Chesapeake Bay Program
A Watershed Partnership

CBP Land Policy BMPs

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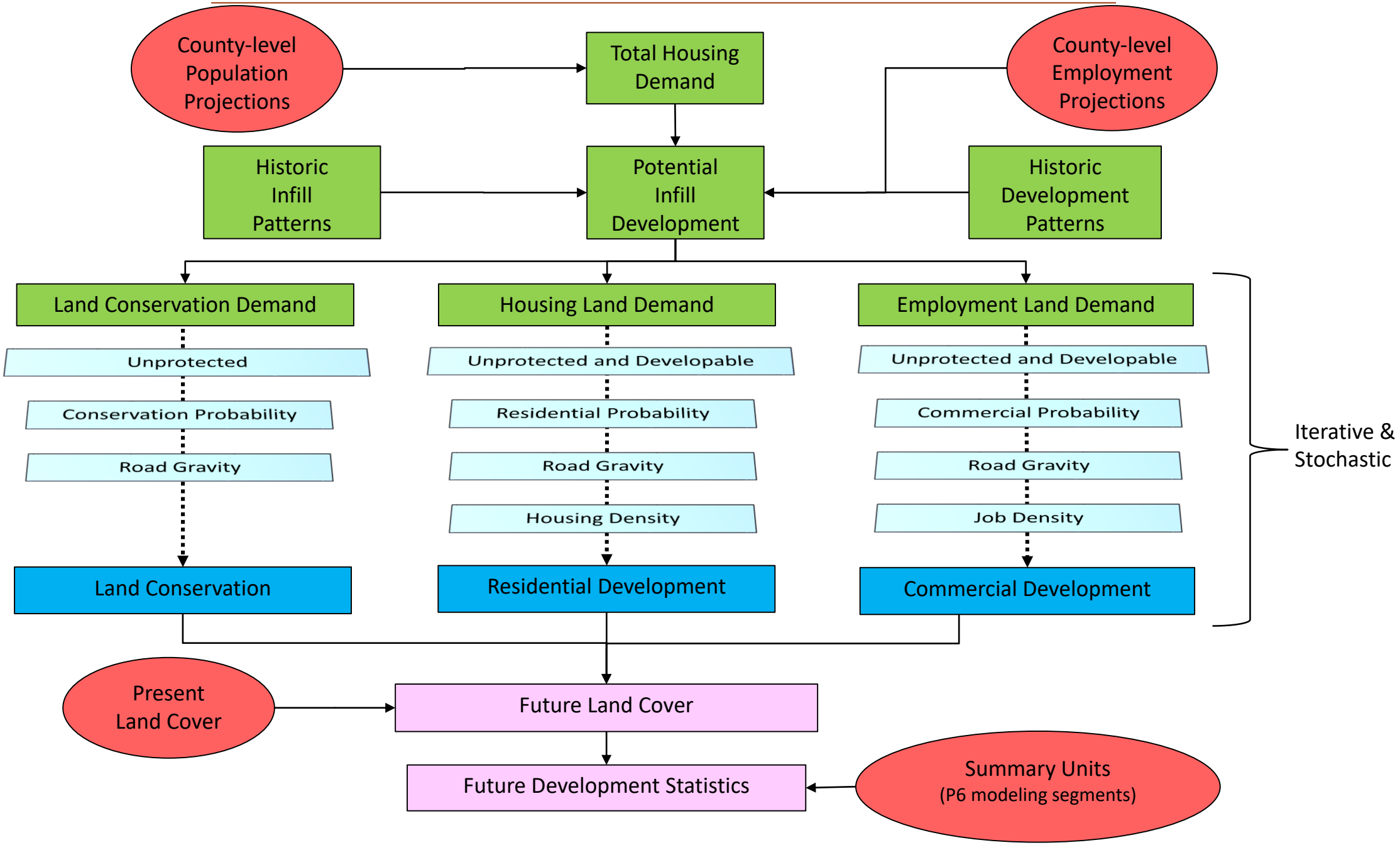
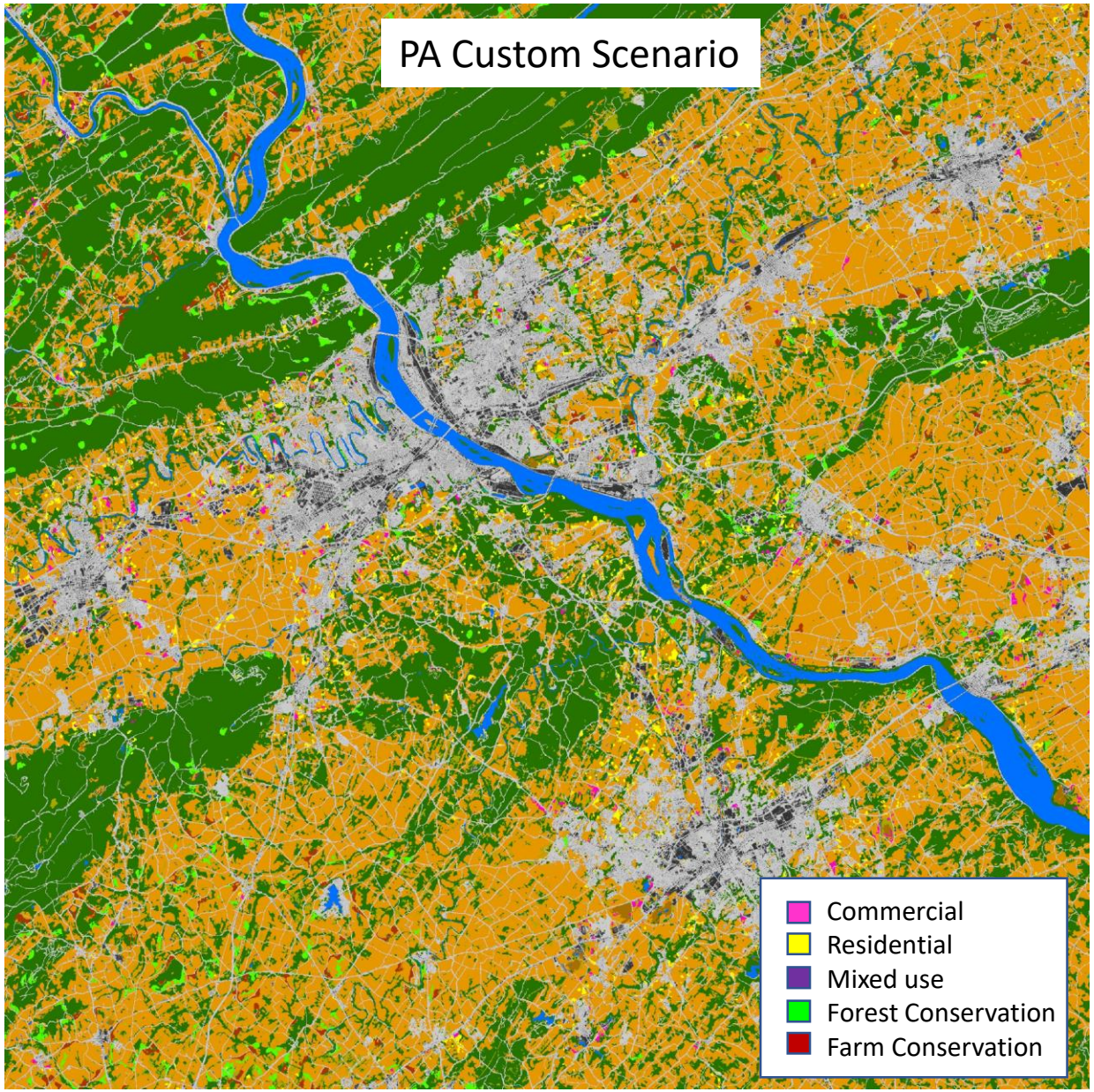
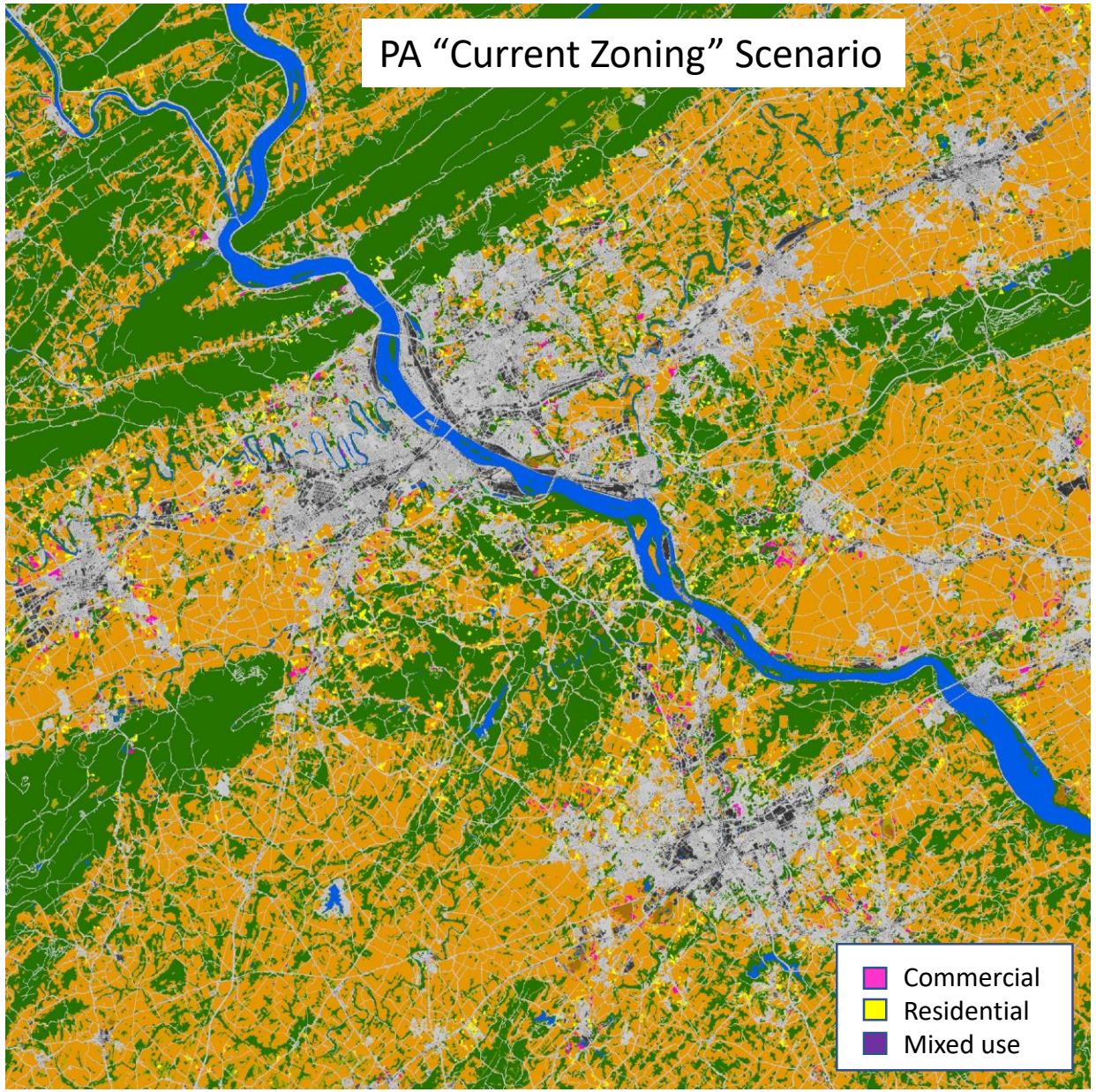
Wastewater Workgroup

Chesapeake Bay Land Change Model v4



Assessing Uncertainty at Local Scales





Chesapeake Bay Future Baseline Conditions

Historic Trends:

Continuation of historic development patterns and constraints as existed over the 2000's. Includes the best available regional and local data representing current conditions.

Current Zoning (official baseline):

Same as Historic Trends with the addition of local zoning, increased infill rates (MD counties), and expanded sewer service areas (Jefferson and Berkeley Counties, WV) to reflect current constraints on new development and reported rates of growth on septic. The Chesapeake Bay Program Partners adopted this scenario as the representing the most probable conditions in 2025 and therefore serves as a baseline for evaluating the effects of land use planning and land conservation BMPs.

“Conservation Plus” Family of Land Policy BMPs

Forest Conservation (with or without zoning):
Organizations and governments proactively pursuing a variety of actions to conserve forests and wetlands which provide the greatest benefits to wildlife, human safety, and water quality. Example priority areas include riparian zones, shorelines, large contiguous forest tracts, and other high-priority forest conservation areas.

Growth Management (with or without zoning):
Organizations and governments proactively pursuing a variety of actions to encourage growth in areas with supporting infrastructure. Example priority areas include undeveloped or under-developed areas with adequate existing roads, wastewater, and water supply infrastructure.

Agriculture and Soil Conservation (with or without zoning):
Organizations and governments proactively pursuing a variety of actions to conserve farmland and productive soils. Example priority areas include agricultural districts, prime farmland, farmland of state importance, floodplains, and other high-priority farmland conservation areas.

“Conservation Plus” BMP Elements

- Conserve riparian zones (default width = 30m)
- Conserve wetlands (NWI, State Designated Wetlands, and Potential Conservable Wetlands (PA only))
- Conserve all lands subject to inundation due to sea level rise (default = 1m rise by the year 2100)
- Conserve all lands surrounding National Wildlife Refuges (default = 1 mile buffer)
- Conserve all large forest tracts (default >= 250 acres)
- Conserve Bay shorelines (default = 305m buffer (~1000-ft) of the tidal Bay and Atlantic shorelines)
- Conserve all high-value forest and forested wetlands identified by the Chesapeake Conservation Partnership

- Increase proportion of growth occurring as infill/redevelopment (default = 10% per decade)
- Increase urban densities (default = 10% per decade)
- Increase proportion of urban vs rural growth (default = 10% per decade)
- Expand sewer service areas (default = ~1 mile))
- Avoid growth on all soils unsuitable for septic systems (based on depth to bedrock, drainage class, saturated hydraulic conductivity, and flood frequency)

- Conserve all farmland within designated Agricultural Districts
- Conserve all lands within the floodplain (default = 100-year recurrence interval)
- Conserve all lands with flooded soils (default = frequently flooded)
- Conserve all prime farmlands and farmland of state importance
- Conserve potential restorable wetlands (applies only to PA farmland)
- Conserve all high-value farmland identified by the Chesapeake Conservation Partnership

Potential Nitrogen Load Increases: 2017 -2025

(based on 2017 Progress BMPs v9, Edge of Tide)

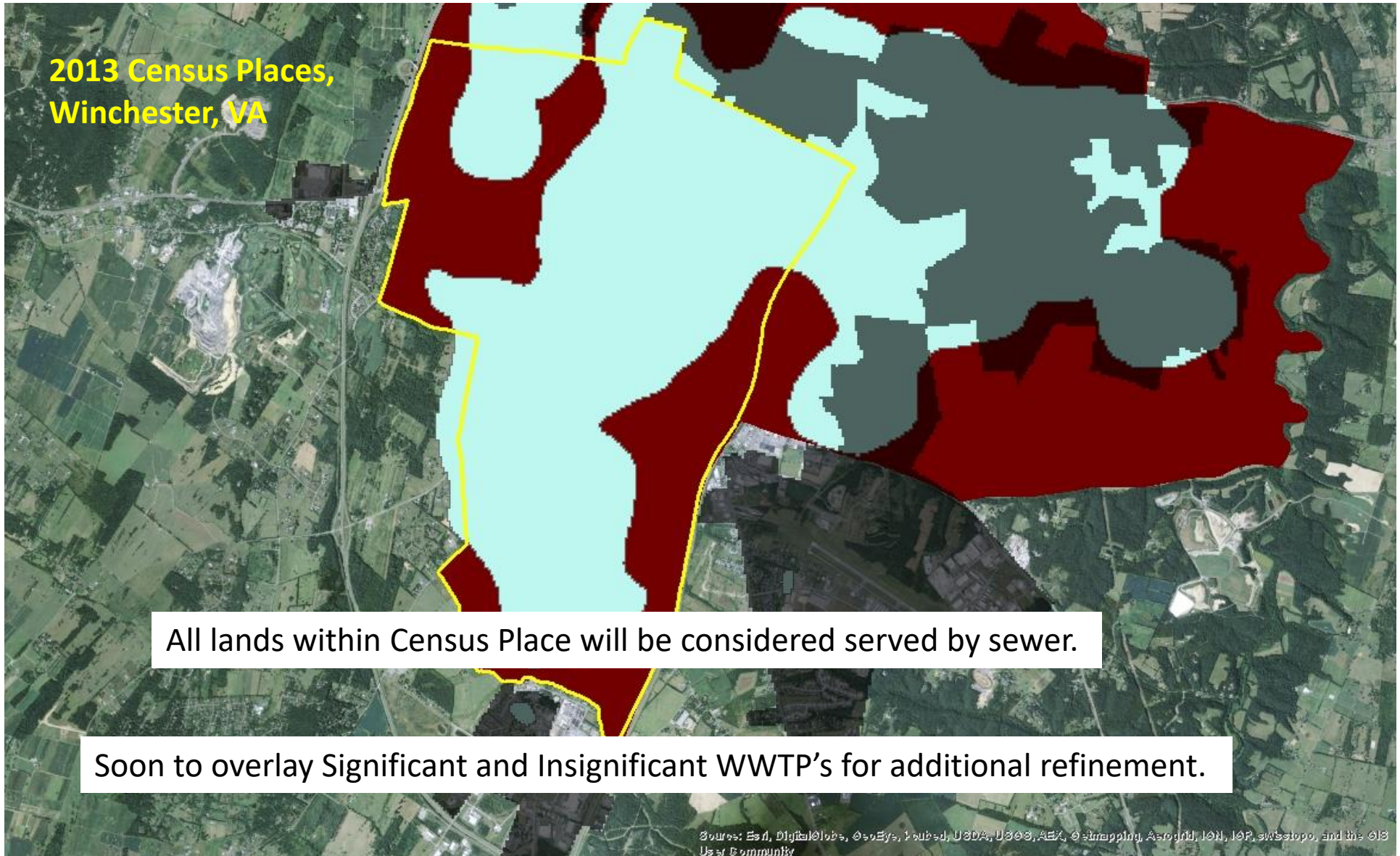
Jurisdiction	NET	NET (DEV + NAT)
DC	531	524
DE	209,768	58,605
MD	(98,796)	273,403
NY	(345,203)	2,509
PA	59,879	436,658
VA	324,801	711,876
WV	(111,556)	3,888
NET =	IMP, PRV, CNS, NAT, CRP, PAS, FDS, MO, OTH, SEPTIC	
NET (DEV + NAT) =	IMP, PRV, CNS, NAT, SEPTIC	

Potential Nitrogen Load Increases:
2025 Current Zoning vs. Conservation Plus BMPs

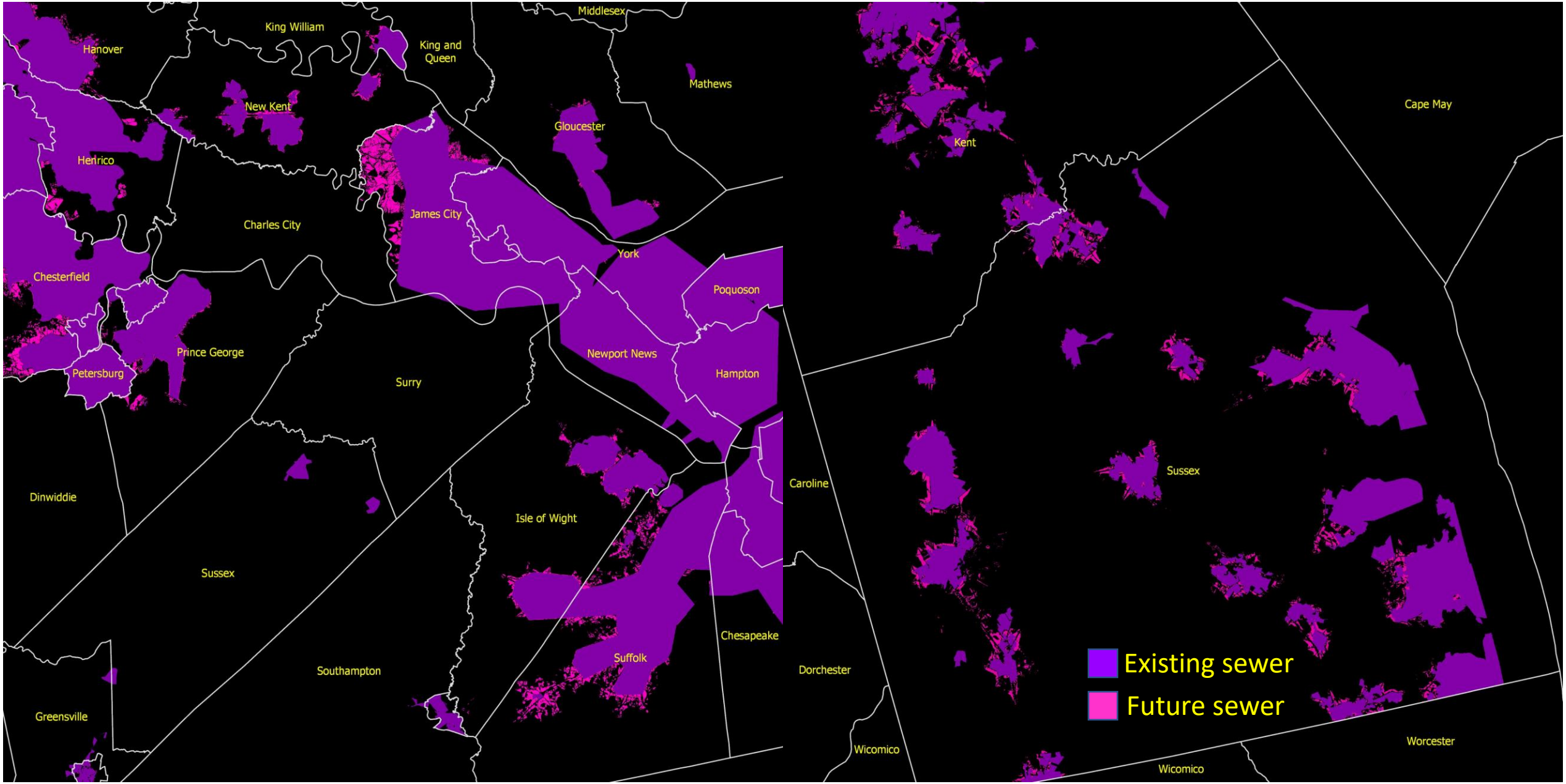
(based on 2017 Progress BMPs v9, Edge of Tide)

Jurisdiction	Forest Conservation	Growth Management	Agricultural Conservation
DC	(133)	(88)	n/a
DE	(1,050)	(26,372)	28,501
MD	(58,016)	(156,504)	124,614
NY	(372)	(272)	844
PA	(71,604)	(144,057)	294,538
VA	(124,234)	(354,972)	28,028
WV	13,601	(5,976)	19,559

Mapping Sewer Service Areas using Weight-of-Evidence Approach



Simulated 2025 Sewer Expansion VA (left) and DE (right)



Custom Land Policy BMPs

Delaware:

- Conserve riparian zones excluding tax ditches (width = 30m)
- Conserve wetlands (NWI and State Designated Wetlands)
- Conserve all lands subject to inundation due to sea level rise (1m rise by the year 2100)
- Conserve all lands surrounding National Wildlife Refuges (1/2 mile buffer)
- Conserve all large forest tracts (>= 20 acres) in Legacy areas
- Conserve all Commercial Forest Plantation Areas
- Conserve all high-value forest and forested wetlands identified by the Chesapeake Conservation Partnership
- Increase proportion of growth occurring as infill/redevelopment (10% per decade)
- Increase urban densities (10% per decade)
- Increase proportion of urban vs rural growth (10% per decade)
- Expand sewer service areas in proportion to County-level demand for greenfield residential growth (0-15%)
- Conserve all farmland within designated Agricultural Districts
- Conserve all lands within the floodplain (100-year recurrence interval)
- Conserve all lands with flooded soils (frequently flooded)
- Conserve all prime farmlands and farmland of state importance
- Conserve all center-pivot irrigated farmland parcels
- Conserve all high-value farmland identified by the Chesapeake Conservation Partnership

Custom Land Policy BMPs

Virginia:

- Conserve riparian zones (width = 30m)
- Conserve wetlands (NWI)
- Conserve all large tracts (100+ acres with high conservation value)
- Increase proportion of growth occurring as infill/redevelopment (10% per decade)
- Increase urban densities (10% per decade)
- Increase proportion of urban (and sewer) vs rural growth (10% per decade)
- Expand urban areas 10% by area
- Expand sewer service areas in proportion to County-level demand for greenfield residential growth (0-15%)
- Conserve all designated Agricultural and Forestal Districts as defined by § 58.1-3230
- Conserve 100-year floodplain
- Conserve prime farmlands and farmland of state importance (>=100-acre parcels/patches)

Custom Land Policy BMPs

Maryland (Current Regulatory Scenario):

- Conserve riparian zones (width = 30m)
- Conserve wetlands (NWI)
- Conserve Resource Conservation Areas and Wetlands of Special State Concern
- Establish maximum residential densities based on local and state regulations
- Stochastically conserve farmland within 30m riparian zone based on expected County-level rates of CREP participation (acres)
- Stochastically conserve 15% of undeveloped forest within modeled urban septic areas.
- Stochastically conserve forests by County based on participation in state programs and land trust activities
- Stochastically conserve farmland by County based on participation in state programs and land trust activities

Custom Land Policy BMPs

District of Columbia:

- Restrict new development to areas where local forecasts indicate stormwater management regulations will be triggered by future development and/or redevelopment activities.

West Virginia:

- Satisfied with 2025 Current Zoning scenario which includes a 1-mile expanded buffer around all sewer service areas (for WV only).

New York:

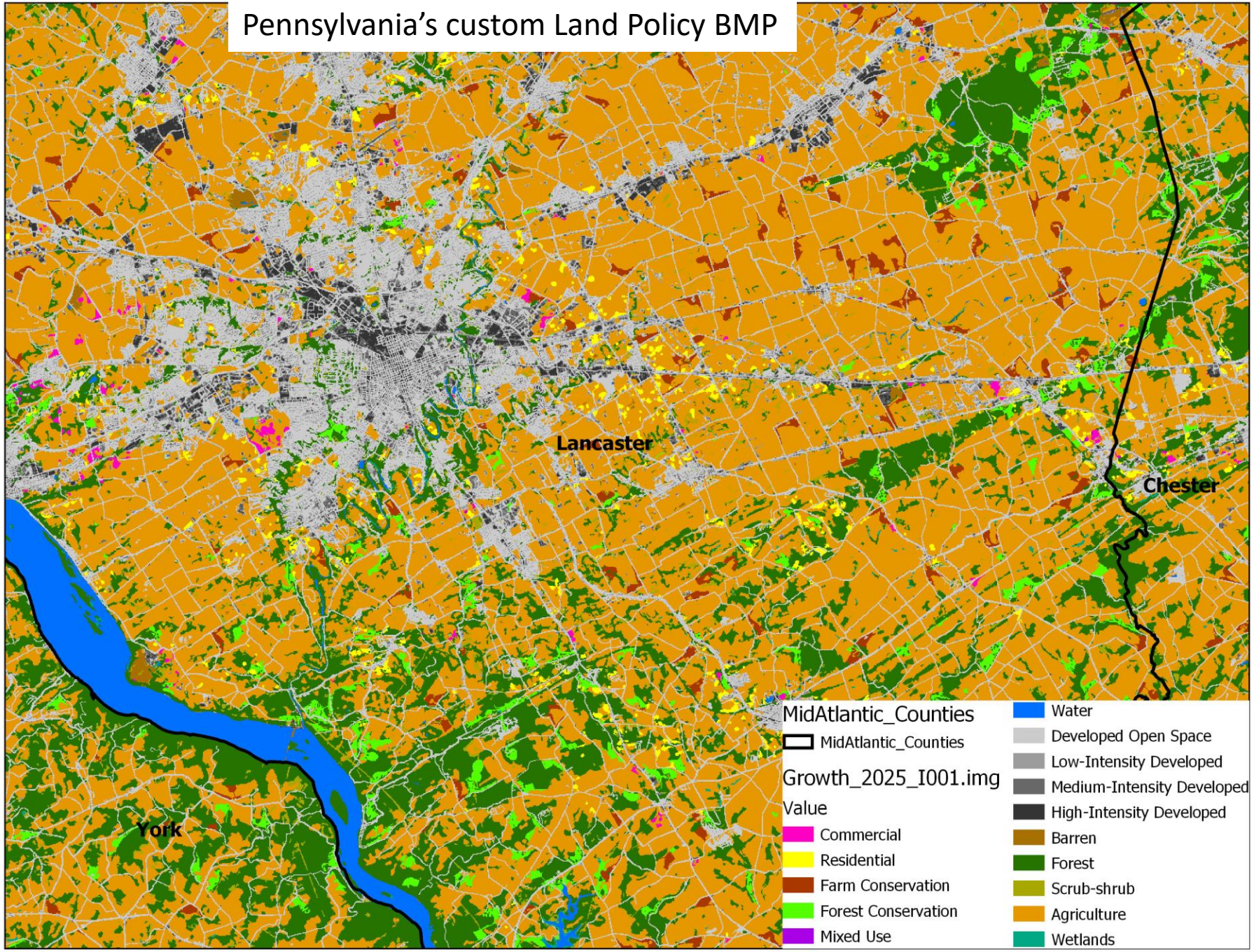
- TBD

Custom Land Policy BMPs

Pennsylvania:

- Conserve riparian zones (width = 30m)
- Conserve wetlands (NWI and Potential Forested Wetlands (inside watershed only)
- Increase proportion of growth occurring as infill/redevelopment (10% per decade)
- Increase urban densities (10% per decade)
- Increase proportion of urban vs rural growth (10% per decade)
- Expand sewer service areas (1 mile buffer)
- Stochastically simulate rate of forest conservation by County based on participation in state programs and land trust activities.
- Stochastically simulate rate of farmland conservation by County on participation in state programs and land trust activities.

Pennsylvania's custom Land Policy BMP



Conserving land to maximize water quality benefits:

- Focus development on areas served by sewer;
- Expand sewer service areas into non-forested areas;
- Focus forest and farmland conservation in areas served by septic- particularly low-density rural areas served by septic;

Land Policy BMP Production Schedule

October 19, 2018:

Jurisdiction Land Policy BMP's available in CAST

November 2018 through March, 2019:

Jurisdictions work with CBPO to revise Land Policy BMP outside of CAST.

Officially approved revisions posted on CAST on an as-needed basis.

April, 2019:

Draft Phase III WIP Submission