

Opportunities for Local Review of Land Use Data Informing Chesapeake Bay Program Models and Decisions.

Background

For the 2017 mid-point of the Chesapeake Bay restoration schedule (2010 – 2025), the Chesapeake Bay Program Partners agreed to reassess whether the implementation watershed restoration strategies by 2025 will achieve water quality standards in the Bay. They agreed to make this determination by 2017 based on the best available data, models, BMP information, and lessons-learned. To date, the best available land use/cover data is housed with county and municipal governments. Therefore, to ensure that such data informs the next generation of watershed models (Phase 6), the CBP Partners have spent two years seeking locally mapped information on land use, land cover, zoning, parcels, and sewer service areas through a variety of approaches and agencies.

Status

The CBP has received some parcel, land use, land cover, or sewer service data from 87% of the 206 counties/cities in the Chesapeake Bay watershed. The CBP Land Data Team, Maryland Department of Environment, and Maryland Department of Planning are now in the process of interpreting these data as to their relevance for mapping the land use/cover classes that will be developed for the Phase 6 watershed model. The Phase 6 land use classes include: impervious-roads, impervious non-roads, turf grass, tree canopy, forest, open space, wetlands, water, and agriculture in addition to the construction class which is based on state NPDES permit data. The CBP is also estimating the population on sewer and the number of septic systems using locally provided data (polygons) representing sewer service areas and the 1990 Census of Population and Housing (the latest decennial Census that reported the number of housing units on public sewer by Block Group).

In addition to the requested land use data, the CBP Partners and the Virginia Legislature have agreed to invest in the production of one-meter resolution land cover data derived from aerial imagery for all counties within and adjacent to the Bay watershed by May 2016. It is the CBP's understanding that these data will be provided to local jurisdictions at no charge and will be used to inform the final version of the Phase 6 land use datasets. Land cover data alone, however, do not inform whether herbaceous land is turf grass, whether barren land is cropland or pasture, nor whether residential areas are served by sewer or septic. For mapping these and other classes, local land use, parcel, and sewer service data remain critical.

Local Review Periods

To ensure that the CBP accurately portrays local land use data in models that inform the Bay restoration effort, it is important that local jurisdictions have opportunities to review and comment on the data. Over the coming year (Jul 2015 – Jul 2016), there will be three opportunities for local jurisdictions to comment on the land use/cover data informing the Phase 6 suite of models. The initial review period will be abbreviated, with only 2-3 weeks allotted for each county's review. The high-resolution land cover review period may be extended to 3-4 weeks. The final review period may be extended to 4-6 weeks. The final review period is the most important but each period presents an opportunity for input. In September 2015, the USGS will host a public webinar to explain the high-resolution and final review processes and expectations in more detail.

Proof-of-Concept/ Fatal Flaw Review (Aug-Sep 2015): Rolling review of how the CBPO has constructed the initial land use inputs for the draft version of the Phase 6 Watershed Model using a combination of locally provided land use/cover data and moderate-resolution national data. For counties that did not provide local data to the

CBPO, only the national data will be used to represent the Phase 6 land uses in this initial version. Counties will be notified when the data they have provided to the CBP have been incorporated into the Phase 6 land use classes and are available, via the web, for review.

High-resolution Land Cover Review (Nov 2015 – Jun 2016): Rolling review of the 2013/2014 high-resolution land cover dataset produced using a combination of leaf-on and leaf-off imagery and digital surface models. At a minimum, these data will include the following classes: water, emergent wetlands, barren, herbaceous, scrub-shrub, tree canopy, impervious roads, impervious non-roads (buildings and parking lots), and tree canopy over impervious. These data will be produced on a rolling basis, county-by-county, starting in November 2015 and continuing through May 2016. Local jurisdictions will have an opportunity to review and comment on the data before they are finalized. Once finalized, the data will be sent to the CBP, combined with local land use, parcel, and sewer service area data, and translated into the final Phase 6 land uses.

Final Phase 6 Land Use Review (Jan – Jul 2016): Rolling review of how the CBPO constructed the Phase 6 land uses for every jurisdiction using a combination of local land use data (where provided), national data, and high-resolution land cover data. The CBP will complete these datasets, county-by-county, following the rolling production schedule for the high-resolution land cover data. Counties will be notified once the datasets for their county are available for review and the final Phase 6 land use data will be posted on the internet for review and download.

Review Process

Because the Phase 6 land use data are derived mostly from detailed mapped information, the data will be posted on a website for local jurisdiction review and download. The website will enable users to navigate, turn layers on/off, re-order layers, view underlying aerial imagery, view metadata, download data, and submit comments/suggestions. The website will include the Phase 6 land use data, represented as a series of eleven 10m-resolution raster (uniform grids) datasets for eight mapped Phase 6 land uses. The eight mapped land uses include: 1) Impervious Roads; 2) Impervious Non-Roads; 3) Turf Grass; 4) Tree Canopy over Herbaceous; Forest; 6) Open Space; 7) Wetlands; and 8) Water. All unmapped areas are presumed to be agriculture.

For each county, those land uses or data layers that could be derived purely from local data will also be available for review. In addition, spatial data overlays will be available for jurisdictional review representing: County boundaries, Phase 6 model segment boundaries, Federal properties, Municipal Separate Storm Sewer Systems (MS4s), Combined Sewer Overflow systems (CSOs), and Sanitary Sewer Service Areas. A progress map showing jurisdictions that have submitted data and noting those whose data have already been processed by the CBP will also be posted for reference. The data will be downloadable as raster GIS datasets and as tables with the land uses aggregated to the Phase 6 land river segments. For the proof-of-concept/fatal flaw review, the tabular data will include additional impervious surface and turf grass acres estimated from housing Census data to compensate for the under-representation of rural residential areas in national land cover datasets.