 USGS



Chesapeake Bay Program
A Watershed Partnership

Chesapeake Bay Program's Land Use Workgroup

Co-Chairs:

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Coordinator:

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Phase 6 Land Uses (proposed)

(i.e., major source sectors)

	Connected	Regulated	Federal
<u>Impervious developed</u>			
Residential (rural, low, medium, high-density)	Y / N	Y / N	Y / N
Commercial/ Industrial	Y / N	Y / N	Y / N
Institutional	Y / N	Y / N	Y / N
Roads	Y / N	Y / N	Y / N
Construction	Y / N	Y / N	Y / N
<u>Pervious developed</u>			
Open space	Y / N	Y / N	Y / N
Turf grass (low v high risk)	Y / N	Y / N	Y / N
Urban tree canopy	Y / N	Y / N	Y / N

Phase 6 Land Uses (proposed)

(i.e., major source sectors)

Barren (surface mines & quarries)

Wastewater

Population on sewer

Households on septic

- commercial, mass drain fields, shallow drain fields, failing systems, direct discharges, distance to waterway

Natural

Forests

- Upland
- Floodplain/ riparian
- Harvested
- Disturbed

Wetlands

- Upland
- Floodplain
- Tidal emergent

Beaches

Water

Phase 6 Land Uses (proposed)

(i.e., major source sectors)

Agriculture

Farmsteads

- **Impervious vs Pervious**
- **Regulated (CAFOs) vs Unregulated**

Crops

- **Grain/forage**
- **Vegetables**
- **Hay**
- **Grass v Legumes**

Pasture

Nurseries

- **Covered**
- **Uncovered**

Orchards

Sod farms

Idle/fallow land

Local Land Use Data Request

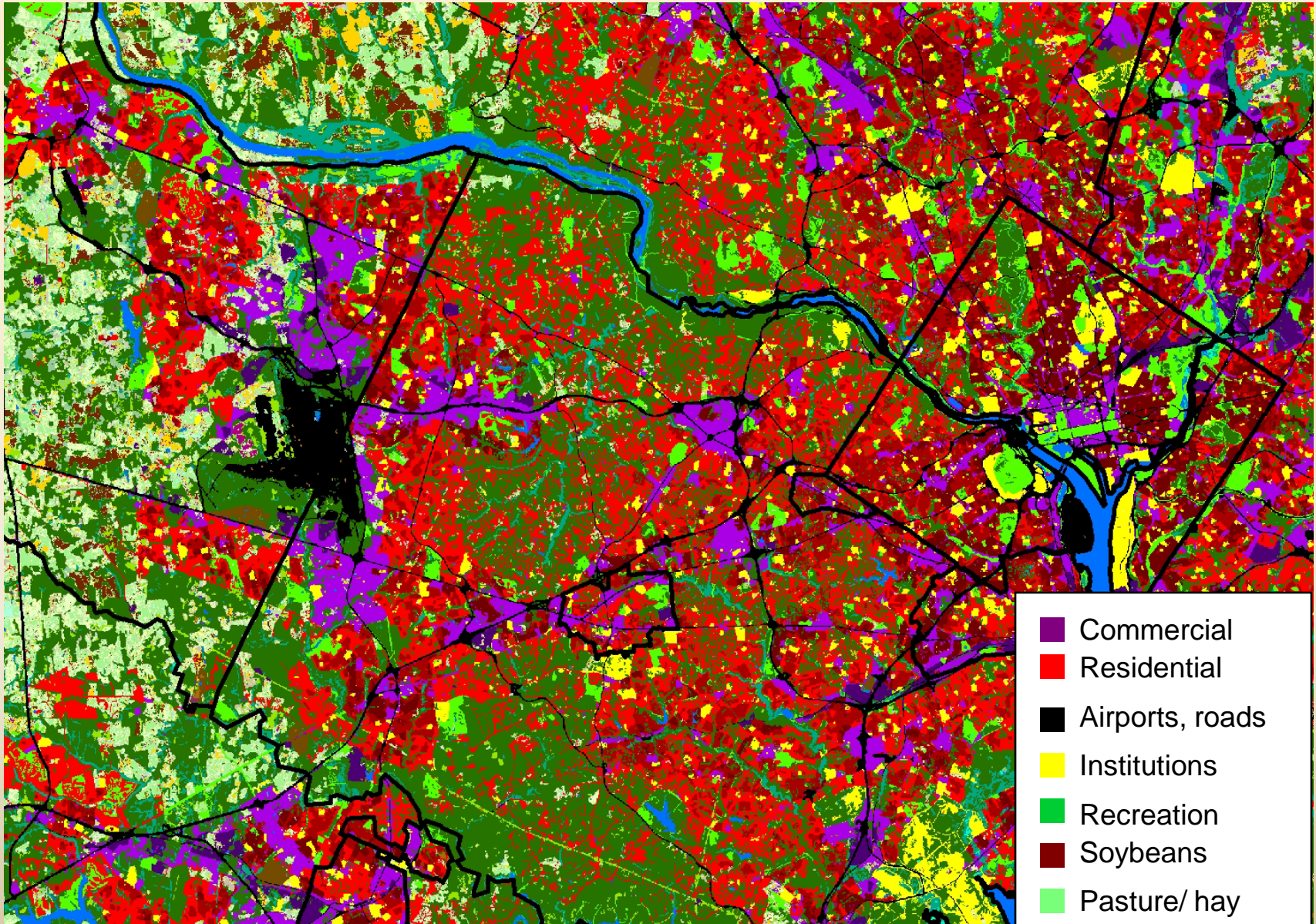
Data informing current conditions

- land use, current and historic (1980+) with keys to interpret codes
 - land cover (e.g., impervious surfaces, tree canopy, turf grass, herbaceous vegetation)
 - extractive areas (e.g., quarries, active and reclaimed surface mines, shale gas pads and related pipelines and roads)
 - sewer service areas (current and proposed)
 - stormwater regulated areas (MS4's, CSO's), storm drain networks
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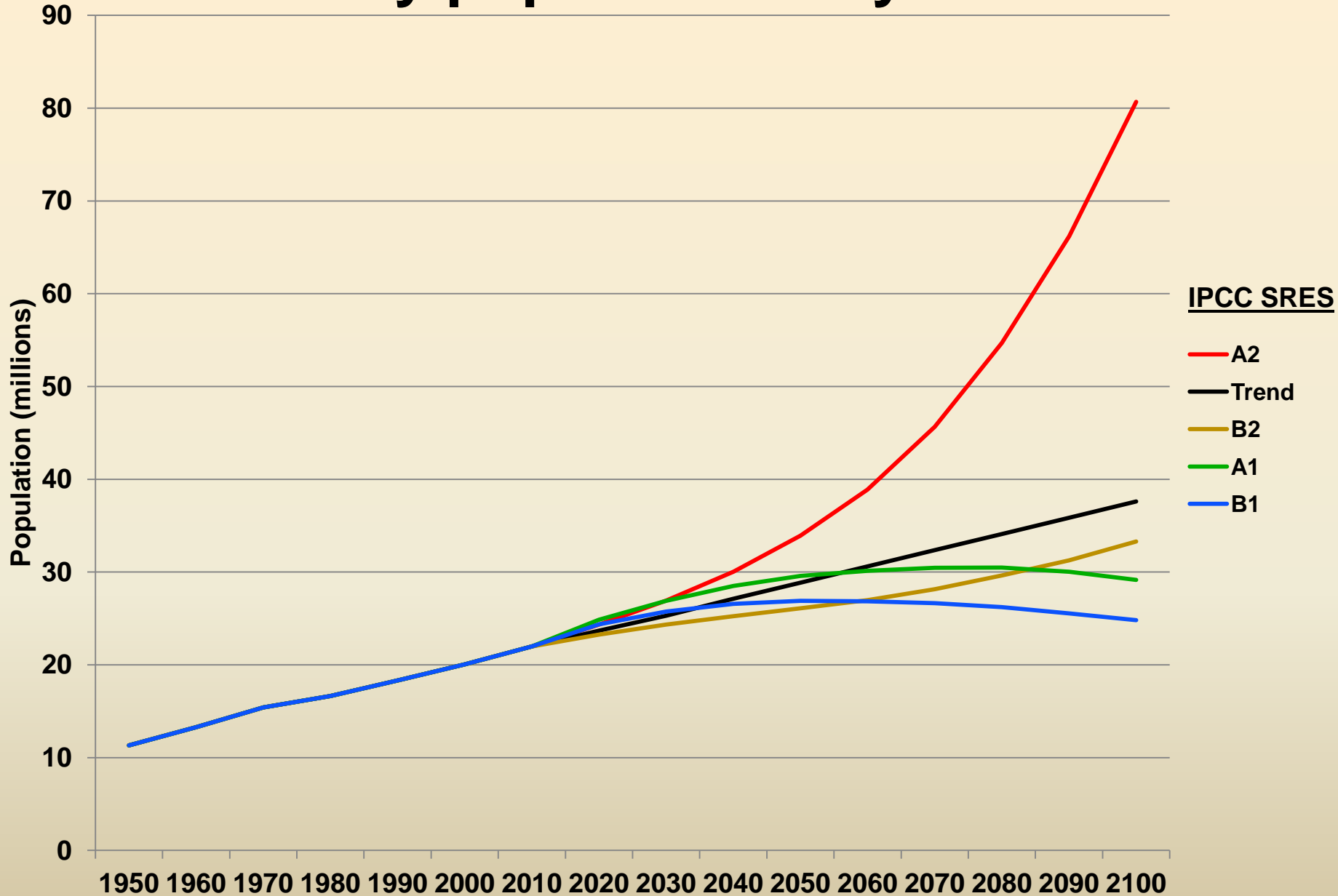
Data informing future conditions

- zoning (consistent with latest comprehensive plan) with keys to interpret codes, generalized as appropriate)
- priority funding areas, urban area demarcation lines, urban renewal/reinvestment zones, etc.
- planned and/or permitted developments
- protected lands (including parks, recreation areas, and other county-owned lands unavailable for future development)
- special environmental protection areas* (e.g., Chesapeake Bay Critical Areas, riparian buffers, erosion prone soils, flood zones, habitat protection)
- rail transit stations (current and proposed)
- conservation priority areas (e.g., agricultural districts, large forest tracts)
- planned transportation improvements

Urban land cover re-classified to land use + Cropland Data Layer



Future Bay population: beyond 2030



Significance of Land Use Data



- Land use data are critical for establishing load allocations and guiding implementation of the Chesapeake Bay TMDL;
- Differences between local and CBP land use data have hampered planning and reporting local implementation efforts in support of Watershed Implementation Plans (WIPs).

Estimating Impervious Cover and Turf Grass in the Chesapeake Bay Watershed

Model Version	Impervious Surface (circa 2001/02)	Pervious Surface (circa 2001/02)
CBLCD (land cover)	809,318	2,341,577
Phase 5.3.2 (land use)	1,269,030	3,398,732

Source:

Claggett, et al., submitted. Estimating the Extent of Impervious Surfaces and Turf Grass Across Large Regions. *Journal of the American Water Resources Association*

Land Use Workgroup Mission Statement



By April 2015:

Ensure that scientifically and locally credible land use data inform the suite of Chesapeake Bay Program (CBP) models and accounting systems.



Tier 1 Priorities

1. Improve the spatial, temporal, and categorical representation of urban, natural, and agricultural land uses on non-federal and federal lands.
2. Consider basing the Phase III WIPs on a year 2025 land use to facilitate crediting of water quality benefits derived from land conservation and land-use planning.
3. Investigate differential loading rates for new land use classes.

LUWG Workplan (Jan 2013 – April 2015)



	2013						
Major Tasks	Jan	Feb	Mar	Apr	May	Jun	Jul
Inventory local LULC							
Explore Issues and develop protocol for using local LULC							
Explore probabilistic LULC estimate							
Explore backcasting and forecasting options (1984 - 2017)							
Explore backcasting and forecasting options for 2025							
Implement backcasting and forecasting methods							
Compile suggested changes to LULC classes							
Develop categorical crosswalk between local LULC and P532 LULC							
Coordinate the development of loading rates for new LULC classes							
Develop methods to map new LULC classes							
Reconcile local LULC with Census of Agriculture							
Develop impervious surface and tree canopy coefficients							
Evaluate land use generalizations, assumptions, and scenarios							
Review impact of applying new LULC in CBPO models							
Finalize land use dataset and submit for WQGIT approval							

Phase 5.3.2 Urban Land Uses

	Regulated	Unregulated	Combined Sewer
Pervious	✓	✓	✓
Impervious	✓	✓	✓
Construction	✓		✓
Extractive	✓	✓	✓

Phase 5.3.2 Agricultural Land Uses

- Manure-eligible High Till
- Manure-eligible Low Till
- Other Row Crops
- Fertilized Hay
- Unfertilized Hay
- Alfalfa
- Pasture
- Degraded Riparian Pasture
- Nursery
- Afo / Cafo
- Nutrient Man. High Till
- Nutrient Man. Low Till
- Nutrient Man. Row Crops
- Nutrient Man. Fertilized Hay
- Nutrient Man. Alfalfa
- Nutrient Man. Pasture
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Phase 5.3.2 Natural Land Uses

- Open Water
- Wooded / Open
- Disturbed Forest