Department of the Environment

Maryland's Phase 6 Watershed Model Land-use Webinar 4/28/15: Questions and Response

1. **David Alvarez**: Are you using Coastal Change Analysis Program (CCAP) data for this model?

   Response: CCAP data is not being used by Maryland for the development of the Phase 6 watershed model land-use. Maryland is using local high-resolution and planimetric land-cover data collected from its local jurisdictions, where available. For local jurisdictions that do not have this data, or have not submitted their data to the State, Maryland is using Chesapeake Bay Program (CBP)-United States Geological Survey (USGS) regional data and methods. The data being used by CBP-USGS include National Land-Cover Data (NLCD), National Wetland Inventory (NWI) data, NAVTEQ road data, and several other ancillary datasets. CCAP is not being used by CBP-USGS.

2. **David Alvarez**: How is Moderate Resolution Imaging Spectroradiometer (MODIS) data being used?

   Response: MODIS is being used to track disturbances in tree canopy. Field research has shown that forests with leaf defoliation leach more nitrogen, thereby justifying a land-use distinction between forest and disturbed forest. The MODIS data is being used to map areas of disturbed forest.

3. **David Alvarez**: For this parcel, what was the estimate using the methodology compared to what can be measured by the imagery?

   (The question was in reference to the parcel below, which is depicted in the webinar slides in order to highlight the accuracy of Maryland's method for projecting impervious surfaces to the 2012 baseline)

Response: For this approximately 20-acre parcel, current methods predict a 10-acre increase in impervious surfaces not captured in the existing impervious dataset – a reasonable approximation. To ensure accuracy, Maryland Department of the Environment (MDE) and Maryland Department of Planning (MDP) QAQC procedures are two-fold: 1) a subjective review of parcels developed after the imagery year of the planimetric data being applied, and 2) a manual verification of the five largest non-residential parcels developed after the imagery year. Subjective reviews indicate that the method for projecting impervious surface increase, from the data imagery year through 2012 (Phase 6 baseline year), reasonably estimate the observed increase in impervious surfaces. This method uses parcel and zoning specific impervious coefficients per county in conjunction with MDP Property View information on individual parcel development date (As-built year). In general, the increase in residential impervious surfaces is relatively small and consistent, in comparison to projected non-residential increases, which are more irregular, and tend to be concentrated in a handful of large development projects. Therefore, the five largest non-residential parcels are verified with imagery to ensure the estimated increase in impervious surfaces is accurate. These estimates for the five largest non-residential parcels are manually corrected if necessary.

4. **David Alvarez**: What information you need on Best Management Practices (BMP)?

   Raghave Badami, Anne Arundel County: Could you talk a little bit on the BMP data clean-up and how this could be tied to the improvements in the land use

   Catherine Escarpeta (Prince George's County): Just a quick question about BMP - do you guys get the data we send in with our Municipal Separate Storm Sewer System (MS4) permit or do we need to send it separately to your group?

   Response: The requirements for submitting BMP information are described in *Maryland's Historical BMP Clean-up Guidance and Schedule*: http://www.mde.state.md.us/programs/Water/TMDL/TMDLImplementation/Documents/Midpoint_Assessment/Guidance/Historical_BMP_Cleanup_Guidance_7-31-13.pdf.

5. **Bill Hunt:** Are septic systems and larger ground disposal systems taken into consideration?

   Response: Nitrogen loads from individual septic systems and community systems were accounted for in the Phase 5 watershed model, and this will continue in the Phase 6 model. Additionally, in the Phase 6 model, MDE and CBP are developing nitrogen load estimates for other large groundwater disposal systems, such as spray irrigation and rapid infiltration facilities, which are determined not to be *de minimis*.

6. **Dave Brownlee**: By 2017 the land use/cover data will be 4-5 years old. Will there be any attempt to account for the new growth between 2013 and 2017?

   Response: 2012 serves as the Phase 6 model simulation baseline year (last model calibration year). The projection methods developed by MDE and MDP discussed in the webinar presentation are intended to estimate the increase in impervious surfaces from the local jurisdiction data imagery year to 2012. Similar or improved methods will be applied to determine land-cover change for all model simulations post 2012, such as annual progress scenarios.

7. **Bill Hunt**: Are the data/analysis techniques presented today going to have any impacts or be considered in the 2014 Watershed Agreement or Maryland Department of Natural Resources' (DNR) 29 management strategies?

   Response: It is assumed that reference to DNR's management strategies refers to the bay watershed wide management strategies that are being developed by the Chesapeake Bay Program partnership. If so, it would be expected that there would be some overlap between the analyses and techniques being applied in the development of the Phase 6 watershed model land-use and the development of the Land-Use Methods and Methods Outcome management strategy.

8. **Dave Brownlee**: When will the jurisdiction receive updated loads and required load reductions?

   Response: Local jurisdictions will be assigned updated loading targets and reductions as part of Maryland's Phase III Watershed Implementation Plan (WIP), which will be developed in 2018.

9. **Susan Overstreet**: How can we get information on the data missing from a particular county?

   Angie Patterson: I am also interested in Susan's question. We would like to know what is missing so we can determine whether it could be provided.

   Response: MDE and MDP have this information. Please contact Jeff White at Jeff.White@Maryland.gov or Stephanie Martins at Stephanie.Martins@Maryland.gov to find out what features are missing from local jurisdiction land-cover data and/or what potentially useful data layers were not included in a jurisdiction's data submission.

10. **Mark Symborski**: Will this webinar be available as a recorded session, or if not, will the slides be available?

    Response: Yes, the slides, recorded presentation, and official responses to questions asked during the webinar will be posted on MDE's webpage at: http://www.mde.state.md.us/programs/Water/TMDL/TMDLImplementation/Pages/WIP_Implementation.aspx.

11. **Rupert Rossetti**: You've mentioned several areas where you are calculating coefficients and/or eyeballing changes. Overall, what percent improvement do you expect to see in LU/LC accuracy in the new model vs. the existing model, or hope to see?

    Response: In general, the Phase 5.3.2 watershed model under-estimated total county impervious surfaces in Maryland. This is based on comparisons of Phase 5.3.2 watershed model impervious surface estimates to county data. This underestimate ranged from 5-15%. For counties that provided data, the underestimate should no longer exist in the Phase 6 model, since county data is being applied to develop the model estimates. The true accuracy of the new model land-use has not been assessed at this time. Once MDE and MDP have finished the land-cover estimates for the 2012 base year, the agencies will conduct an accuracy assessment to estimate the true error rate associated with the new model land-use.

12. **Catherine Escarpeta (Prince George's County):** In the current slide, there looks to be some sort of junkyard (upper left of the image) that doesn't look new. Is that taken into account in your calculations, i.e., if there are areas missed but don't have a newer built date?

    (The question was in reference to the image below, which is depicted in the webinar slides)

    Response: MDE and MDP have developed methods to account for impervious features missing from local jurisdiction plainmetric data. These generally include smaller features such as sidewalks, patios, athletic courts, etc. In order to estimate the impervious area associated with these features, MDE is using coefficients developed from counties that have complete planimetric datasets. For example, MDE and MDP have estimated that patios comprise 8% of the total residential impervious cover in county X. Therefore, the impervious cover on residential parcels in County Y is adjusted up by 8%. In the above example from the webinar, if in fact the referenced junkyard is covered by impervious surfaces (and is not just barren land-cover, as is the case with many junkyards), then the feature is missing from the county planimetric data. If a local jurisdiction is aware that its data is missing impervious area associated with particular types of features, such as junkyards, and has spatial data on the locations of these areas, the jurisdiction is encouraged to inform MDE and MDP of this data inaccuracy and submit any ancillary data to the State to help reclassify these areas as impervious surfaces.