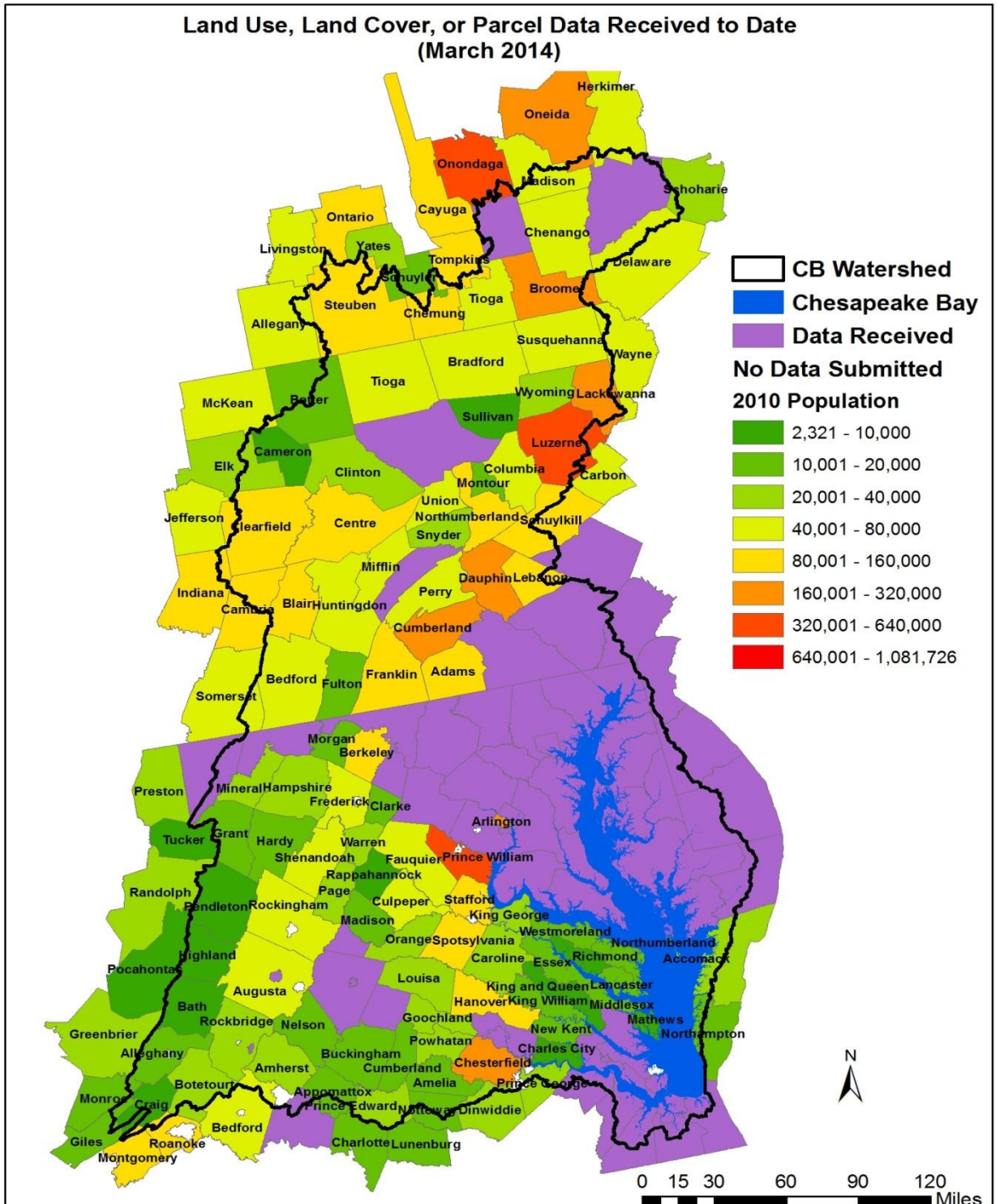
Proposed

Phase 6.0 Land Uses Regarding Forestry

Land Use Inclusion Criteria

1) exhibits unique nutrient and sediment load/processing characteristics;
2) is associated with a particular type(s) of Best Management Practice(s); and
3) is needed to help target local implementation of BMPs.


Land Use, Land Cover, or Parcel Data Received to Date
(March 2014)
CB Watershed
Chesapeake Bay
Data Received
No Data Submitted
2010 Population
2,321 - 10,000
10,001 - 20,000
20,001 - 40,000
40,001 - 80,000
80,001 - 160,000
160,001 - 320,000
320,001 - 640,000
640,001 - 1,081,726
Herkimer
Oneida
Onondaga
Madison
Otsego
Cayuga
Ontario
Chenango
Livingston
Yates
Tompkins
Delaware
Schuyler
Broome
Steuben
Tioga
Chemung
Allegany
Susquehanna
Wayne
Bradford
Tioga
McKean
Potter
Wyoming
Lackawanna
Sullivan
Luzerne
Cameron
Elk
Clinton
Columbia
Carbon
Montour
Union
Jefferson
Clearfield
Centre
Northumberland
Schuylkill
Snyder
Mifflin
Dauphin
Lebanon
Indiana
Perry
Cambria
Blair
Huntingdon
Cumberland
Bedford
Fulton
Franklin
Adams
Somerset
Morgan
Berkeley
Preston
Mineral
Hampshire
Frederick
Clarke
Arlington
Tucker
Grant
Hardy
Warren
Shenandoah
Fauquier
Prince William
Rappahannock
Randolph
Page
Culpeper
Stafford
Pendleton
Rockingham
King George
Madison
Westmoreland
Orange
Spotsylvania
Northumberland
Highland
Caroline
Essex
Richmond
Accomack
Pocahontas
Louisa
King and Queen
Lancaster
Augusta
Hanover
King William
Middlesex
Bath
Goochland
Mathews
Rockbridge
Nelson
New Kent
Greenbrier
Powhatan
Northampton
Charles City
Alleghany
Buckingham
Chesterfield
Amherst
Cumberland
Amelia
Botetourt
Prince George
Appomattox
Monroe
Craig
Prince Edward
Nottoway
Dinwiddie
Bedford
Giles
Roanoke
Charlotte
Lunenburg
Montgomery
N
0 15 30 60 90 120
Miles

Urban Tree Canopy

- Small patches of tree canopy (the area encompassed by the canopy of individual trees) within developed areas and assumed to have a managed understory consisting of turf grass, herbaceous vegetation, shrubs, and/or impervious surfaces. Examples include trees in residential lots, small urban parks, landscaped areas, and adjacent to roads.

- Tree canopies intercept and dissipate the energy from precipitation events. The roots of trees uptake water and promote infiltration through the soil. These functions result in reduced runoff volumes from impervious and pervious developed surfaces.

- Level 1: Tree canopy (National Tree Canopy Dataset, 2001) patches smaller than some size threshold within 2010 Census Urban Clusters.

  Level 2: Moderate-resolution tree canopy within developed land uses

  Level 3: High-resolution tree canopy data within developed land uses

- Potential sub-classes: Urban Street Trees, Urban Lawn Trees.
- Relevant activities: STAC Peculiarities of Perviousness Workshop, Riparian Buffer and Tree Canopy Expert Panel

Forest

- Large patches of tree canopy above a size threshold that are assumed to have an unmanaged understory. The size threshold is used to infer unmanaged understory conditions and is yet to be determined but it could be in the range of 1-3 acres. Smaller tracks of tree canopy within urban areas would be considered Urban Tree Canopy and outside of urban areas would be considered Mixed Open. Note that wooded pasture may have to be subtracted from total forest area unless the two are conflated.

- Forests (and wetlands) are the lowest loading land uses for nutrients and sediments and therefore warrant distinction from all other land uses.

- Level 1: Contiguous patches of tree canopy (National Tree Canopy Dataset, 2001) over a particular size threshold and/or at a specified distance from developed areas.
  Level 2: Contiguous patches of tree canopy (high-resolution land cover) over a particular size threshold and/or at a specified distance from developed areas.
  Level 3: Contiguous patches of tree canopy (high-resolution land cover) over a particular size threshold and outside developed land uses.

- Potential sub-classes: Clear Cuts, Selective Cuts, Fire Scars, Insect defoliation

Disturbed Forest

- Disturbance is forest that has been harvested or defoliated by insects or fire.
- Harvested forests have sediment loads approximately 10x the load for undisturbed forests. Forests that are defoliated by insects, acid deposition, and fire also process nutrients less efficiently compared with undisturbed forests.
- Level 1: Continue to assume 0.33% of all forests are harvested during any particular year. Overlay analysis of forest disturbance from MODIS data to estimate annual extent of disturbance post 2001 or use Landsat to estimate annual extent of disturbance post 1984.

  Level 2: Estimate forest harvest rates uniquely for different regions of the CBW using Forest Inventory and Analysis Data and/or forest product tax receipts. Use MODIS and Landsat to map canopy disturbance as described above.

  Level 3: Collect annual timber harvest data from state agencies. Use MODIS and Landsat to map canopy disturbance as described above.

Mixed Open

(rural herbaceous/ scrub-shrub/ small-patch tree canopy)

- Former forests undergoing secondary succession, fallow/idle/abandoned agricultural lands, rural landfills and cemeteries, rural institutional lands, small patches of trees outside developed areas. Mixed Open areas are unfertilized, hydrologically disconnected, and lack the canopy and root structure of forests. They differ from disconnected pervious developed surfaces only because they are rural and lack fertilizer inputs.

- These areas are prevalent in some parts of the watershed and may have loads that are distinct and lower than disconnected pervious developed surfaces due to their lack of fertilizer inputs.

- Level 1: Estimate (don't map) by subtracting area of all other classes from the total modeling segment area.

  Level 2: Map using local land use or zoning data to distinguish from agricultural and developed lands.

  Level 3: Map using a combination of high-res land cover and land use/zoning data.

Riparian Forests

- Forests immediately adjacent to and within some specified distance (usually 25 – 100ft) of stream channels
- Riparian forests intercept overland and shallow subsurface flows, trapping sediment and uptaking water and associated nutrients in the process. Riparian forests also stabilize banks and trap sediment associated with flood flows.
- Level 1: Buffer all 1:100K National Hydrology Dataset (NHD-Plus) stream flowlines, waterbodies, water areas that are connected to the flowlines by 30m. Subtract out all open water areas. Intersect with moderate-resolution tree canopy.
- Level 1a: Use a variable buffer width based on flowpath length derived from a 30m DEM through agricultural lands intersecting each portion of the buffer (i.e., riparian buffers downslope of extensive agricultural areas should be wider than those downslope of smaller agricultural areas).
- Level 2: Buffer all 1:24K National Hydrology Dataset (NHD-H) stream flowlines, waterbodies, water areas that are connected to the flowlines by 30m. Subtract out all open water areas. Intersect with moderate-resolution tree canopy.
- Level 2a: Use a variable buffer width based on flowpath length derived from a 10m DEM through agricultural lands intersecting each portion of the buffer.
- Level 3: Buffer locally mapped streams by 100-ft and intersect with high-resolution tree canopy.
- Level 3a: Use variable width derived from LiDAR DEM coupled with high-resolution land cover and land use data.
- Relevant activities: STAC Peculiarities of Perviousness Workshop, Riparian Buffer and Tree Canopy Expert Panel

Floodplains

- Flat valley bottom landforms adjacent to streams that are periodically inundated during 1-2 year frequency storm events.
- Floodplains trap sediment and attenuate flow velocities during storm events.
- Level 1: Overlay of FEMA Digital Flood Insurance Rate Maps (DFIRMs), frequently flooded soils (SSURGO), National Wetlands Inventory, and GAP land cover.
- Level 2: Overlay of FEMA DIRMs coupled with floodplain landforms derived from a 10m-resolution Digital Elevation Models (DEMs).
- Level 3: Locally defined and mapped floodplains or floodplain landforms mapped using a combination of LiDAR, 10m-resolution DEMs, and stream gauge records.
- Relevant activities: STAC Peculiarities of Perviousness Workshop, USGS pilot study to map floodplains using multi-resolution DEMs and ancillary data.