Survey Responses: How will the Land Use Methods and Metrics 2023 proposed indicators be used across the Chesapeake Bay Program?

Background

In February 2023, the LUWG leadership sent a survey to coordinators/chairs of CBP workgroups and GITs to capture the ways in which the Land Use Methods and Metrics (LUMM) proposed indicators could be (or are currently being) used by Bay Program goal teams and workgroups to demonstrate the importance of tracking land conversion - specifically, impervious cover, farmland conversion, forestland conversion, wetland conversion, and riparian natural lands conversion. The responses are shown in the Table below.

What Chesapeake Bay Program group(s) are you representing?	Which of the 2023 proposed indicators does your group plan on using?	Please describe how your group plans on using the proposed LUMM indicators.
Integrated Trends Analysis Team (ITAT)	• Impervious Cover (2017/18) and Impervious Cover Change (2013-2017) • Effective Impervious Cover (2017/18) and Impervious Cover Change (2013/14 to 2017/18) • Farmland Conversion to Development (2013/14 to 2017/18) • Forest Land Conversion to Development (2013/14 to 2017/18) • Wetland Land Conversion to Development (2013/14 to 2017/18) • Riparian Natural Lands (2017/18) and Natural Land Change (2013/14 to 2017/18)	The Integrated Trends Analysis Team (ITAT) utilizes land use and land cover data as a part of the 12 Tributary Summary reports for the Chesapeake Bay watershed. Tracking landscape change will inform outcomes and drivers of water quality trends.
Local Leadership Workgroup	• Impervious Cover (2017/18) and Impervious Cover Change (2013-2017) • Farmland Conversion to Development (2013/14 to 2017/18) • Forest Land Conversion to Development (2013/14 to 2017/18) • Wetland Land Conversion to Development (2013/14 to 2017/18)	The Local Leadership Workgroup's (LLWG) use of this data is currently undecided, but I see our workgroup using these indicators in communications such as the Local Government Guide to the Bay to demonstrate the importance of land conservation and related policy tools.
Water Quality GIT & associated workgroups	• Impervious Cover (2017/18) and Impervious Cover Change (2013-2017) • Effective Impervious Cover (2017/18) and Impervious Cover Change (2013/14 to 2017/18) • Farmland Conversion to Development (2013/14 to 2017/18) • Forest Land Conversion to Development (2013/14 to 2017/18)	The WQGIT focuses a lot on BMPs and not enough on land conversion and a synthesis of these indicators with WQ monitoring data at varying scales could be one tremendously valuable application of these land conversion indicators. Personally, maybe we will start to see how well different jurisdictions "accounting for growth" strategies are paying off,

	• Wetland Land Conversion to Development (2013/14 to 2017/18) • Riparian Natural Lands (2017/18) and Natural Land Change (2013/14 to 2017/18)	or not. More generally, all land conversions play a role in either moving us closer or farther away from our 2025 WIP outcome targets, and these conversion indicators will help us better understand this over time. A lot of the WQGIT's workgroups will also benefit from this data (AgWG, USWG, FWG, Federal Facilities WG), so I want to note that in case I am speaking for them.
SAV Workgroup	• Impervious Cover (2017/18) and Impervious Cover Change (2013-2017) • Effective Impervious Cover (2017/18) and Impervious Cover Change (2013/14 to 2017/18) • Farmland Conversion to Development (2013/14 to 2017/18) • Forest Land Conversion to Development (2013/14 to 2017/18) • Wetland Land Conversion to Development (2013/14 to 2017/18) • Riparian Natural Lands (2017/18) and Natural Land Change (2013/14 to 2017/18)	SAV distribution, abundance and resiliency are directly linked to sub-estuary land use (positive correlation with forested lands, negative correlation with hardened shorelines) - see Patrick et al. 2014. Tracking land conversion over time will also aid identifying SAV stressors at the larger scale.
I co-chair the Budget and Finance Workgroup (BFWG) that likely won't use these data, but I will use it in my work at MD DNR	• Impervious Cover (2017/18) and Impervious Cover Change (2013-2017) • Effective Impervious Cover (2017/18) and Impervious Cover Change (2013/14 to 2017/18) • Farmland Conversion to Development (2013/14 to 2017/18) • Forest Land Conversion to Development (2013/14 to 2017/18) • Wetland Land Conversion to Development (2013/14 to 2017/18) • Riparian Natural Lands (2017/18) and Natural Land Change (2013/14 to 2017/18)	I don't see the BFWG directly using these data, but my group at DNR is using LU change data to target areas for restoration and conservation in Maryland.
Maintain Healthy Watersheds GIT	• Impervious Cover (2017/18) and Impervious Cover Change (2013-2017) • Farmland Conversion to Development (2013/14 to 2017/18) • Forest Land Conversion to Development (2013/14 to 2017/18) • Wetland Land Conversion to Development (2013/14 to 2017/18) • Riparian Natural Lands (2017/18) and Natural Land Change (2013/14 to 2017/18)	Many of these indicators are already or will be metrics in the Chesapeake Healthy Watersheds Assessment. The Maintain Healthy Watersheds Goal Implementation Team (HWGIT) has identified land use change as the single biggest factor impacting watershed health. Specific land use thresholds and metrics can help characterize the vulnerability of those watersheds. Tracking land conversion over time is crucial to the HWGIT's work of helping maintain healthy watersheds.

Habitat Goal Implementation Team (HGIT)	• Impervious Cover (2017/18) and Impervious Cover Change (2013-2017) • Effective Impervious Cover (2017/18) and Impervious Cover Change (2013/14 to 2017/18) • Farmland Conversion to Development (2013/14 to 2017/18) • Forest Land Conversion to Development (2013/14 to 2017/18) • Wetland Land Conversion to Development (2013/14 to 2017/18) • Riparian Natural Lands (2017/18) and Natural Land Change (2013/14 to 2017/18)	Supporting information to projects and prioritization of the Habitat GIT work.
Forestry Workgroup	• Forest Land Conversion to Development (2013/14 to 2017/18) • Riparian Natural Lands (2017/18) and Natural Land Change (2013/14 to 2017/18)	The Forestry Workgroup supports efforts to minimize loss of forest to development, so being able to track this conversion over time is important for understanding the extent to which this is occurring and where. I think the riparian natural lands indicator would be helpful to understand riparian condition, but a forested riparian lands indicator would be more directly relevant to our riparian forest buffer outcome :)
Agriculture Workgroup, Agricultural Modeling Team	• Impervious Cover (2017/18) and Impervious Cover Change (2013-2017) • Farmland Conversion to Development (2013/14 to 2017/18)	The Agricultural Modeling Team has identified land use change data as instrumental in working to identify feeding operations.
Scientific Technical Assessment and Reporting (STAR)	See list of science needs below.	See list of science needs below.

In addition to the Workgroup and GITs intended uses of the indicators displayed in the Table above, the continuation of the high-resolution land use/cover monitoring will support the following CBP science needs and their associated Outcomes:

- **Outcomes:**
  - Land Use Methods and Metrics
  - Water Quality Standards Attainment and Monitoring
  - Climate Resiliency Monitoring and Assessment
  - Climate Resiliency Adaptation
  - Brook Trout
  - Healthy Watersheds
  - 2025 WIP

    - Forest Buffers
    - Land Protection
    - Tree Canopy
- **Science Needs:**
    - https://star.chesapeakebay.net/Need/NeedDetail?needID=162
    - https://star.chesapeakebay.net/Need/NeedDetail?needID=205
    - https://star.chesapeakebay.net/Need/NeedDetail?needID=208
    - https://star.chesapeakebay.net/Need/NeedDetail?needID=222
    - https://star.chesapeakebay.net/Need/NeedDetail?needID=261
    - https://star.chesapeakebay.net/Need/NeedDetail?needID=302
    - https://star.chesapeakebay.net/Need/NeedDetail?needID=310
    - https://star.chesapeakebay.net/Need/NeedDetail?needID=104
    - https://star.chesapeakebay.net/Need/NeedDetail?needID=275
    - https://star.chesapeakebay.net/Need/NeedDetail?needID=128
    - https://star.chesapeakebay.net/Need/NeedDetail?needID=129
    - https://star.chesapeakebay.net/Need/NeedDetail?needID=304
    - https://star.chesapeakebay.net/Need/NeedDetail?needID=97
    - https://star.chesapeakebay.net/Need/NeedDetail?needID=179
    - https://star.chesapeakebay.net/Need/NeedDetail?needID=308
    - https://star.chesapeakebay.net/Need/NeedDetail?needID=100
    - https://star.chesapeakebay.net/Need/NeedDetail?needID=264
    - https://star.chesapeakebay.net/Need/NeedDetail?needID=265
    - https://star.chesapeakebay.net/Need/NeedDetail?needID=126
    - https://star.chesapeakebay.net/Need/NeedDetail?needID=34
    - https://star.chesapeakebay.net/Need/NeedDetail?needID=48
    - https://star.chesapeakebay.net/Need/NeedDetail?needID=210
    - https://star.chesapeakebay.net/Need/NeedDetail?needID=174

Outcomes that mention land use change or land conversion as an important metric or factor influencing progress in their SRS materials (management strategies, LAPs, or science needs list):

1. Forage Fish
2. Fish Habitat
3. Land Use Methods and Metrics
4. Water Quality Standards Attainment and Monitoring
5. Climate Resiliency Monitoring and Assessment
6. Climate Resiliency Adaptation

7. Brook Trout
8. Healthy Watersheds
9. 2025 WIP
10. 2017 WIP
11. Forest Buffers
12. Land Protection
13. Tree Canopy
14. Land Use Options Evaluation
15. Land Use Methods and Metrics
16. Wetlands
17. Stream Health
18. Submerged Aquatic Vegetation
19. Local leadership
20. Public Access