Establishing Phase III WIPs on 2025 Conditions

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Rationale for basing the Phase III WIPs on future 2025 conditions

1. Implementation of actions to restore the Bay are planned to take 10 years (2015 – 2025).

2. Population of the watershed will increase by ~ 1 million persons by 2025.

3. Bay TMDL requires that all increases in loads of nutrients and sediments are offset.

4. Offsets are based on differences in loads between:
   - 2025 BMPs on a 2015 land use and climate, vs.
   - 2025 BMPs on a 2025 land use and climate.

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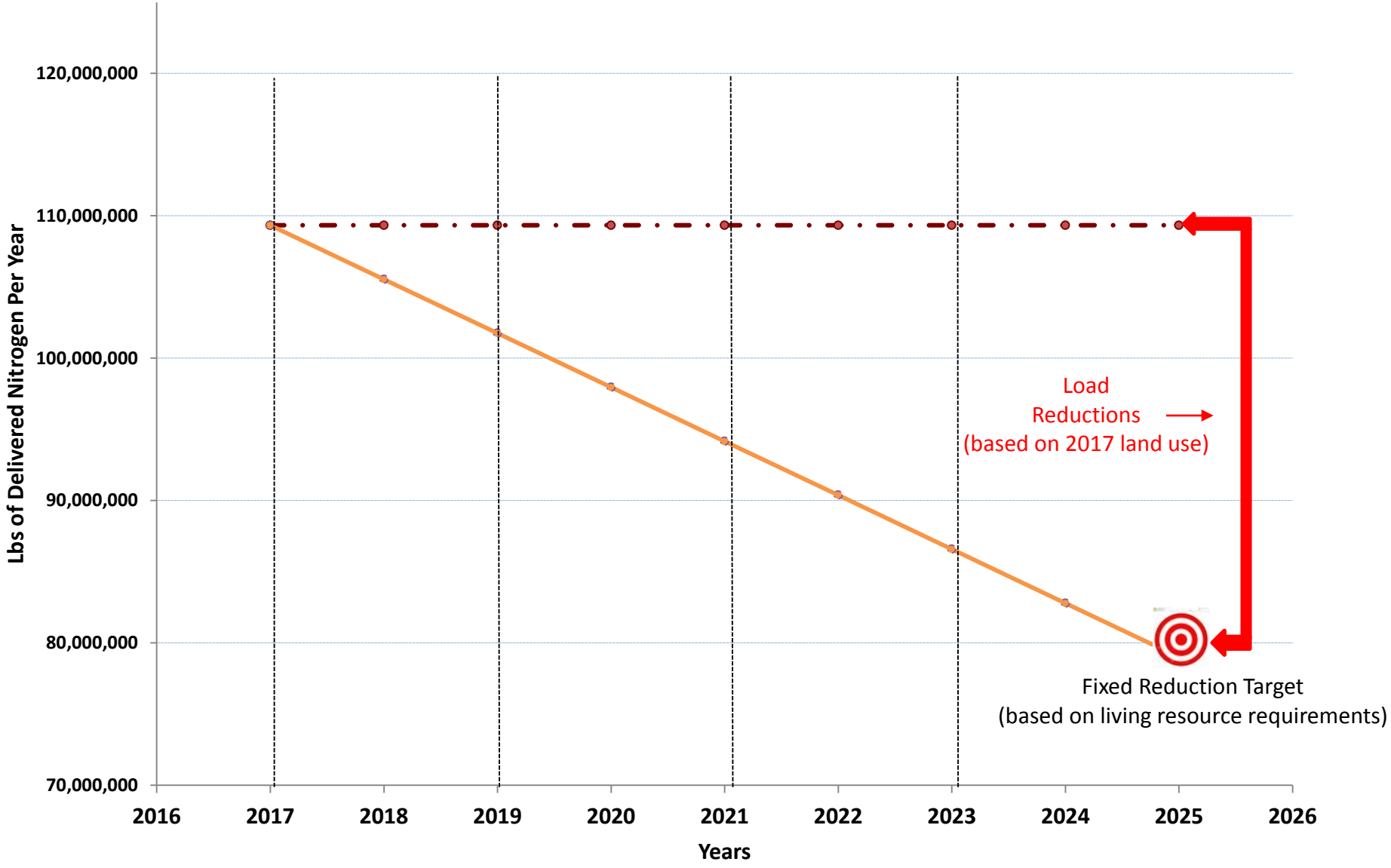
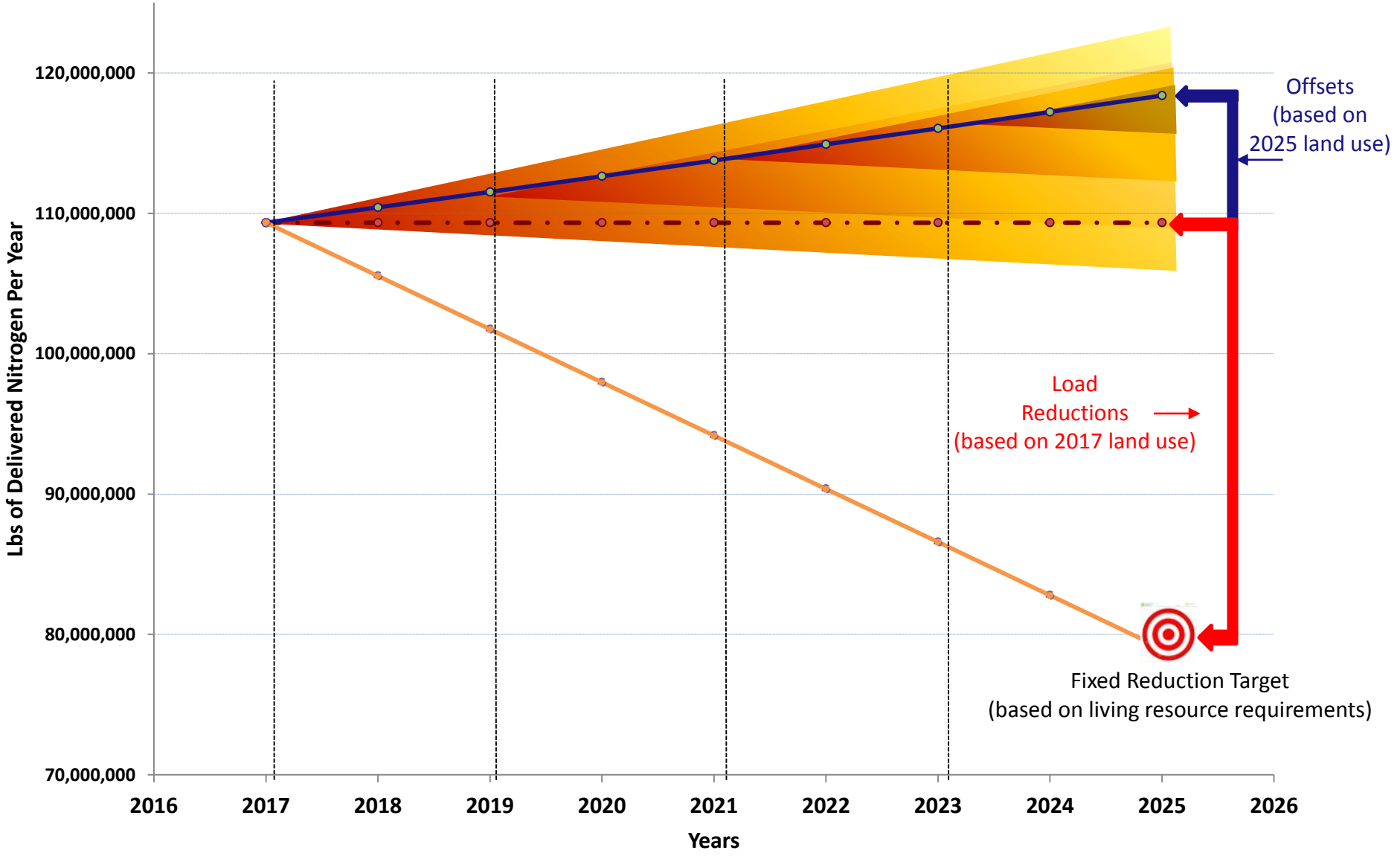
Offsets Required for Growth in Nutrient/sediment Loads



Offsets Required for Growth in Nutrient/sediment Loads



Crediting Conservation in the TMDL?

Answer: Conservation avoids potential increases in loads due to the conversion of forests and farms.

Interest from:

- US Environmental Protection Agency
- Chesapeake Bay Commission
- American Farmland Trust
- The Nature Conservancy
- Chesapeake Conservancy
- Virginia Department of Forestry
- Maryland Partners for Open Space

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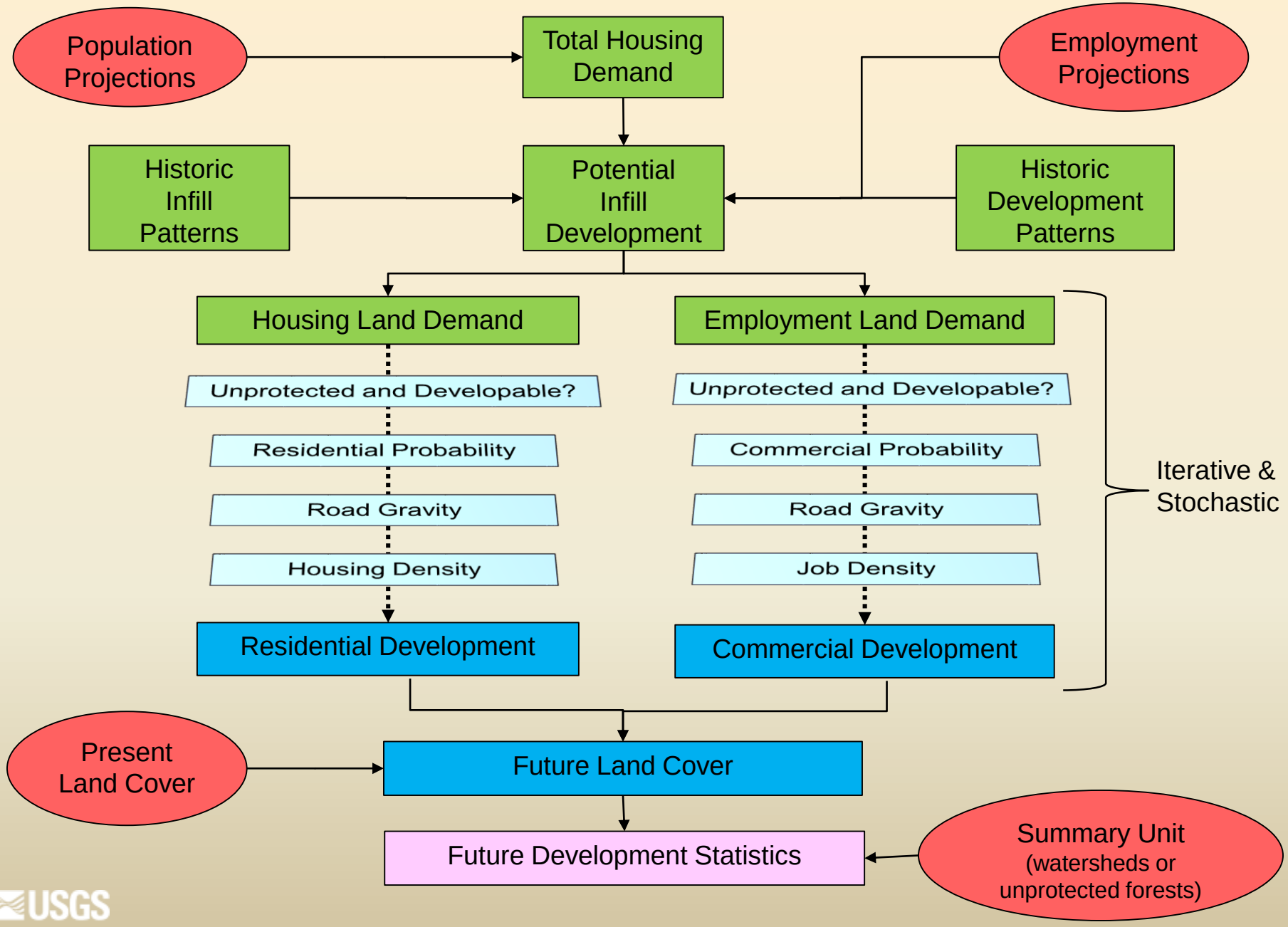
Chesapeake Bay Land Change Model v3a



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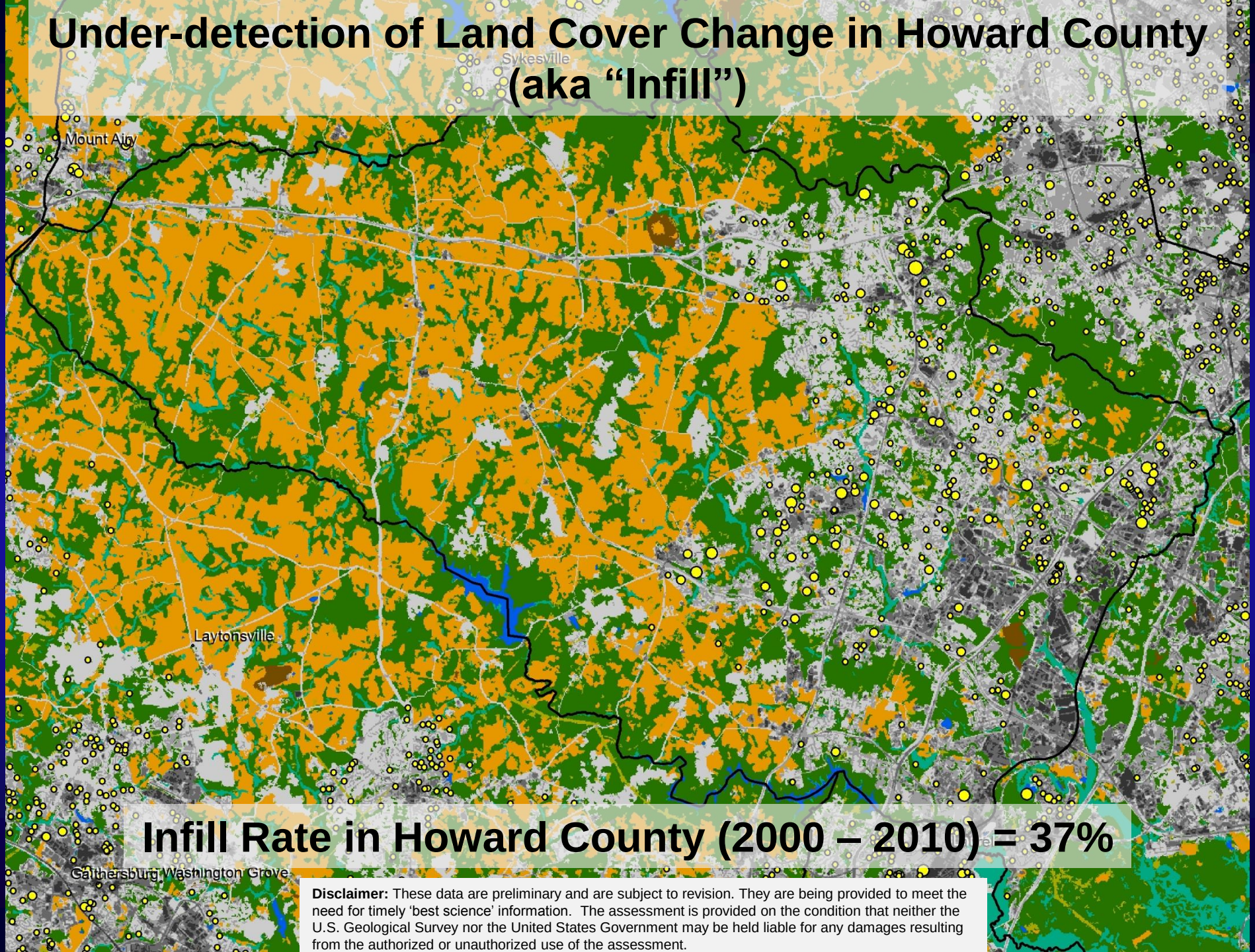
Under-detection of Land Cover Change in Howard County (aka “Infill”)



Infill Rate in Howard County (2000 – 2010) = 37%

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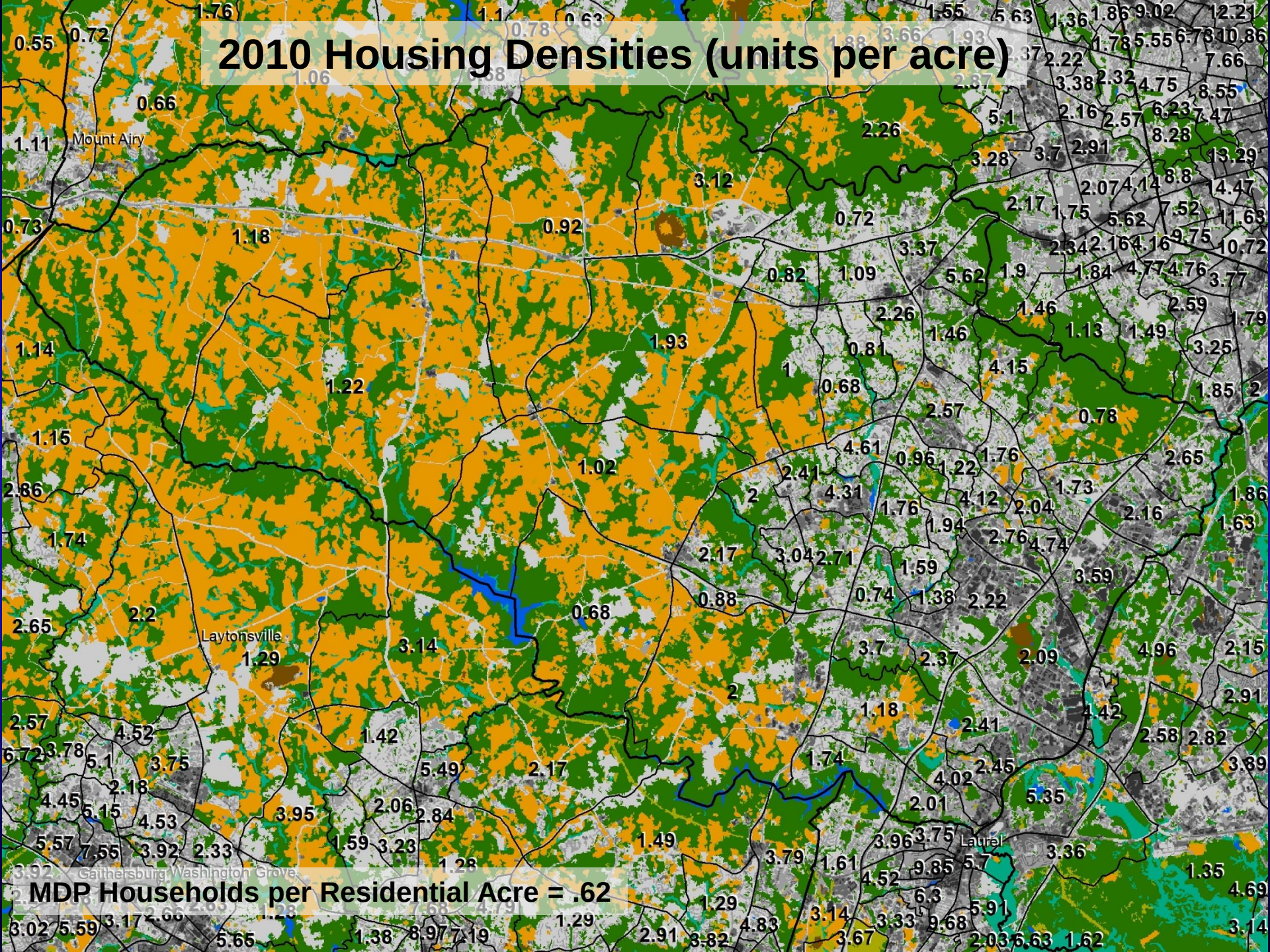
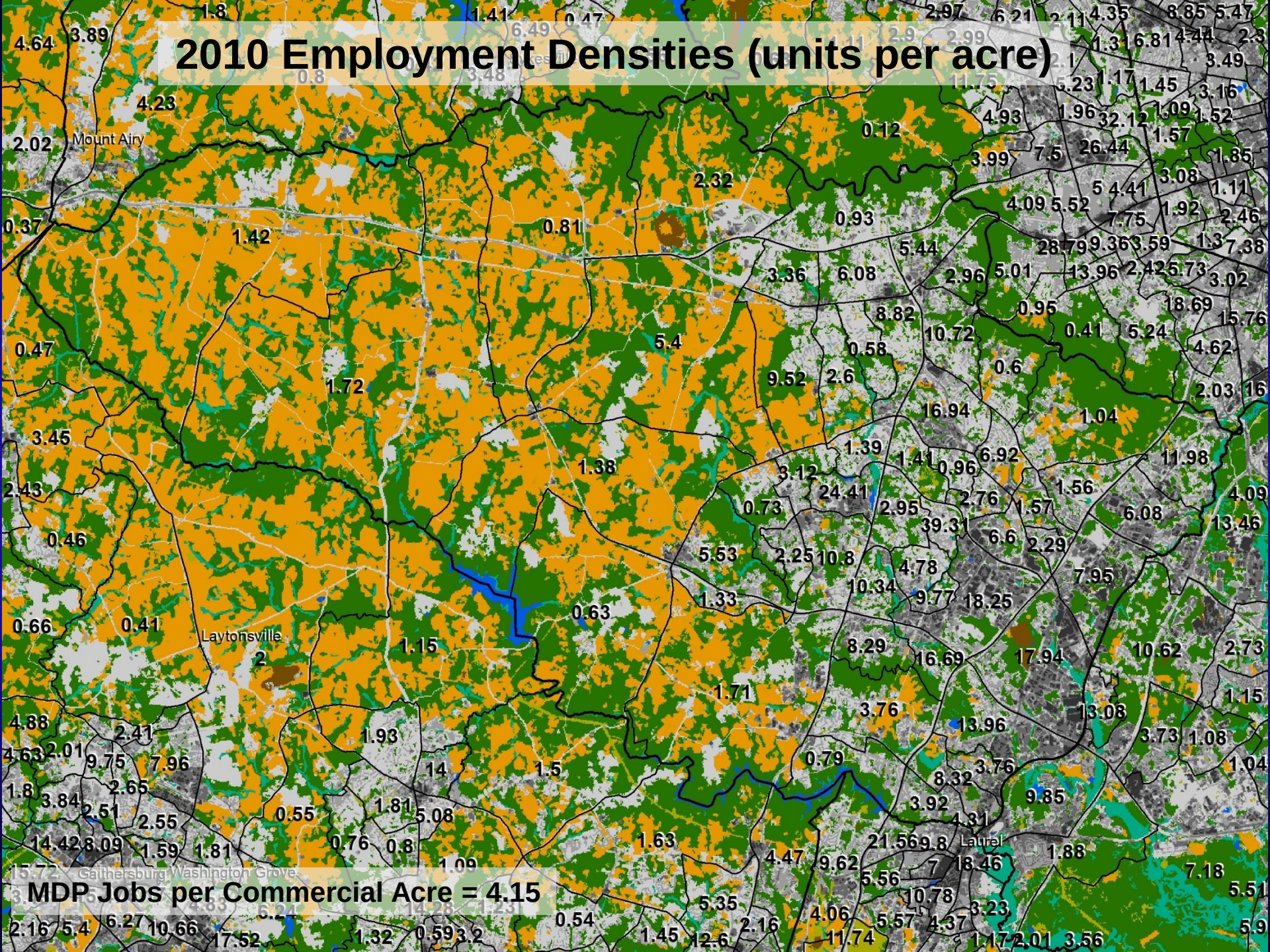
2010 Housing Densities (units per acre)

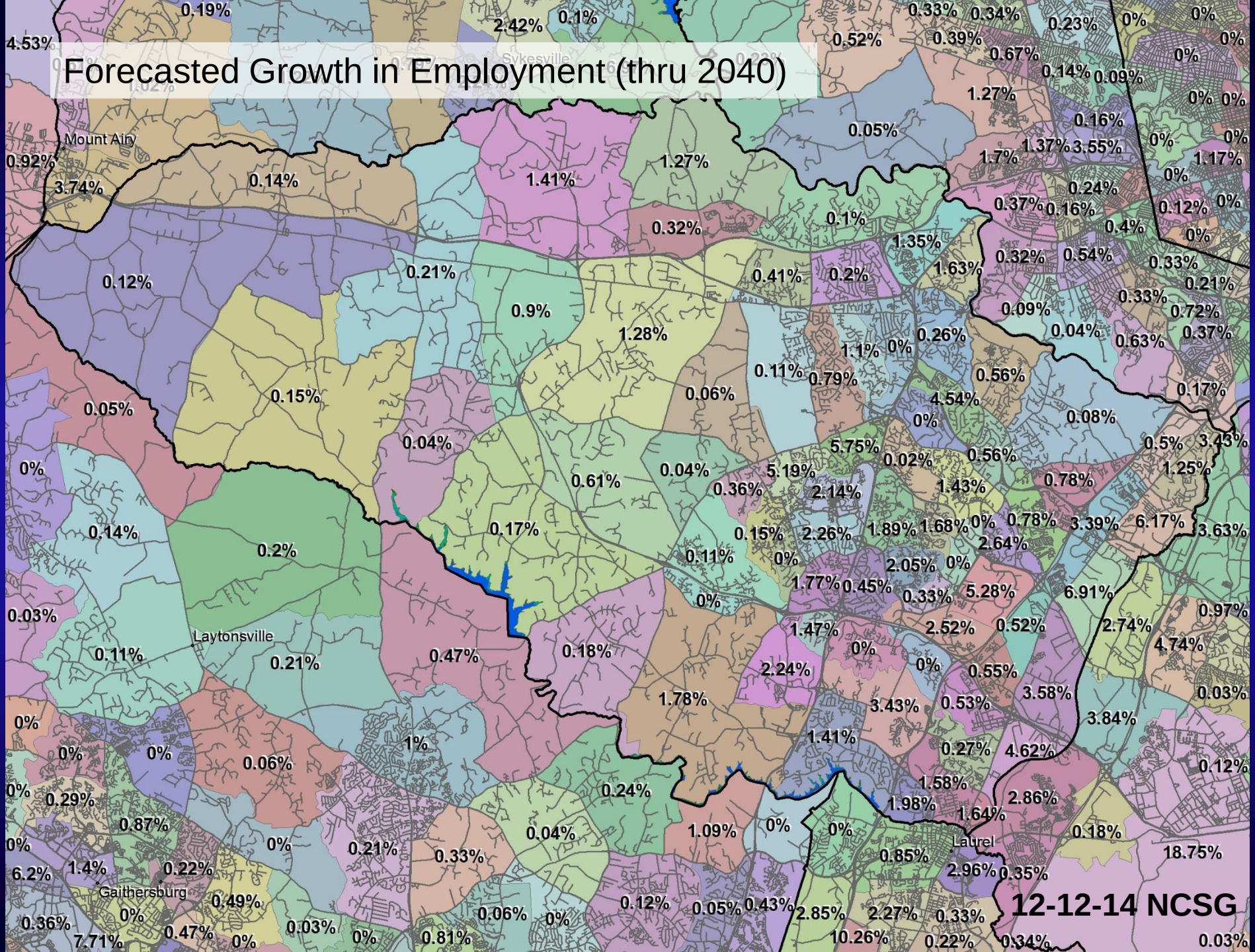


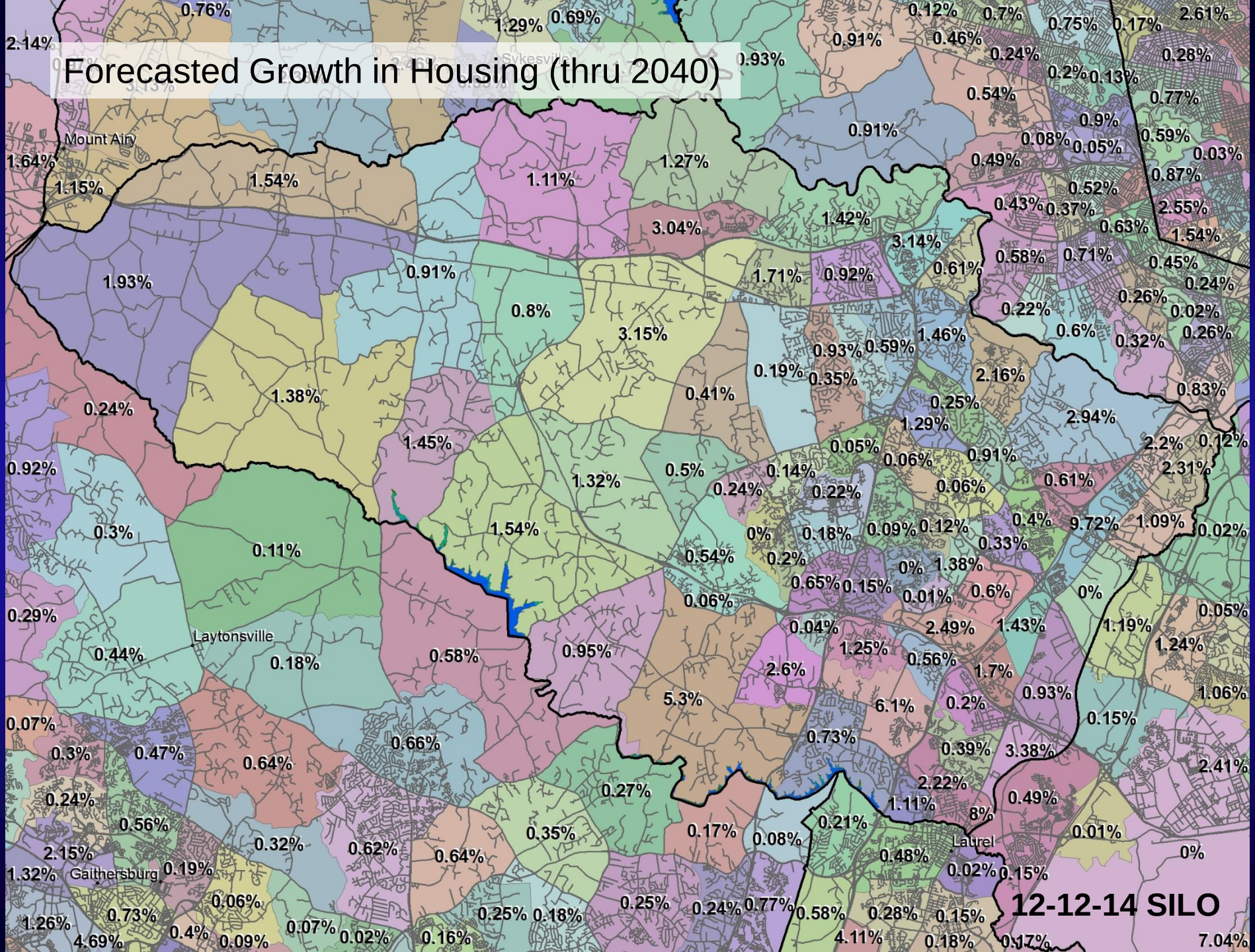
MDP Households per Residential Acre = .62

2010 Employment Densities (units per acre)



MDP Jobs per Commercial Acre = 4.15


Forecasted Growth in Employment (thru 2040)
Mount Airy
Sykesville
Laytonsville
Gaithersburg
Laurel
12-12-14 NCSG


Forecasted Growth in Housing (thru 2040)
Mount Airy
Laytonsville
Gaithersburg
Laurel
12-12-14 SILO

Future Scenarios

1. Continuation of current policies (POL)
2. Accelerated urbanization (URB)
3. Decelerated urbanization (LAX)
4. Focused land conservation (CON)

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Future Scenarios: POLicy

- Exclude all developed land uses, emergent wetlands, open water
- Exclude steep slopes (> 21%)
- Base proportions of future development in urban and rural areas on metropolitan travel demand forecasts
- Outside metro areas, use historic proportions of 70% urban, 30% rural.
- Include rural parcels along sewer extensions in urban zone.

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Future Scenarios: URBanization

- Increase infill/redevelopment rate by 15%
- Increase residential and commercial densities by 15% each decade.
- Increase proportion of growth in urban areas by 15%, decrease proportion in rural areas by 15%.

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Future Scenarios: Laissez-faire (LAX)

- Decrease infill/redevelopment rate by 15%
- Decrease residential and commercial densities by15% each decade.
- Decrease proportion of growth in urban areas by 15%, increase proportion in rural areas by 15%.

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Future Scenarios: CONservation

- Protect all wetlands (National Wetlands Inventory)
- Protect all forested/scrub habitat with >= 250acres interior
- Protect all prime soils (SSURGO database)

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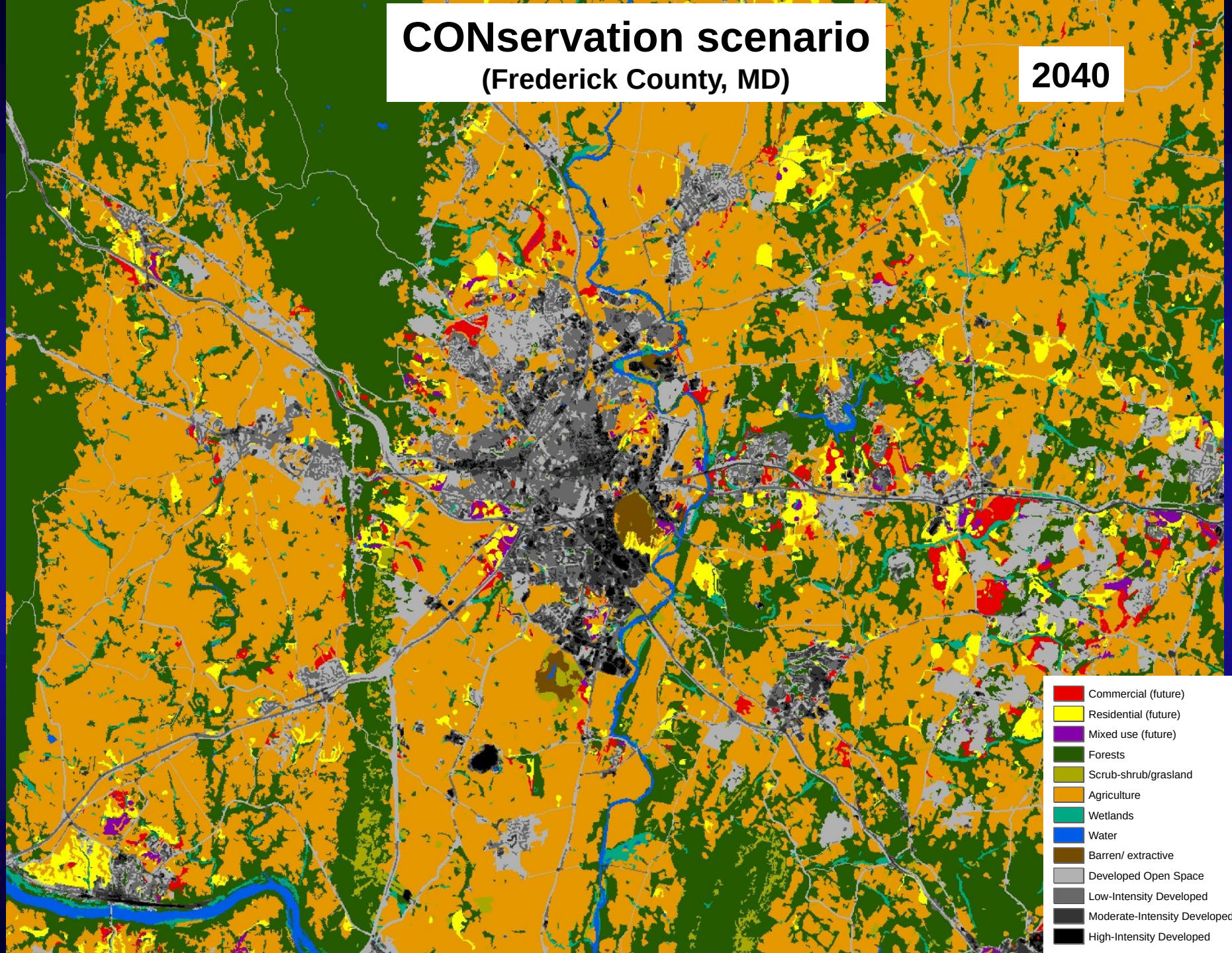
CONservation scenario

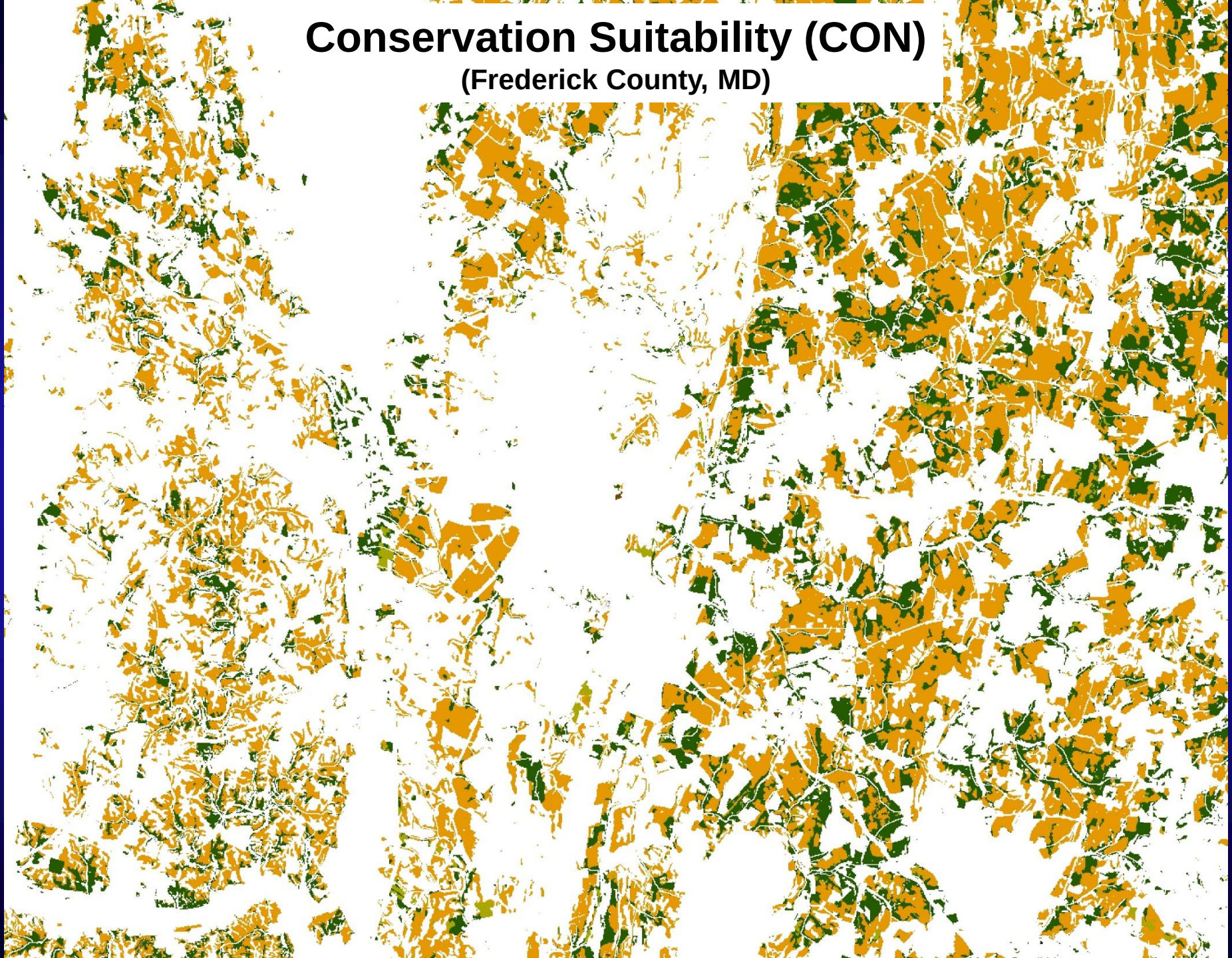
(Frederick County, MD)

2040

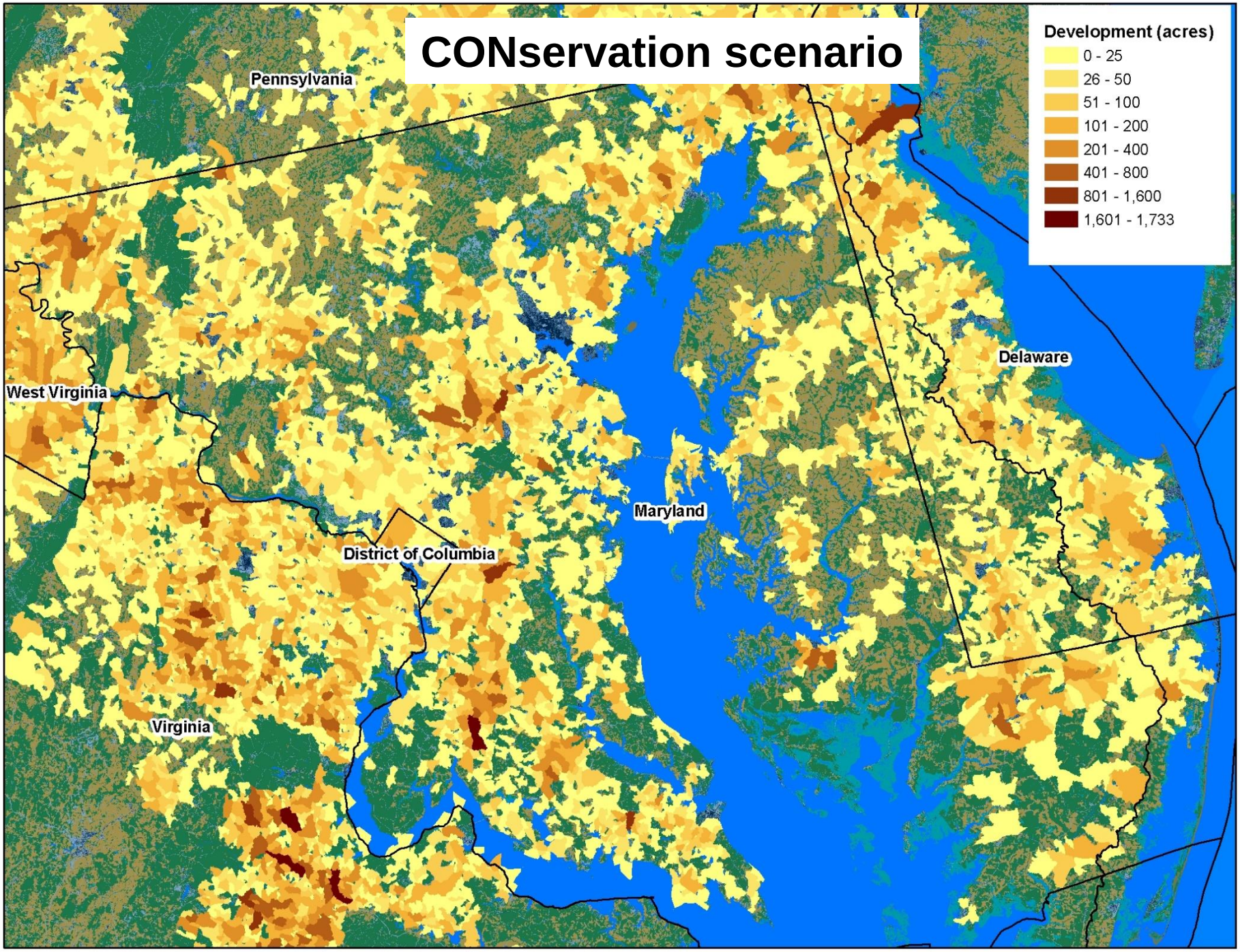


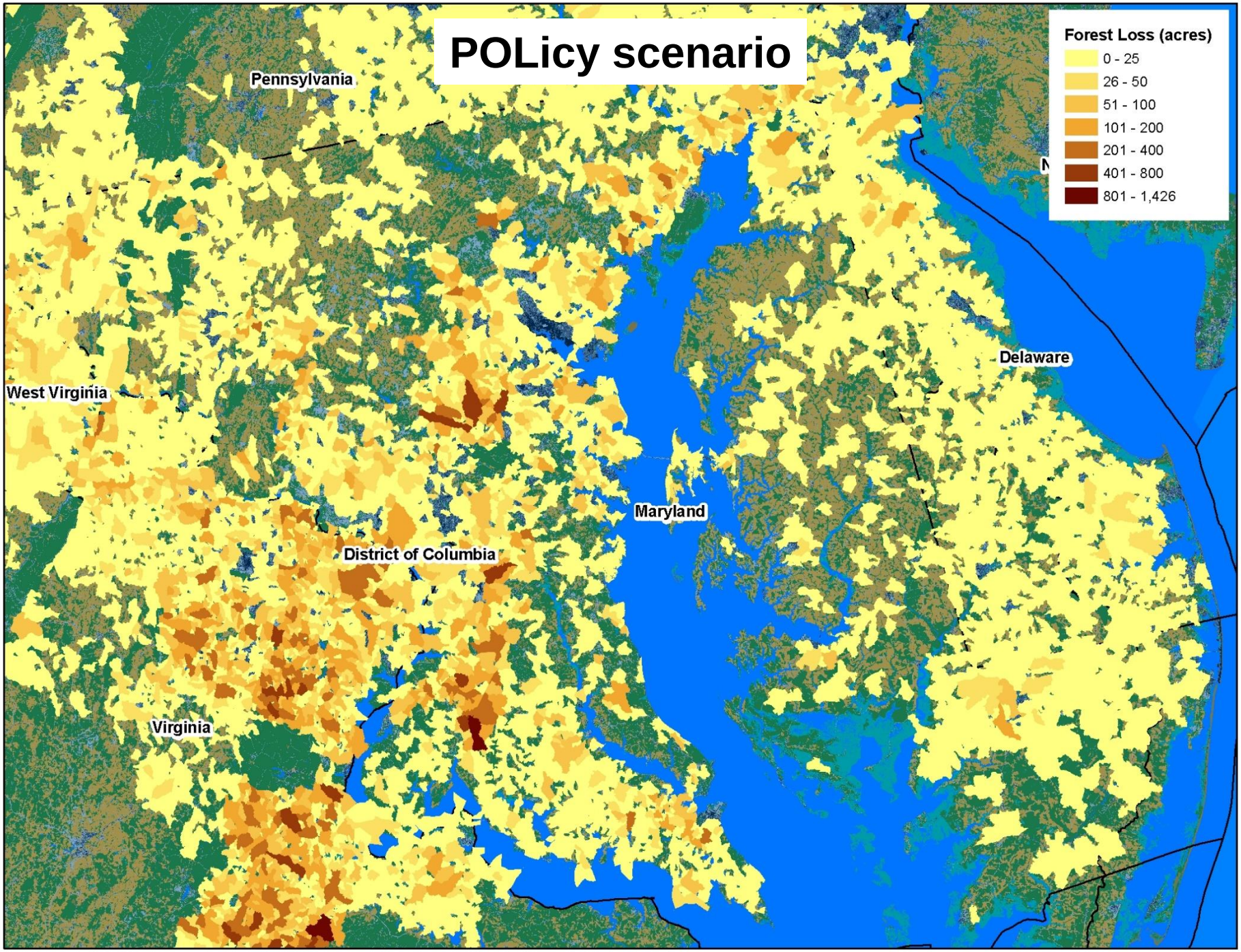
Conservation Suitability (CON)

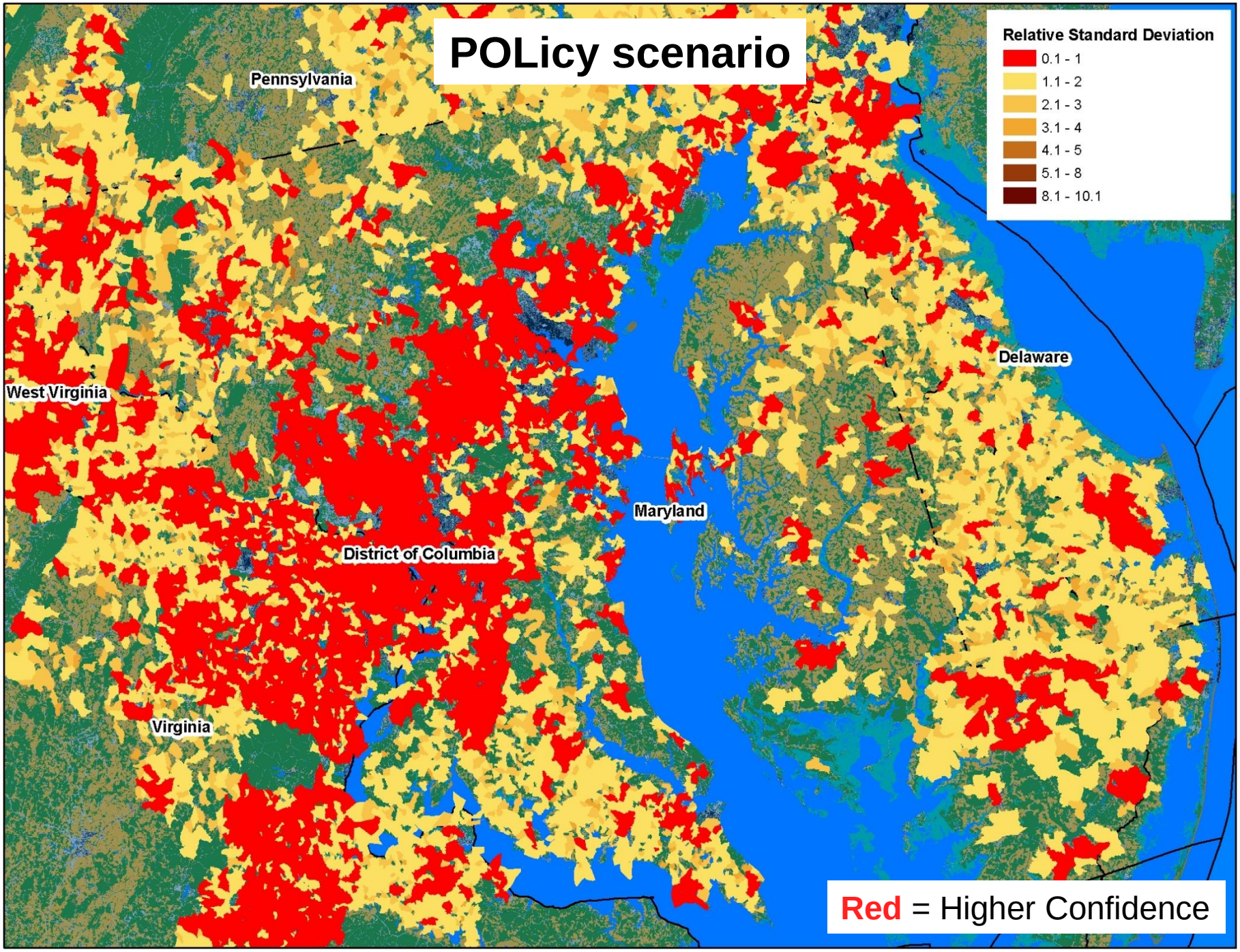
(Frederick County, MD)

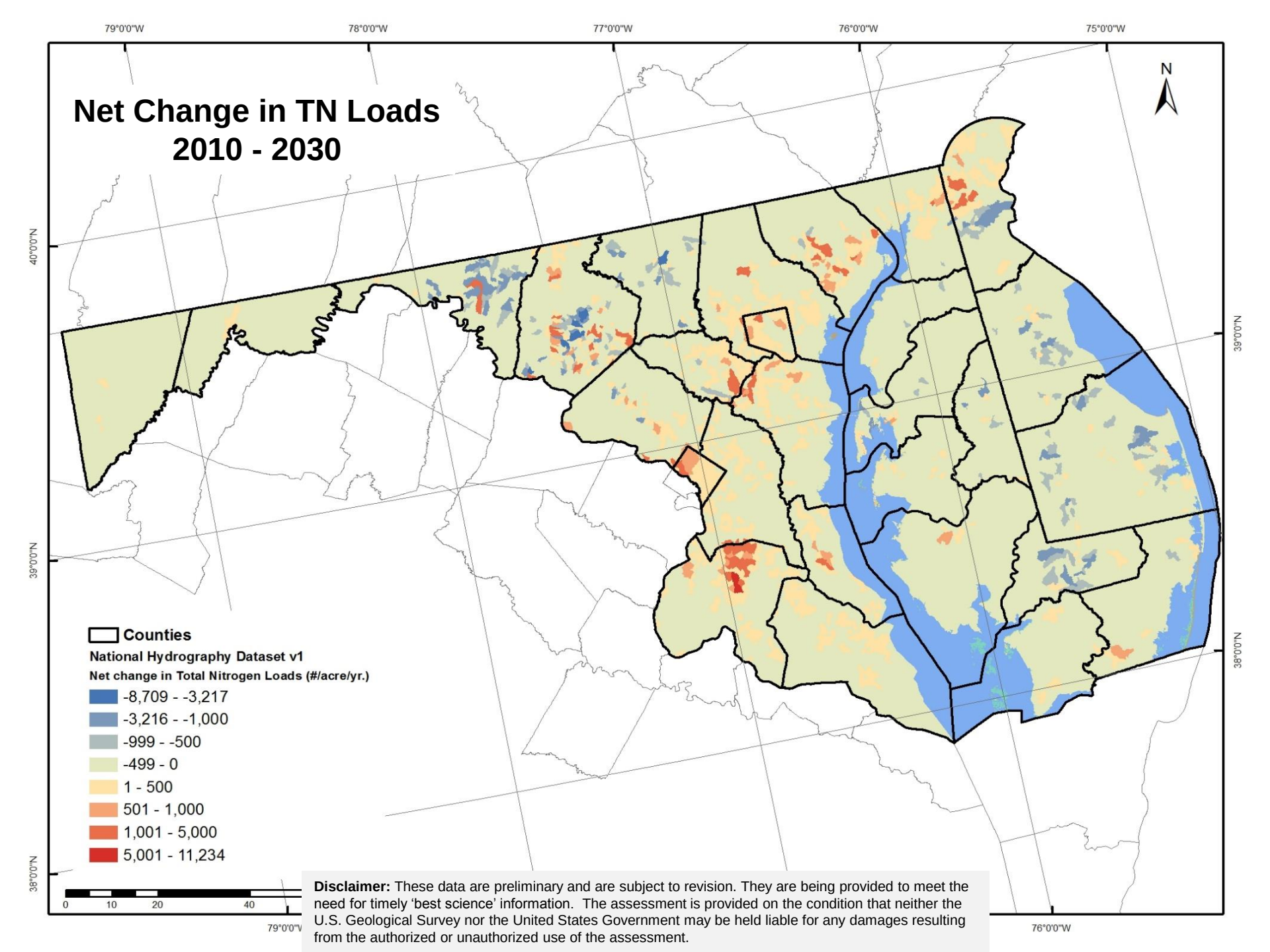


CONservation scenario




POLicy scenario
Forest Loss (acres)
0 - 25
26 - 50
51 - 100
101 - 200
201 - 400
401 - 800
801 - 1,426
Pennsylvania
West Virginia
Maryland
Delaware
District of Columbia
Virginia


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



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Next Steps

- Publish new model version (two previous versions have been reviewed by STAC)
- Simulate scenarios for full mid-Atlantic states
- LUWG approval of methodology
- WQGIT approval of using 2025 conditions for Phase III WIPs
- Management Board approval
- Principal's Staff Committee approval
- Finalize trend scenario and simulate alternative future scenarios for use in Phase 6 Watershed model

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