[LAND USE OPTIONS EVALUATION OUTCOME – MARCH 9, 2023]

ABSTRACT: The status of the LUOE is on track due to the work done over the past two years and prior, including the completion of a 1-meter resolution, 54-class land use/land cover (LULC) dataset for all counties within and adjacent to the Chesapeake Bay watershed for 2013/14 and 2017/18, working with relevant CBP groups to provide input and help to create a Local Government Engagement Strategy, an upcoming GIT funding project to help make land use and land use change data actionable and operational at the community level in areas vulnerable to habitat loss, and engagement with local and state organizations. The LUOE needs to continue to work subject matter experts to translate data and analysis into materials for those to utilize at the local and jurisdictional level to influence the rate of land conversion to development, especially considering population and land use change trends. There is a real opportunity for the next two years to enhance and integrate complementary local engagement efforts across related outcomes and workgroups.

OUTCOME:
By the end of 2017, with the direct involvement of local governments or their representatives, evaluate policy options, incentives and planning tools that could assist them in continually improving their capacity to reduce the rate of conversion of agricultural lands, forests and wetlands as well as the rate of changing landscapes from more natural lands that soak up pollutants to those that are paved over, hardscaped or otherwise impervious. Strategies should be developed for supporting local governments' and others' efforts in reducing these rates by 2025 and beyond.

NOTE: The narrative analysis summarizes the findings of the logic and action plan and serves as the bridge between the pre-quarterly logic and action plan and the quarterly progress meeting presentation. After the quarterly progress meeting, your responses to these questions will guide your updates to your logic and action plan. Additional guidance can be found on ChesapeakeDecisions.

1. Are we, as a partnership, making progress at a rate that is necessary to achieve this outcome? Would you define our **outlook** as on course, off course, uncertain, or completed? Upon what basis are you forecasting this outlook?

   How would you summarize your **recent progress** toward achieving your outcome (since your last QPM)? If you don't have an indicator, would you characterize this progress as an increase, decrease, no change, or completed? *If you have an indicator and it was updated since your last QPM, use your answer to question 16 from your Analysis and Methods document.*

   Explain any gap(s) between our actual progress and our outcome.

Recent Progress:

Much of the work completed toward the Land Use Options and Evaluation (LUOE) Outcome is in thanks to the many efforts of Chesapeake Bay Program (CBP) partners over the past several years. What we've taken away from this process over the past two years, is that our efforts to meet the LUOE

Outcome is dependent on the participation of related outcomes and their workgroups, which include whatever efforts they employ to meet their own targets.

The Land Use Options Evaluation Outcome falls under the leadership of the Maintain Healthy Watersheds GIT. There will be an opportunity when the Healthy Watersheds GIT outcome returns to the MB to continue to connect the dots between high value healthy watersheds and habitats and the land use practices and changes that could threaten these landscapes' ability to sustain overall health. These data derived from the LUMM outcome, and the policies, incentives and resources compiled can directly influence how the landscape is managed and are all important components of understanding and influencing overall watershed health.

The relevant CBP workgroups, goal teams and staff have continued to work together on several projects and products that also support this outcome. Recent progress includes:

- Work with relevant CBP groups (Local Government Advisory Committee, Local Leadership Workgroup, Healthy Watersheds GIT, and Forestry Workgroup) to provide input and help to craft a Local Government Engagement Strategy that reflects the technical resources as well as the metrics associated with land use change.

- Submitted a successful GIT-funding proposal ([Community Response to Land Use Change](), p.65) to enhance the communication of land use and land use change data and metrics to the public, entitled Community Response to Land Use Change in cooperation with Rachel Felver and others. The project features audience research to better understand local community residents and local governments. CBP land use data will be used to identify communities across the Chesapeake Bay watershed that have experienced, and will likely continue to experience, land use changes threatening valuable habitats

- Presented updates on high resolution land use land cover data and change metrics to the LUMM to STAR, LUWG, HWGIT and the Management Board

- Renee Thompson presented to Potomac basin stakeholders at a [virtual event]() (May 2021) to a stakeholder requested webinar on the readily available online, geospatial tools that support and informs management related to watershed health and vulnerability at the catchment scale. In addition, she highlighted some additional geospatial resources and tools developed by the Chesapeake Bay Program GIS team. This webinar was presented as part of the implementation of the Potomac Basin Comprehensive Water Resources Plan.

- Sarah McDonald and Labeeb Ahmed, both USGS, CBP lead a special session at Delaware Chapter of American Planning Association ([October 5-6, 2022]()); *Role of Land Use Mapping and Modeling in Urban Planning and Effects on Water Quality* to highlight and share role of land use mapping and modeling throughout the Chesapeake Bay region, and its potential applications in urban planning and effects on water quality.

- Peter Claggett presented on [November 21, 2022]() at the County Commissioner's Association of Pennsylvania on how high resolution land use and change data can inform policies and plans to meet local priorities.

- Created Impervious cover Change indicator: the 2022 edition of the LUMM, a single metric on impervious cover change is presented. Subsequent editions of the LUMM will include the outstanding metrics and a few supporting measures such as "effective" impervious cover change and riparian tree cover change. Will be updated soon here: [https://www.chesapeakeprogress.com/conserved-lands/land-use-methods-and-metrics-development]()

- Publicly released the 2017/18 land use and one of the 2013/14 to 2017/18 land use change data with a webinar, press release, and USGS web summary and prepared the data for publishing on ScienceBase. Citation: Chesapeake Bay Program, 2023, Chesapeake Bay Land Use and Land Cover (LULC) Database 2022 Edition: U.S. Geological Survey data release, https://doi.org/10.5066/P981GV1L

Gaps related to Communication, Translation and Engagement:

A major gap that was identified early in the Strategy Review System (SRS) process related to the need for *improved participation across related outcomes and workgroups*. However, this gap has narrowed substantially over the past few years, thanks in part to cross-outcome efforts such as the development of the CBP Local Engagement Strategy and collaborating on several GIT-funding projects.

Several obstacles remain in effectively communicating and illustrating the application of resources. While staff have been able to manage and champion land use resources, tools and information, a more coordinated effort is needed. There needs to be clear ownership over the LUOE Outcome, a home for it within the CBP organizational structure and a path forward determined on how to achieve its goal. Communications and outreach materials need to be developed for the target audience (local level land use managers and jurisdictions who influence land use change), and materials for CBP management need to be updated. The Local Engagement Strategy presents a road map for engaging with locals by defining the roles of each messenger and articulating how messages should be created and delivered depending on each trusted source. While the LUOE Outcome has many subject matter experts and related materials, it is lacking the translation, formatting, packaging and information flow to reach the target audience. There remains a need to encourage folks to seek out and utilize the data.

The figure below attempts to notate progress of the outcome by how it has filled gaps in science and resource needs. We began by creating a road map of options for progress, worked to fill those knowledge, information and data gaps, and are now working toward analyzing the data, understanding rates of change, and communicating and working with others to share data resources and assess progress.

Figure 1. Land Use Options Evaluation Outcome: Qualitative Progress
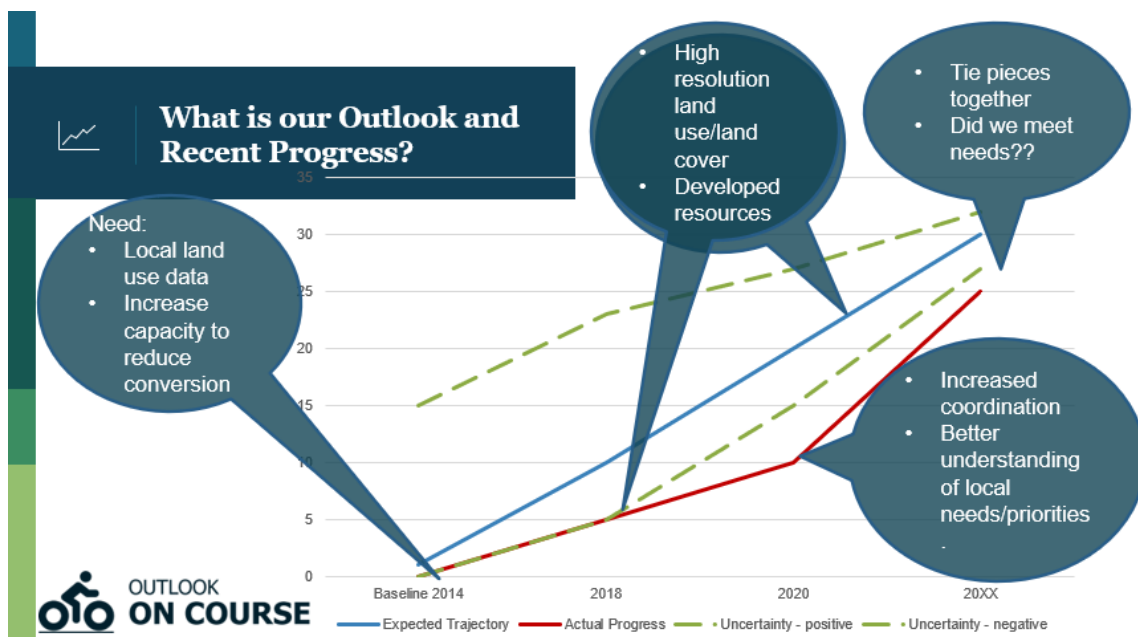
2. Looking back over the last two or more years, describe any scientific (including the impacts of climate change), fiscal, and policy-related developments that impacted your progress or may influence your work over the next two years. Have these resulted in revised needs (*e.g.,* less, more) to achieve the outcome?

   *To the extent feasible, describe your needs using the SPURR thought model, i.e., **S**pecific and actionable, **P**rogrammatic partner, **U**rgency of the needed action, **R**isk of not acting, **R**esources required.*

Scientific Developments:

The one meter and 10-meter Chesapeake Bay watershed land use and land cover dataset developed in 2013 offered the opportunity to measure progress toward the LUOE Outcome. This dataset was updated in 2017 and will became available for use in 2022. The CBP delivered its promise to provide local level land use data, a need that was explicitly requested via public comment early in the process of writing the most recent *Chesapeake Bay Watershed Agreement*.

Additionally, while national, the U.S. Geological Survey's Land Change Monitoring, Assessment and Projection initiative can be analyzed to provide local level information and data, a plan is not currently in place to analyze this information directly to assess its ability to help inform the LUOE Outcome.

Fiscal developments:

The central need for continued LULC monitoring remains unchanged. A new or extended Cooperative Agreement from the USEPA is needed to continue monitoring land use/cover change through 2030. Failure to support continued LULC monitoring will hinder the ability to assess progress on multiple CBP outcomes, fail to support the land use needs of the Phase 7 model, and fail to support local and state restoration and management goals that also depend on continued production of consistent and comparable high-resolution LULC data.

The LUOE Outcome would benefit from a more formalized organization and leadership from the partnership. Due to lack of resources, staff capacity and shifting priorities, this outcome is getting lost in terms of its accounting. The Management Strategy and most recent Logic and Action plan are both out of sync and out of date. The key factors listed in the Management Strategy need to be updated to reflect how this outcome has evolved.

Policy Developments:

The HWGIT and the LUOE leads recognize opportunities to incorporate DEIJ and climate resiliency considerations into our analysis and decision support tools. We will incorporate these activities into our 2 year workplan. Population growth and vulnerability of high value healthy watersheds and habitats to conversion (impervious surfaces), remain priority factors affecting our ability to achieve our outcomes.

Communications, Translation and Engagement:

The need to translate, format and package information through trusted sources are an effective path forward for progress on this outcome. A coordinated approach with support of the CBP SET team and others within the local action and healthy watersheds cohorts will be pursued. There remain needs related to how to effectively engage locals directly, as called for in the outcome language.

3. Based on the red/yellow/green analysis of the actions described in your logic and action plan, summarize what you have learned over the past two years of implementation.

Summarize overall (not per action) what you have learned about what worked and what didn't work. For example, have you identified additional factors to consider or filled an information gap?

- We are dependent on the collaboration and participation of related outcomes and workgroups, as well as their work/products

- 2-way input and direct involvement of locals requires a sustained pathway of mutual listening and learning.

- This outcome is qualitative there remains a need to understand if our efforts are helping to reduce the rate of land conversion.

- Population growth and vulnerability of high value healthy watersheds and habitats to conversion (impervious surfaces), remain priority factors affecting our ability to achieve our outcomes.

4. Based on what you have learned through this process and any new developments or considerations described in response to question #2, how will your work change over the next two years? If we need to accelerate progress towards achieving our outcome, what steps are needed and, in particular, what specific actions or needs are beyond the ability of your group to meet and, therefore, you need the assistance of the Management Board to achieve?

Describe any adaptations that may be necessary to achieve your outcome more efficiently and explain how these changes might lead you to adjust your Management Strategy (if significant) or the actions described in column four of your Logic & Action Plan. What new science, fiscal, and policy-related information, could be recommended or pursued over the next two years to maintain or, if needed, accelerate progress? Use the SPURR model described in question #2, to provide detail to the needed steps and actions.

The Maintain Healthy Watersheds Goal Team remain the leads on the Land Use Options Evaluation and Land Use Methods and Metrics Outcomes, with the Land Use workgroup. This relationship is unique in that the success and burden of these outcomes is spread across multiple goal teams and work groups. The leaders of these outcomes have identified the Local Leadership Workgroup, Chesapeake Conservation Partnership, Forestry Workgroup, Agriculture Workgroup, Communications Workgroup, Diversity Workgroup, Climate Resiliency Workgroup, Toxics workgroup and other related living resource outcomes that are influenced by land use change as key partners and stakeholders. In addition, land use professionals, NGOs and land trusts and state and jurisdictions would be useful engaged stakeholders to assist in charting the course for achieving this outcome and articulating where we have been and where we are going. A strategy is needed on how to involve locals, using the existing Local Engagement Strategy for guidance, so they may be provided data, resources and information related to land use change in a more efficient and effective manner.

Ultimately, our goal should be to inform land use planning and conservation decisions with information that will engender more sustainable decisions. What does success look like? Would it be to have our metrics and materials referenced in policies and legislation? Proof that those who make such decisions are considering the data and info we produce? Or is it reducing the rate of conversion of farm, forest and wetlands? How do we know if our work is contributing? A similar effort to that of the recent Wetlands Workshops in 2022 should be considered, to bring together key stakeholders to share the responsibility, key messages, urgency and chart a course of reducing the rate of land conversion in the Chesapeake. This forum could also provide education, coordination assistance, funding assistance, and in resources related to land use controls.

Local engagement is a key piece of this outcome and while a plethora of reports, best practices and decision support tools have been created, we are the missing "translation" piece as outlined in the Local Engagement Strategy. Professional science communicators with special knowledge of local governments are needed to assist in the distillation, packaging and dissemination of the plethora of resources that have been developed for this outcome. In addition, Translators need to include communication with state reps and senators/ other jurisdictional officials. This will help close gap related to the land-use planning process and how it works at the local level and is influenced at the jurisdictional level and encourage use of the tools and resources that have been developed.

It is important to also acknowledge the importance of State/jurisdictional involvement in land use, they too need to have information to help ensure the success of this outcome and in some cases, locals are hampered or limited by state and jurisdictional level policies. The Management board could also assist in conversations among state agencies and regional planning organizations to discuss how state-level and regional-level policies, incentives and technical assistance programs could be revised to achieve a reduction in the rate of land conversion at the local level.

5. What steps are you taking, or do you recommend, to ensure your actions and work will be equitably distributed and focused in geographic areas and communities that have been underserved in the past?

DEIJ and Climate:

Diversity, Equity, Inclusion and Justice (DEIJ) and climate considerations are not well accounted for in the LUOE Outcome. The way land is utilized for recreation, housing, infrastructure or industrial purposes can have a profound effect on the residents that make up a community. While resources related to policies, incentives and planning tools to reduce land conversion have been compiled, there have not been any assessments completed to determine how underserved communities would be helped or hindered. It is vital that any policies, incentives or planning tools related to land conversion also support healthy communities in an equitable way.