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Land Use Workgroup Recommendations for "Beyond 2025"

Problem Statement

Poorly defined and unrealistic goals, limitations of available data and resources, and the lack of effective communication strategies and commitments have hamstrung the Chesapeake Bay Program (CBP) Partners' ability to better manage growth and development as envisioned since the 1980's. A new land use strategy is needed to address these limitations and build on previous successes.

Background

The CBP Partners have expressed concern about the impacts of population growth on the health of the Chesapeake Bay since the initial 1987 Bay Agreement. In 1988, a report to the Executive Council was released on "Population Growth and Development in the Chesapeake Bay Watershed to the Year 2020" that outlined the CBP's concerns and a strategy to address them. At that time, the population of the signatory jurisdictions was estimated to grow to 16.2 million by 2020. The actual 2020 population for those signatory jurisdictions was 17.7 million. A call to better manage growth was reaffirmed in the Chesapeake 2000 Agreement with an aggressive charge to "reduce the rate of harmful sprawl by 30%". The 2000 Agreement was followed shortly by the "Chesapeake Futures" report that emphasized the need and benefits of managing growth to reduce future increases in pollution. Starting in the mid-2000's, stormwater runoff has been recognized as the fastest growing source of pollution to the Bay. In 2010, the Chesapeake Bay TMDL mandated the need to "account for growth" in the development of state Watershed Implementation Plans. The 2014 Chesapeake Bay Agreement emphasized the need to reduce the rate of land conversion to development and called for the development of land use change data to quantify rates of land conversion, the identification of policies and programs to reduce those rates, and for the communication of this information to local decision makers. More recently, the Comprehensive Evaluation of System Response (CESR) report highlighted that Bay restoration will become increasingly challenging due to changes in land use, population, and climate. A related report on rising watershed and Bay temperatures emphasized the impact of land use on the temperature of streams and runoff throughout the watershed.

For its part, the CBP Partners have spent the past forty years raising awareness about the impacts of population growth and land-use change, producing guidance documents on policies and programs to better manage growth, identifying funding streams and strategies to incentivize land conservation, and working intensively with a few localities to better value the ecosystem services provided by natural lands. In the 2000's, reports and studies of state tax and land use policies were published, land use data and initial land change forecasts were developed, and a workshop was held with local government representatives concerning settlement and commuting patterns across the Mason-Dixon line. The 2010's marked significant improvements in land change modeling and the development and adoption of state-specific land policy BMPs that could be included and credited in state Watershed Implementation Plans. Moreover, the 2010's marked development of the first high-resolution land use/land cover dataset, a demonstration project to inform state legislation in Virginia (Healthy Watersheds Forest Retention Project), and the creation of a Conservation Land-Use Policy Toolkit. High-resolution land use/land cover change data have now been developed for the entire watershed and these data inform the Chesapeake Healthy Watersheds Assessment and were instrumental in reauthorizing the Forest Conservation Act in Maryland.

Given the above commitments and achievements, it would be fair to assume that much has been accomplished to better manage growth in ways that have reduced the rate of land conversion and "harmful sprawl" in the Bay watershed. However, while much work has been done, progress has been localized and fleeting due to political and economic reasons. Land use decisions are inherently local and local government authorities to manage growth vary by state. Land use change is a phenomenon driven by the interplay of economics, cultural preferences, episodic events, and a wide range of policies that cannot all be controlled and managed. The federal government has essentially no authority to influence local land use decisions and what authorities it may have (e.g., not allowing new development within jurisdictions in violation of stormwater permits) are not politically viable.

Elements of a new Land Use Strategy

In 1987, policy makers were equally aware of the need to manage growth in the Bay watershed as those working today. The difference between 1987 and 2023 is that the CBP Partnership is now aware of the importance of locally relevant and actionable data and of their own limitations regarding growth management. They are also aware that CBP information and guidance must address issues of local importance which, while not necessarily the primary concerns for Bay restoration, nonetheless often serve to achieve similar outcomes. The CBP needs a new land use strategy that is sensitive to local concerns while also informing and incentivizing land conservation, public access/recreation, land use planning, climate resiliency, and environmental equity and justice. A new land use strategy should be integrated across multiple CBP workgroups, GITs, and include: 1) monitoring land use/land cover change at high spatial, temporal, and categorical resolution; 2) forecasting land use change; 3) assessing impacts of land use change and the role of land use planning across Bay outcomes; 4) encouraging smart-growth policies for new development; and 5) effectively communicating land use change and management information to local decision makers. These five components build on current and previous successes while also introducing new and more effective ways of communicating information.

1. Monitoring land use/land cover change
   The CBP's commitment to monitor changes in land use/land cover (LULC) at high-resolution and to characterize the terrain and river corridors in three-dimensional detail provide an unprecedented opportunity to develop locally relevant tools, applications, and understanding about land use characteristics, trends, and impacts. These data can enable the targeting of Best Management Practices to where they can be most effective and enable local governments and others to develop community-level inventories of tree canopy, infill and redevelopment opportunities, and stormwater and watershed management plans. In addition, these data can be used to update local comprehensive plans and local TMDL's for nutrients, sediment, and bacteria. Because the data are mapped at high resolution, land use features are easily recognizable and transparent to the public, providing an opportunity to increase public interest and participation in local land use decisions. Public participation can also be leveraged to improve the accuracy, attribution, and local relevance of the high-resolution data.

2. Forecasting land use/land cover change
   Future land use scenarios are valuable to the CBP Partners for assessing vulnerabilities to watershed health and wildlife habitat, and for visualizing and quantifying the cumulative

impacts of land use change on the environment. In 2017, the CBP's Principal Staff Committee allowed for the consideration of state-developed alternative future land use scenarios to quantify nutrient and sediment reductions associated with growth management, land conservation, and associated state policies and regulations. These scenarios have not, however, led to decreases in the rates of land conversion that can be attributable to elements specified in the scenarios. They also have not incentivized better land use decisions due to their minimal impact on nutrient and sediment loads.

The Chesapeake Bay Land Change Model is supported by the USGS and USEPA and it can simulate the effects of land use policies and land conservation on the conversion of forests and farmlands. It is actively being managed and improved with new capabilities (simulating the future development of solar fields) and potential improved accuracies (integration of high-resolution land use/land cover data, new statistical techniques, and machine learning). The CBLCM informs 2025 land use conditions for CAST and the Chesapeake Healthy Watersheds Assessment. It has potential to inform climate resiliency and other CBP outcomes in addition to the Phase 7 model. The CBP Partners could use the CBLCM to explore alternative ways of quantifying the benefits of land use policies and land conservation to water quality, wildlife habitat, underserved communities, and watershed health. Combined with the high-resolution land use/land cover change data, the CBLCM has potential to further inform state policies for protecting and restoring the environment.

3. <u>Assessing impacts of land use change and the role of land use planning across Bay outcomes</u>
   Land use data are essential for supporting 20 of the 31 outcomes in the 2014 Chesapeake Bay Agreement. Together, land use planning and land conservation are needed to: 1) ensure the long-term provision of ecosystem services; 2) allow for upland migration of tidal marshes in the face of sea level rise; 3) protect watershed and stream health and wildlife habitats; 4) plan for and create outdoor recreation opportunities; 5) strategically sequester carbon; and 6) generate renewable energy in ways that do not adversely impact working lands or nature.

4. <u>Encouraging smart growth policies for new development</u>
   "Smart growth" includes a variety of land use planning and growth management concepts. In more urban and suburban jurisdictions, smart growth focuses on encouraging infill, redevelopment, and the densification of development in areas with adequate infrastructure (e.g., roads, sewer service, water supply) to support it. In rural areas the focus is on accommodating growth while preserving the rural character of the landscape including working lands (e.g., farms and woodlots) and open space. Land use planning coupled with land conservation are the most cost-effective tools for minimizing future pollution which is particularly relevant in the Chesapeake Bay watershed given the extended time scales required to restore large ecosystems.

5. <u>Effectively communicating land use/land cover information to decision makers</u>
   To inform land use decisions and encourage smart growth, the CBP Partners should determine the types of information needed by local governments, when that information needs to be delivered to whom and who should deliver it. Answering these questions should be part of new communication strategy designed to reflect the insights developed by the

CBP's Strategic Engagement Team. An effective strategy will identify subject matter experts, information translators, trusted sources, and decision makers that are relevant to each jurisdiction and each topic of information that needs to be communicated. Translators and trusted sources may include local and regional organizations, not just individuals, but ultimately individuals must be identified and held responsible for communicating information. A communications strategy should also include the identification and development of analytical tools and web-based applications to make land use, river corridor, and other data locally relevant and actionable for informing land conservation, planning, and restoration decisions. Lastly, the CBP Partners should identify proposed legislation or regulations that could be informed by the high-resolution land use/land cover data, future land use scenarios, and other CBP models and tools.