MANAGEMENT STRATEGY LAND USE METHODS AND METRICS

GOAL: Land Conservation

OUTCOME

Continually improve the knowledge of land conversion and the associated impacts throughout the watershed. By 2016, develop a Chesapeake Bay watershed-wide methodology and local level metrics for characterizing the rate of farmland, forest and wetland conversion, measuring the extent and rate of change in impervious surface coverage and quantifying the potential impacts of land conversion to water quality, healthy watersheds and communities. Launch a public awareness campaign to share this information with citizens, local governments, elected officials and stakeholders.

CURRENT EFFORTS

- Land cover classifications from aerial and/or satellite spectral imagery collected from passive sensors.
- Land cover classifications from imagery collected by active sensors (e.g., LiDAR).
- USDA-FSA collects four-band, leaf-on, one-meter resolution, ortho-imagery for each state as part of their National Agriculture Imagery Program (NAIP) every 1 -3 years. VIMS also collects and manually classifies photographs along the near-shore areas of the Bay.
- Counties, States, universities, organizations and the USDA-FSA have acquired high-resolution imagery to inform transportation, public works, and natural resource decisions.

GAPS

- Complete or partial land cover information derived from classifying high-resolution imagery is available only for select counties in the Bay watershed.
- Assessing and mapping land use and cover change from high-resolution imagery is challenging
- The Management Strategy will require monitoring land change, not just mapping it once. Changes in spectral surface properties over multi-date images can present a challenge when doing high-resolution change analysis.

MANAGEMENT APPROACHES

- There are three key elements to this strategy:
 - 1.Monitor the conversion of forests, wetlands and farmland Three basic technical approaches for monitoring land conversion every 2-5 years: 1) coarse, 30m-resolution wall-to-wall mapping of land cover change; 2) high-resolution (<5m) wall-to-wall mapping of land cover change; and 3) high-resolution (<5m) stratified random sampling.
 - 2. Quantify impacts of land conversion on: a. Water quality; b. Healthy watersheds and c. Communities. This will be accomplished through close coordination with the Bay Program Modeling Workgroup and Healthy Watersheds goal team and will utilize the same sets of assumptions and data used to inform water quality decisions associated with the Chesapeake Bay Total Maximum Daily Load (TMDL).
- 3. Communicate results to the public, elected officials and the Bay Program.
- The Bay Program will coordinate and solicit input on user requirements and technical specifications for this outcome.
- Local participation will be sought to help identify and describe impacts to communities, to ensure the data are useful for informing local-level decisions and to develop and implement a communication strategy. The Healthy Watersheds Goal Implementation Team, Citizen Advisory Committee and Local Government Advisory Committee will work with the Land Use Workgroup and Communications Office to develop a communication strategy and to identify the specific measures used to assess impacts to communities.
- Local participation will be sought to help identify and describe impacts to communities and to develop and implement the communication strategy.

Chesapeake Bay Program
Science. Restoration. Partnership.

For the full management strategy, visit: www.chesapeakebay.net/managementstrategies