Setting the Phase III WIPs on 2025 Forecasted Conditions

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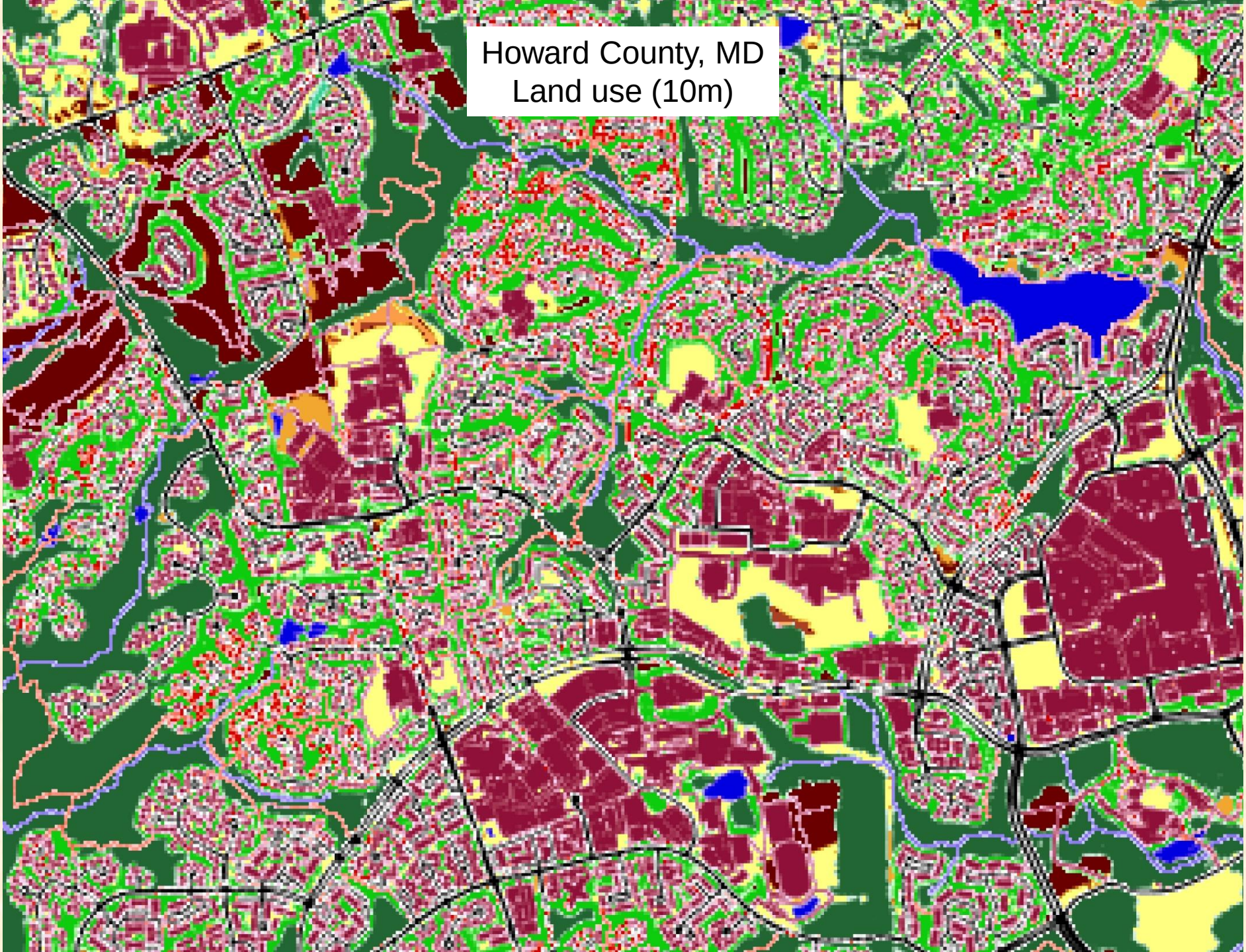
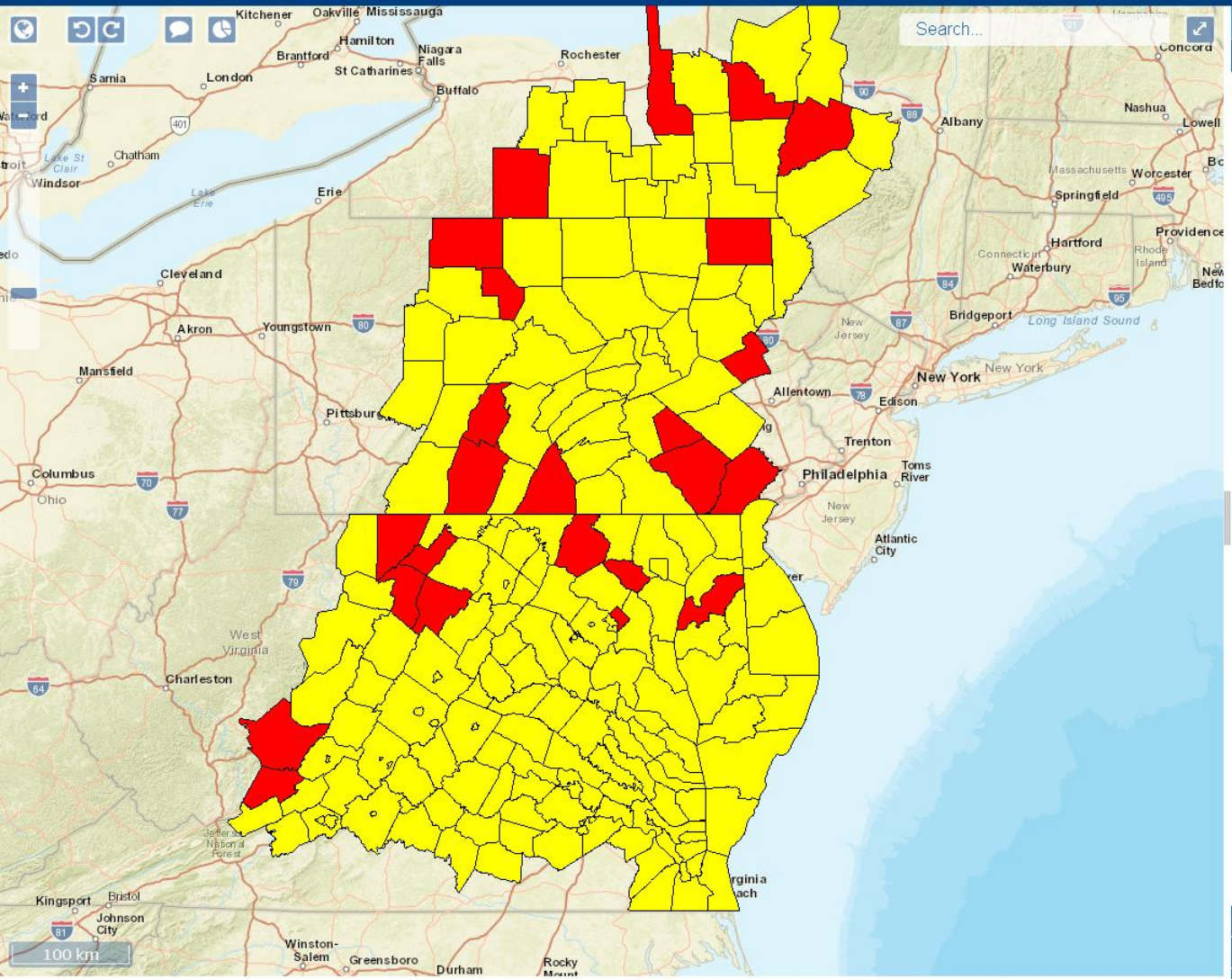
Water Quality Goal Implementation Team Meeting
October 24-25, 2016


Howard County, MD
Land use (10m)



Map Layers

Phase 6 Land Use Datasets

County Status — Completed | Pending | Not Started

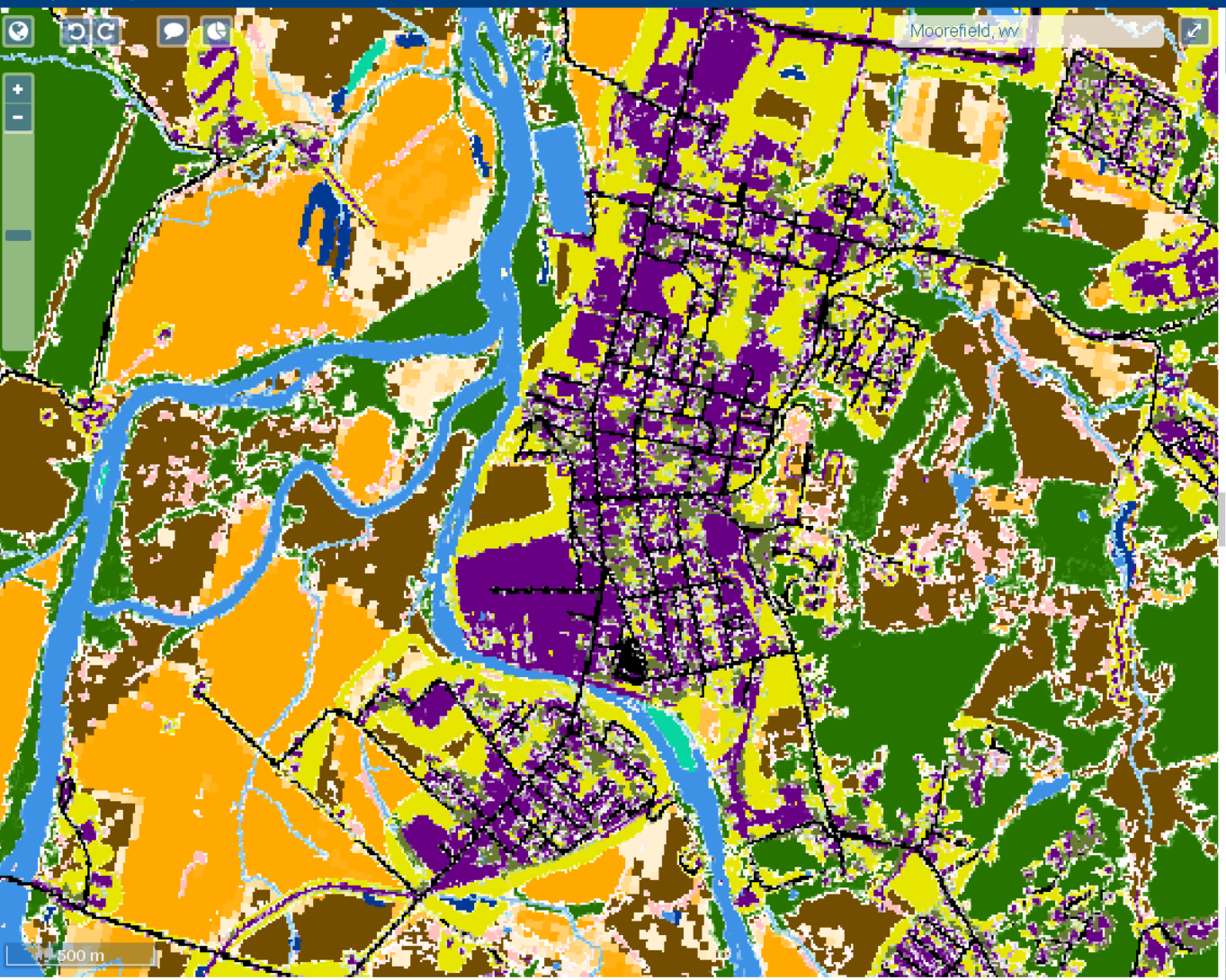
Click on the layer name to get information about the layer

Check All | UnCheck All

- Impervious Roads
- Impervious Non-Roads
- Tree Canopy Over Turf Grass
- Turf Grass
- Open Water
- Forest
- Tree Canopy Over Impervious
- Mixed Open
- Tidal Wetland
- Non-tidal Floodplain Wetland
- Non-tidal Other Wetland
- Cropland
- Pasture

Overlay Opacity: 100%

Overlays
Base Map
Data and Metadata Download
Submit Comments to USGS



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Chesapeake Bay Land Change Model History 2006 - 2016

2006 – 2010 (CBLCM v1):

- Customization, implementation, and loose coupling of the *SLEUTH* Urban Growth Model and spreadsheet variant of the New Jersey Growth Allocation Model (GAM).

2011 – 2014 (CBLCM v2):

- Continued use of GAM coupled with land cover transition statistics from the Chesapeake Bay Land Cover Data series (1984 – 2006; 1984 - 2011).
- Initial development and coding of a new stochastic simulation model to simulate residential and commercial land use (CBLCM v3).

2015 - 2016:

- Continued use of GAM coupled with land cover transition statistics from the Chesapeake Bay Land Cover Data series (1984 – 2011).
- Completion of the CBLCM v3.

2017 (CBLCM v3):

- Validation and simulation of land use change using the CBLCM v3, parameterized with local zoning and Phase 6 land use inputs.

Chesapeake Bay Land Change Model v3
Peer Review

June 2016:

- Manuscript submitted to USEPA, USGS and “Computers, Environment, and Urban Systems” for peer review.

Current Status (10-24-16):

- One USGS scientist review (complete)
- One unofficial review from STAC scientist Dave Newburn (complete)
- Three USEPA scientist reviews (complete)
- Two journal-appointed blind reviews (ongoing)

County Data Inputs for CBLCM v3
Trend Scenario

Population and Employment Projections (State and Regional Planning Agencies)

Land Use/ Land Cover (annual,1984 – 2013)

P6 Land Use Dataset (~2013)

Roads, major and minor (2013 NAVTEQ)

Housing, multi-scale (1990, 2000, and 2010)

Employment

- Census Block (annual, 2003 – 2013)
- County (1980, 1990, 2000, 2010)

Public and Protected Lands (PAD-US)

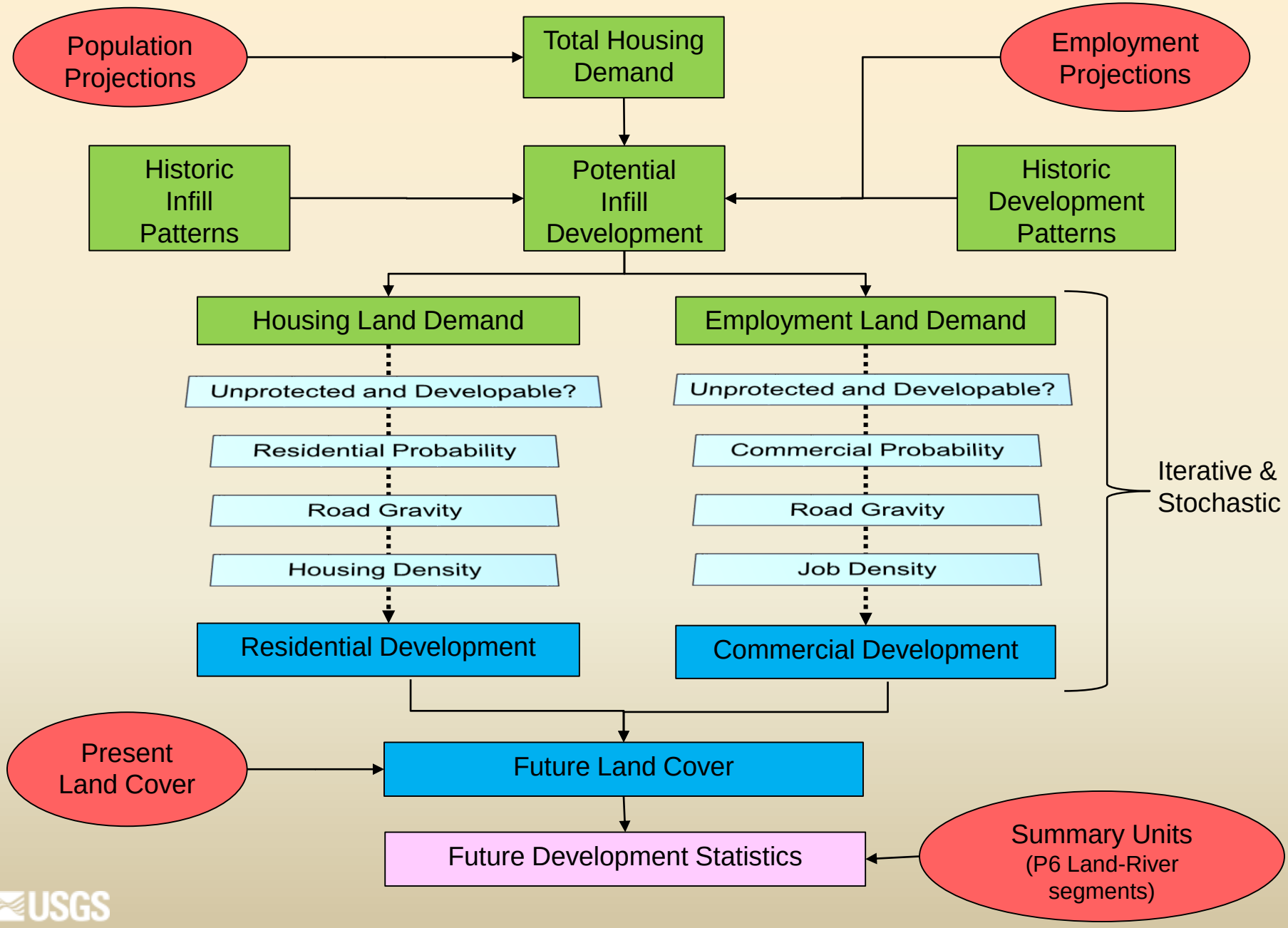
Sewer Service Areas

Slope (National Elevation Dataset)

Zoning (where available and provided to CBP)

Infill Rate (2000 - 2010)

Chesapeake Bay Land Change Model v3

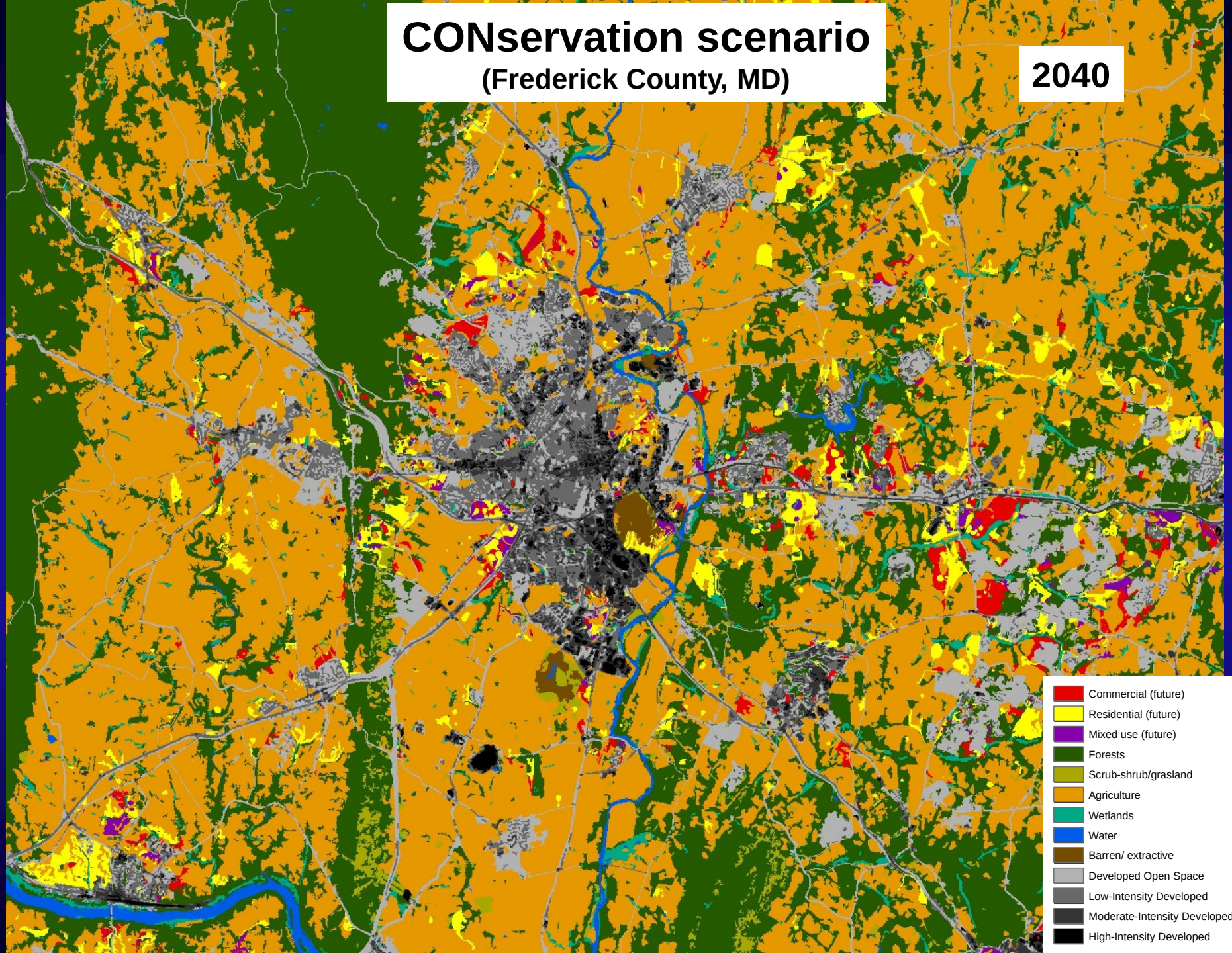


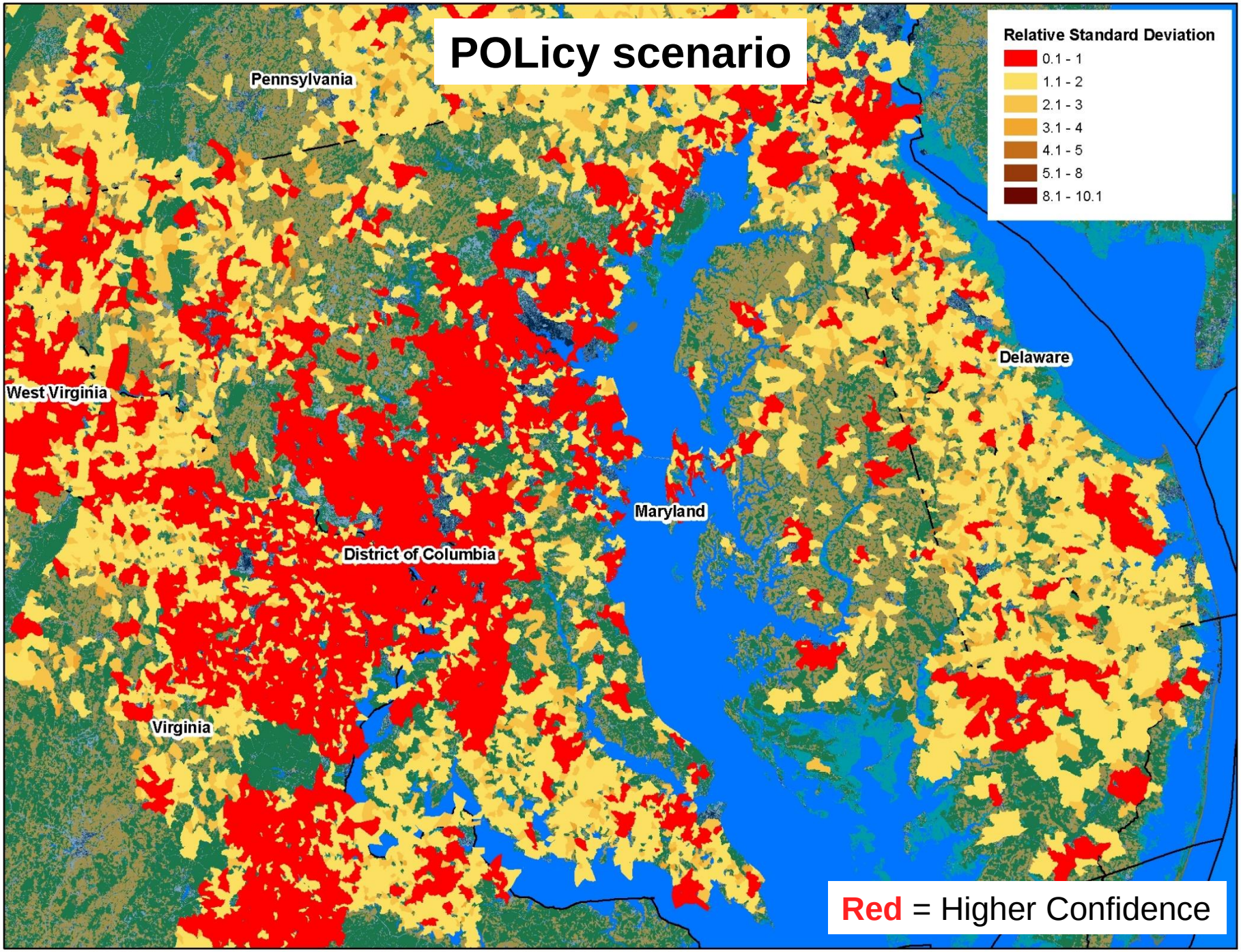
USGS

CONservation scenario

(Frederick County, MD)

2040




POLicy scenario
Relative Standard Deviation
0.1 - 1
1.1 - 2
2.1 - 3
3.1 - 4
4.1 - 5
5.1 - 8
8.1 - 10.1
Pennsylvania
West Virginia
Delaware
Maryland
District of Columbia
Virginia
Red = Higher Confidence

2025 Land Use Production Schedule

Current Status:

- Full-state CBLCM Scenario forecasts (Maryland only)

January – February 2017:

- Incorporation of Phase 6 Land Use in the CBLCM
- Simulation of CBLCM “trend” scenario forecast (all Bay jurisdictions)
- Comparison of CBLCM with state and local area forecasts
- Comparison of CBLCM and SLEUTH models in the Delaware River Watershed
- Comparison of simulated 2010 conditions with actual 2010 conditions

March 2017:

- LUWG review of model comparisons, validation and trend scenario
- LUWG decision on alternative future scenarios (to be simulated Summer 2017)

April 2017:

- LUWG recommendations to WQGIT

May 2017:

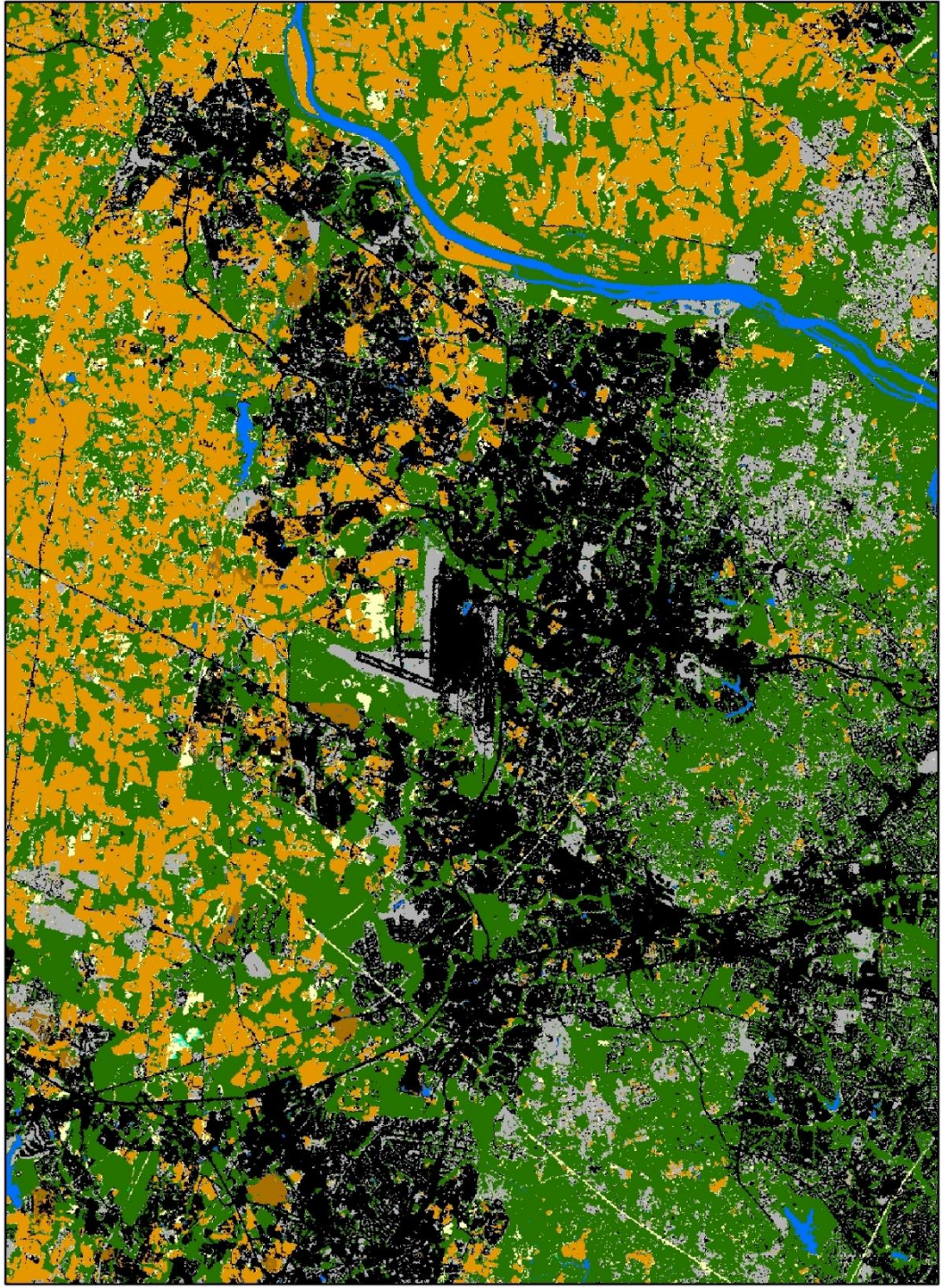
- WQGIT decision on 2025 land use

LUWG Role in 2025 Land Use

Technical Lead:

- Evaluate input data, model assumptions, and validation for all models used for forecasting future land use conditions.
- Develop alternative future scenarios.
  - How many?
  - For what purposes (e.g., WIP planning, land conservation)?
- Recommend modeling approaches and final scenarios for use by CBP Partners to WQGIT.

1984



2011

Setting the Phase III WIPs on 2025 Forecasted Conditions

- Pros:
  - Accounts for growth (and decreases/declines) explicitly in the partnership's WIPs*
  - Enables reductions in offsets through land conservation
  - Similar to the method we've agreed to use for 2-year Milestones
  - Builds consistency between offset strategies and WIPs
  - Forecasts will be updated every two years with best available data and science
- Cons:
  - Phase III WIPs on 2025 background conditions is different than what's being proposed for developing Phase III Planning Targets (current background conditions) $\Rightarrow$ confusion
  - 2025 conditions are based on a forecast

* WIPs are developed by and belong to the jurisdictions. EPA can set expectations and take necessary actions if these expectations are not met, but it cannot require Phase III WIPs to be developed on 2025 forecasted conditions.