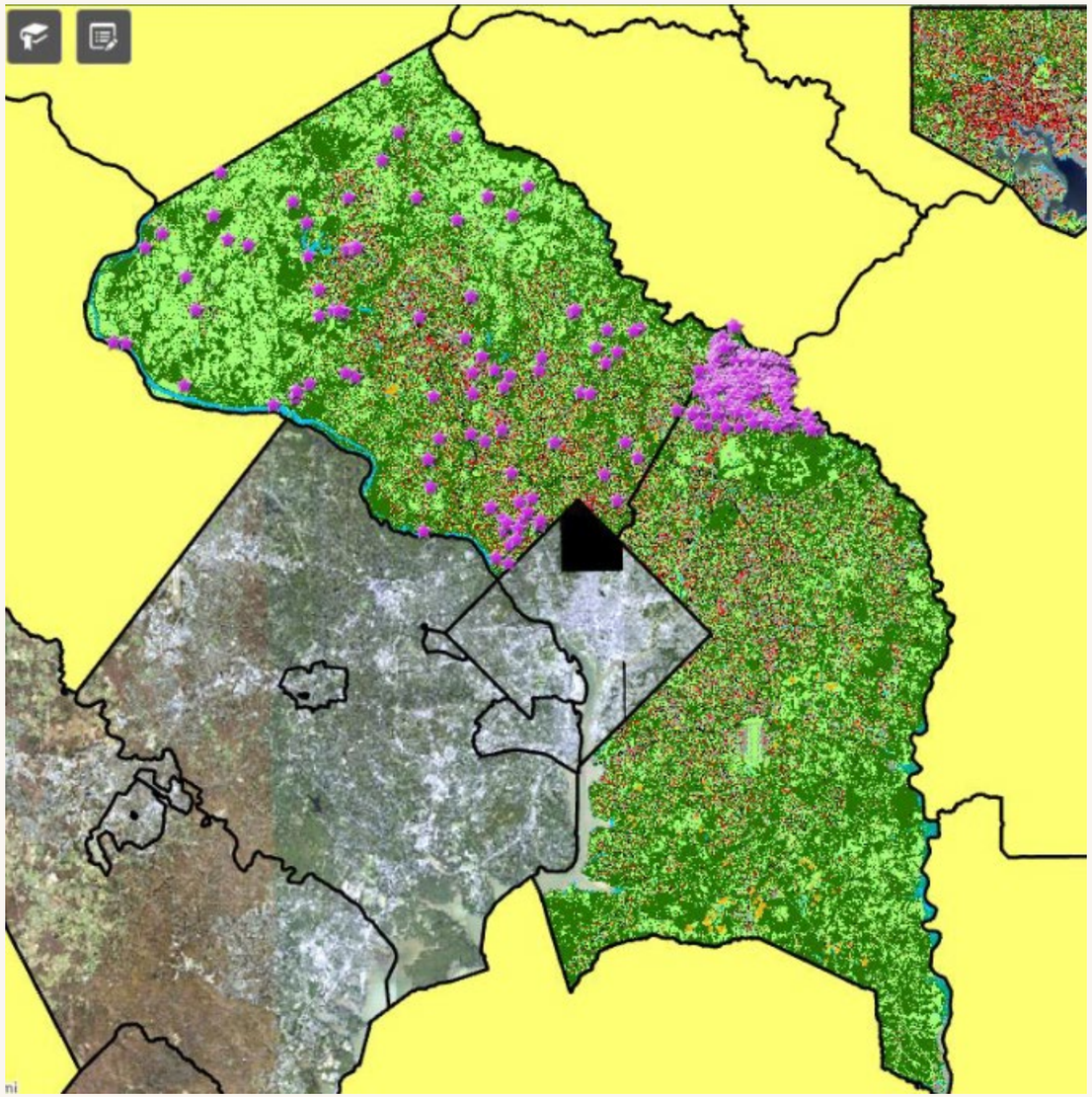
Map and track BMPs

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

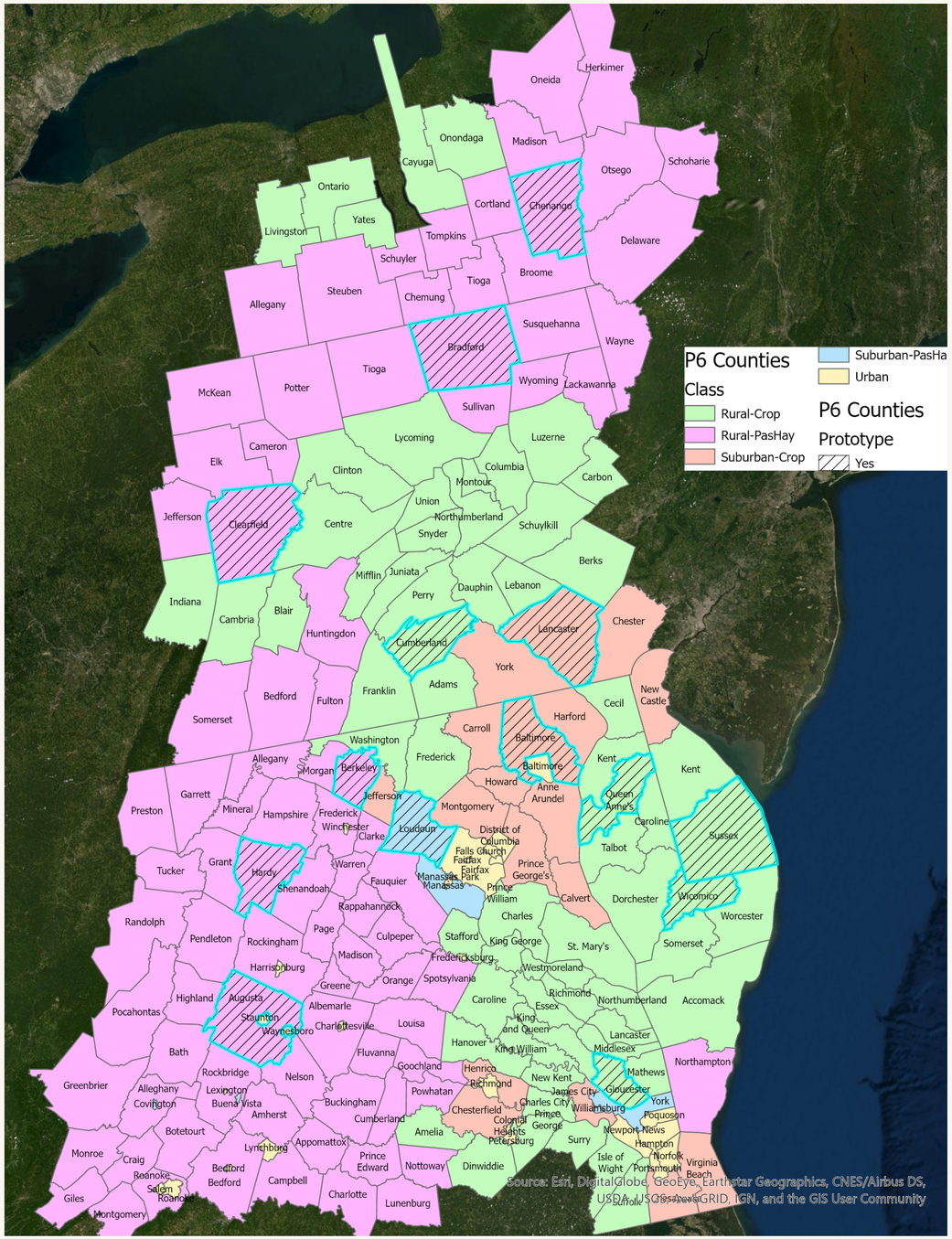
- Opportunity for detailed review of land cover data by all 206 localities in Bay watershed

- Consistent process across localities and jurisdictions

- Errors identified and corrected to inform land use

Land Use Development

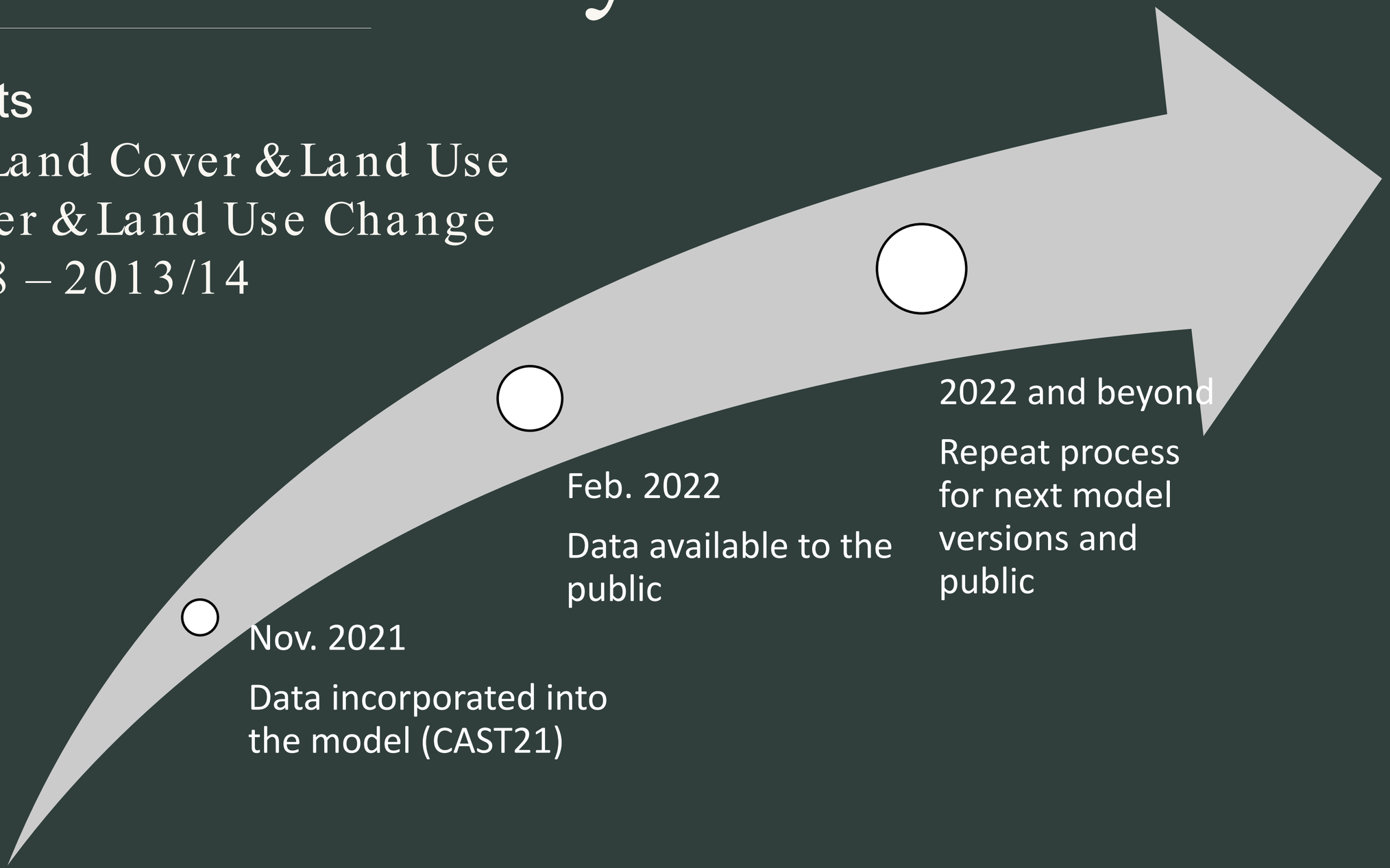
- Opportunity to vet land cover to land use
- 14 prototype counties chosen
- Represented a range of land use types to evaluate
- Automated for remaining Bay watershed localities



Data Availability Timeline

Data Products

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



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.