OVERVIEW

FEDERAL AGENCY AND OFFICE:	U.S. Environmental Protection Agency (EPA), Region 3, Chesapeake Bay Program Office (CBPO)
FUNDING OPPORTUNITY TITLE:	Landscape Characterization and Monitoring in the Chesapeake Bay Watershed
ANNOUNCEMENT TYPE:	Notice of Funding Opportunity (NOFO)
FUNDING OPPORTUNITY NUMBER:	EPA-R3-CBP-24-01
ASSISTANCE LISTING NUMBER:	66.466

IMPORTANT DATES

July 19, 2024	Application Closing Date
August 19, 2024	Anticipated Initial Award Selection
October 1, 2024	Anticipated Start of Period of Performance

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I. FUNDING OPPORTUNITY DESCRIPTION

A. Background

1. About the Chesapeake Bay Program

The Chesapeake Bay is North America's largest and most biologically diverse estuary. A resource of extraordinary productivity, it is worthy of the highest levels of protection and restoration. Authorized by Clean Water Act (CWA) Section 117, 33 USC Section 1267, the Chesapeake Bay Program (CBP) is a unique regional, state, federal, and local partnership that has been directing and conducting the restoration and protection of the Chesapeake Bay. CBP is responsible for supporting the Chesapeake Bay Executive Council (Executive Council) through a number of actions, including the coordination of federal, state, and local efforts to restore and protect living resources and water quality of the Chesapeake Bay and its watershed. The partnership's work is guided by the *Chesapeake Bay Watershed Agreement*, which establishes the plan for collaboration across the Bay's political boundaries and establishes goals and outcomes for the restoration of the Bay, its tributaries, and the lands that surround them.

2. About the CBP Partnership

Today, the CBP partners include the states of Delaware, Maryland, New York, Pennsylvania, Virginia, and West Virginia; the District of Columbia; the Chesapeake Bay Commission (a tri-state legislative body); and EPA (representing the federal government). The CBP partnership is guided at the direction of the **Executive Council**, which, through its leadership, establishes the policy direction for the restoration and protection of the Chesapeake Bay and exerts its leadership to rally public support for the Bay effort. It also approves directives, agreements, and amendments that set goals and guide policy for Chesapeake Bay restoration. To ensure implementation of the Executive Council's Chesapeake Bay Agreements, the CBP partnership has several committees, teams, and workgroups comprised of participating partners.

The **Principals' Staff Committee** (PSC) acts as the senior policy advisors to the Executive Council, accepting items for their consideration and approval and setting agendas for Executive Council meetings. The PSC translates the restoration vision by setting policy and implementing actions on behalf of the Executive Council. The PSC also provides policy and program direction to the Management Board.

The **Management Board** provides strategic planning, priority setting, and operational guidance through implementation of a comprehensive, coordinated, accountable implementation strategy for the CBP. It directs and coordinates all of the goal teams and workgroups under it.

The **Goal Implementation Teams** (GITs) include federal and non-federal experts from throughout the watershed. Thus, academic experts, advocacy organizations, and others become active members of the broad restoration partnership.

The **Scientific and Technical Advisory Committee** (STAC) provides scientific and technical guidance to the CBP on measures to restore and protect the Chesapeake Bay. Since its creation in December 1984, STAC has worked to enhance scientific communication and outreach throughout the Chesapeake Bay watershed and beyond.

The **Water Quality Goal Implementation Team** (WQGIT) works to evaluate, focus, and accelerate the implementation of practices, policies, programs that will restore water quality in the Chesapeake Bay and its tributaries to conditions that support living resources and protect human health. The WQGIT reports to the Management Board and PSC.

The **Land Use Workgroup** (LUWG) will provide overall direction to the activities funded through this NOFO and is tasked with overseeing the development and review of high-resolution (i.e., 1-meter cells) LULC data with sufficient categorical detail to inform current and future versions of the watershed model and multiple outcomes outlined in the *2014 Chesapeake Bay Agreement* and any future agreements. The LUWG is composed mostly of land use planners focused on policy and implementation. On technical remote sensing and mapping matters, the LUWG is advised by the United States Geological Survey's (USGS) CBP Land Data Team composed with expertise in remote sensing, land use mapping, and change detection. The LUWG Coordinator, with support from the USGS-CBP Land Data Team, are responsible for coordinating land use mapping activities with all other relevant workgroups (see below). The LUWG reports to the WQGIT and defers to them on matters with watershed modeling implications.

Pursuant to CWA Section 117(b)(2), 33 USC Section 1267(b)(2), the Chesapeake Bay Program Office (CBPO) is the office within EPA charged with providing support to the Executive Council in the restoration and protection of the Chesapeake Bay. The CBPO and the CBP, mentioned above, are two distinct entities.

For additional background information on the CBP structure, achievements, and commitments, see the CBP partnership's website located at http://www.chesapeakebay.net/. For general information on EPA and CBPO grants, please visit the EPA Grants website, the EPA Region 3 Grants website, and the CBPO Grant Guidance website.

3. The Chesapeake Bay TMDL and WIPs

EPA has established the Chesapeake Bay Total Maximum Daily Load (TMDL), a historic and comprehensive "pollution diet" with rigorous accountability measures to initiate sweeping actions to restore clean water to the Chesapeake Bay and the watershed's streams, creeks, and rivers.

The Bay TMDL – the largest ever developed by EPA – identifies the necessary pollution reductions of nitrogen, phosphorus and sediment across Delaware, Maryland, New York, Pennsylvania, Virginia, West Virginia, and the District of Columbia and sets pollution limits necessary to meet applicable state water quality standards in the Chesapeake Bay, its tidal tributaries and embayments. These pollution limits were further divided by jurisdiction and major river basin based on state-of-the-art modeling tools, extensive monitoring data, peer-reviewed science, and close interaction with jurisdictional partners.

Watershed Implementation Plans (WIPs) are plans for how each of the seven Chesapeake Bay watershed jurisdictions (jurisdictions), in partnership with federal and local governments, will achieve their respective Bay TMDL allocations and planning targets. The Phase I WIPs were developed in 2010 by the jurisdictions to inform the 2010 Chesapeake Bay TMDL waste load and load allocations. The Phase II WIPs were developed by the jurisdictions in 2012 followed by Phase III in 2019 to meet nitrogen, phosphorus, and sediment planning targets based on updated information generated through the Bay Program partnership's Phase 6 Chesapeake Bay watershed model. The goal of the Bay TMDL and supporting jurisdictional WIP process is to implement by 2025 all nutrient and sediment pollutant load reduction and prevention measures needed to fully restore water quality in Chesapeake Bay and its tidal rivers.

4. High Resolution Land Use and Land Cover (LULC) Data
Accurate land use/land cover (LULC) data are critical for informing the CBP Watershed Model and changes in LULC are influencing factors for 20 of the 31 outcomes in the 2014 Chesapeake Bay Agreement. Prior to 2017, LULC data for the Chesapeake Bay watershed were derived mainly from 30-meter resolution satellite imagery. Inaccuracies in these data at local scales, related to their coarse spatial and categorical resolution, made it difficult for states to develop WIPs and to receive credit for all reported best management practices (BMPs). To help provide the CBP federal, state, and local partners with the level of detailed LULC data needed to support restoration and conservation decisions, the CBP partnership supported a basin-wide effort to acquire, interpret, and map high-resolution LULC across the entire Chesapeake Bay watershed.

The result was the acquisition of a consistent and accurate LULC dataset for the 206 counties and incorporated cities within and/or adjacent to the Chesapeake Bay watershed (See Appendix E). Excluding the Bay itself, this region has a 95,000 mi^2 land area. Using publicly available aerial imagery from the U.S. Department of Agriculture's National Agriculture Imagery Program (NAIP), and Light Detection And Ranging LiDAR imagery from states and the U.S. Geological Survey, a scalable and replicable methodology was used to generate 1-meter spatial resolution LULC data with 62 classes for the years 2013/14, 2017/18, and 2021/22 with class accuracies equal to or greater than 95% for critical classes (e.g., tree canopy and impervious surfaces). To support the 2014 Chesapeake Bay Watershed Agreement and the CBP partnership's suite of modeling tools (e.g., Phase 7 watershed model and Main Bay Model), high-resolution LULC data need to be continually produced over the next decade.

Restoration and conservation efforts in the Bay watershed will continue into the foreseeable future as will the diverse array of LULC applications implemented by counties, municipalities, and other organizations that have become reliant on high-resolution LULC data. A continuous, longer-term, and more frequent land data record is required to better understand factors affecting land use and the relationships between land use, water quality, and climate change. At a minimum, the record of consistent and detailed LULC data needs to be continued through the next decade to: 1) ensure the production of LULC data based on 2025/26 aerial imagery; 2) ensure that the products continue to meet and adapt to the diverse and evolving needs of the CBP partnership; and 3) leverage new sources of imagery, computational capacities, and scientific techniques as they become available and applicable.

B. Scope of Work
This NOFO is seeking insightful, expert, and cost-effective applications from eligible applicants to provide the Chesapeake Bay Program's non-federal partners with updated LULC data, enhanced river corridor data, and landscape metrics and communication products associated with these data to facilitate their application to CBP outcomes and the CBP's Phase 7 suite of modeling tools.

EPA seeks to support one recipient for four Activities to: (1) produce high spatial-resolution (<= 1m2) land cover for the years 2025/26 ensuring consistent and accurate estimates of land cover change since 2013/14; (2) produce hyper-temporal spectral indices from 1985- 2028; (3) produce high spatial-resolution (<= 1m2) land use for the years 2025/26 ensuring consistent and accurate estimates of land use change since 2013/14 and improve BMP opportunity mapping and verification with LULC data; and (4) characterize stream corridors to enhance the utility and application of hyper-resolution hydrography data.

While the CBP partnership is comprised of federal and non-federal organizations, any activities funded under this NOFO are not intended to and will not directly benefit the federal partners. The recipient of the cooperative agreement awarded under this NOFO may work directly with federal agencies, but the nature of that work will result only in direct, significant benefits to the non-federal agencies, partners, and general public. Any indirect and incidental benefits to EPA are not the purpose of the NOFO. The non-federal partners of the CBP will provide programmatic direction to the successful applicant through the LUWG and WQGIT.

EPA plans to award one five-year cooperative agreement under this NOFO. The total estimated funding under this solicitation is approximately **$6,500,000** overall, with an estimated **$1,300,000** available for the first year and each year thereafter. However, there is no guarantee of funding throughout this period or beyond. The table below summarizes the estimated funding available for each activity throughout the expected five-year project period.[1]

Activity	Estimated Funding Per Year	Total Estimated Funding for Five Years
Activity 1: High-Resolution Land Cover Characterization and Monitoring	$500,000	$2,500,000
Activity 2: Hyper-Temporal Spectral Indices	$100,000	$500,000
Activity 3: High-Resolution Land Use Characterization, Monitoring, and BMP verification	$500,000	$2,500,000
Activity 4: Stream Corridor Characterization	$200,000	$1,000,000
TOTAL	**$1,300,000**	**$6,500,000**

The above activities will support the CBP partnership's *Chesapeake Bay Watershed Agreement* and the CBP partnership's continuing mission to evaluate the effectiveness of management actions taken to reduce nutrient and sediment pollutant loads and to improve Chesapeake Bay water quality through the seven watershed jurisdictions' WIPs under current and future climate change and economic development that results in landscape changes. The CBP partnership mission includes enhancing and maintaining the accountability of systems dependent on tracking, verifying, reporting, and quantifying the estimated pollutant load reduction potential of practices, treatments, and technologies implemented throughout the watershed as well as assessing their collective influence on Chesapeake Bay tidal water quality. The activities outlined in this NOFO are particularly important for evaluating progress towards meeting the outcomes in the 2014 Chesapeake Bay Watershed Agreement and for informing the development of future goals and outcomes.

The successful applicant will supply staff who have significant, in-depth academic and/or professional experience in analysis and evaluation of LULC data. Priority tasks for each activity are set by the WQGIT and the LUWG. The CBPO's Data Center will be involved in any data, code, technologies, applications, and products developed under this NOFO.

If your organization has an interest and the experience to accomplish the activities described below and is eligible to receive a federal assistance agreement as described in Section III of this NOFO, we

[1] The funding levels detailed in the chart are intended as estimates only based on the scope of work for each activity. Recipients may propose different funding levels for each activity so long as the application addresses each activity, and the overall funding request does not exceed the maximum limit of $6,500,000.

encourage you to apply. Each eligible application will be evaluated using the criteria described in Section V. Applicants must address each activity below in their application to be considered eligible.

Activity 1: High-Resolution Land Cover Characterization and Monitoring
Estimated Funding: $2,500,000 ($500,000 per year for 5 years)

This activity involves the development of a high spatial-resolution (<= $1m^2$) land cover dataset for the Chesapeake Bay region (i.e., 206 counties intersecting and adjacent to the watershed) for the years 2025/26 and land cover change from 2021/22 to 2025/26 that is consistent with existing land cover change data produced for the years 2013/14 to 2017/18, and 2017/18 to 2021/22. Differences in image registration, sun angle, and phenology should be considered when estimating change. The best available existing imagery should be leveraged to the extent practicable including NAIP imagery, LiDAR imagery and derivatives (e.g., Digital Surface Models, Digital Elevation Models), and digital ortho-imagery. Other freely available or competitively priced image sources may be considered. Retrospective updates to the static 2013/14, 2017/18, and 2021/22 land cover data will be required to ensure consistency through time. The land cover data should have a minimum of nine classes (i.e., water, barren, herbaceous, shrubland, tree canopy, roads, structures, other impervious surfaces, and tree canopy over impervious). Class accuracies for tree canopy and total impervious cover should equal or exceed 95% and equal or exceed 90% for change. All other individual class accuracies should equal or exceed 85% for static and change data.

Innovations in artificial intelligence (AI) and machine learning methods should be evaluated and applied to improve the efficiency and accuracy of the land cover data including a finer categorization of herbaceous lands that may represent one of the highest polluting land uses (e.g., cropland) or one of the lowest (e.g., lands undergoing natural succession). This activity needs to be closely coordinated with Activities 2 and 3.

Within the first six months of the initiation of Activity 1, the recipient will provide a detailed action plan for review by the LUWG, CBPO project manager (PM), and EPA project officer (PO) describing how **High-Resolution Land Cover Characterization and Monitoring** will be developed and how the modeling, analysis, documentation, and technical transfer will be communicated to stakeholders. Over the course of the project, the recipient will develop a state-stratified accuracy assessment of land cover change from 2021/22 to 2025/26 for all change class combinations composing up to 95% of observed change. This will be shared with the LUWG as the work progresses.

The resultant land cover data will be used in Activity 3 to create the LULC data. The recipient will coordinate with CBPO's Data Center to ensure that any data, code, technologies, applications, and products developed under this activity are transferable.

Activity 2: Hyper-Temporal Spectral Indices
Estimated Funding: $500,000 ($100,000 per year for 5 years)

This activity is focused on developing a spatially- and temporally-referenced database of hyper-temporal spectral indices derived from Landsat and Sentinel 1 & 2 imagery, and imagery from NASA's upcoming Side-Aperture Radar mission (NISAR) imagery (when available) for the years 1985–2028 representing vegetation condition and surface moisture/water estimates at 30-meter and 10-meter resolution and produced at monthly, bimonthly, seasonal, and annual intervals. The hyper-temporal spectral indices should include, but not be limited to, the Normalized Difference Vegetation Index, Normalized

Difference Moisture Index, Tasseled Cap Wetness, and Radar backscatter. Deliverables include open-source algorithms that can be applied to the database to detect and filter noise both across space and through time and for characterizing spatial and temporal patterns, trends, and change in spectral indices. The capability to update the database, discern trends, and detect changes should be transferred to the CBPO in coordination with the CBPO Data Center staff to ensure the continued and consistent interpretation of these data beyond the termination of the project. These data will inform the timing, frequency, and duration of land disturbances such as new construction and timber harvests, enable the continued monitoring of marsh migration and dissolution, enable improved wetland mapping (NISAR), allow for the identification of healthy vs. disturbed pasture, improve the accuracy of the overall LULC classification, and inform multiple indicators on Chesapeake Progress.

Within the first six months of the initiation of Activity 2, the recipient will provide a detailed action plan for review by the LUWG, CBPO PM, and EPA PO describing how **Hyper-Temporal Spectral Indices** will be developed and how the modeling, analysis, documentation, and technical transfer communicated to stakeholders.

This activity must be coordinated with Activities 1 and 3. The recipient will coordinate with CBPO's Data Center to ensure that any data, code, technologies, applications, and products developed under this activity are transferable.

Activity 3: High-Resolution Land Use Characterization, Monitoring, and BMP verification
Estimated Funding: $2,500,000 ($500,000 per year for 5 years)

This activity involves the collection and curation of ancillary spatial data (e.g., tax parcels, road and utility centerlines, quarries, solar, harvesting) and the use of these data, in combination with land cover and spectral indices, to map the CBP's 62 land use/land cover classes at high-resolution (<= $1m^2$) for the years 2025/26 with retrospective updates to the 2021/22, 2017/18, and 2013/14 LULC datasets to ensure temporal and categorical consistency. Innovations in artificial intelligence (AI) and machine learning methods should be evaluated and applied to improve the efficiency and accuracy of the LULC data including the mapping of new and emergent land uses to meet the needs of the CBP Partners.

This activity will provide public access to the LULC data and the ability to visualize the source imagery, LULC, and LULC change data. It will facilitate the updating of existing tools that utilize the LULC data. In addition, it will produce land use and hydrography derivative products and analyses such as community-level fact sheets on impervious surfaces and riparian tree cover, geomorphic stream health indicators, Brook Trout habitat indicators, and refined assessments of urban tree canopy dynamics to inform tree planting and conservation goals.

This activity will establish formal and open communication channels between local users of the land use, land condition, and hydrography data and the CBP's Land Use Workgroup. These communication channels will help the CBP to identify common interests between local uses of the data and CBP outcomes. The communication channels will also serve to identify strategic opportunities to inform local and state policies and regulations to support CBP restoration and conservation outcomes. Finally, this effort will generate information needed to continually improve the relevance of the LULC to a diverse array of restoration and conservation decisions.

The final part of Activity 3 is to leverage machine learning coupled with manual interpretation to identify the presence/absence of structural and land cover Best Management Practices (BMPs) such as

detention ponds, manure storage areas, grass buffers, forest buffers, cover crops, ditch management, and stream restoration. This approach can be used to improve accounting of implemented BMPs and for opportunity mapping where BMPs are needed, leveraging the enhanced hydrography data produced in Activity 4.

Within the first six months of the initiation of Activity 3, the recipient will provide a detailed action plan for review by the LUWG, CBPO PM, and EPA PO describing how **High-Resolution Land Use Characterization, Monitoring, and BMP verification** will be developed and how the modeling, analysis, documentation, and technical transfer communicated to stakeholders.

Coordination with Activities 1, 2, and 4 are required. This activity will also coordinate with CBPO's Data Center to ensure technologies are transferable.

Activity 4: Stream Corridor Characterization
Estimated Funding: $1,000,000 ($200,000 per year for 5 years)

This activity increases the utility of hyper-resolution (1:2000 scale) hydrography data developed for the Chesapeake Bay Program partnership by assigning the stream features with attributes on streamflow permanence/periodicity, channel dimensions, culverts, and floodplain/valley characteristics. Streamflow permanence attributes include classifying streams as to their seasonal probability of flow, which can be used to designate them as ephemeral, intermittent, or perennial and to help determine which features should be buffered with trees. Floodplain and valley characteristics include measures of stream confinement and connectivity with adjacent floodplains and spatial data on the flooded extent of the floodplain under a range of storm recurrence intervals, e.g., 2-year, 10-year, 50-year, and 100-year flood events. USGS is currently developing methods to map the floodplain across a range of storm events in a few pilot locations. This activity will be conducted in close coordination with the CBP's Land Data Team.

This activity should include a component for crowd-sourcing stream flow data by engaging citizens and stakeholders in the monitoring and reporting on stream flow conditions at different times of year.

Within the first six months of the initiation of Activity 4, the recipient will provide a detailed action plan for review by the LUWG, Stream Health Workgroup, CBPO PM, and EPA PO describing how **Stream Corridor Characterization** will be developed and how the modeling, analysis, documentation, and technical transfer communicated to stakeholders.

Metadata and the spatial data created for this project should be structured to meet federal standards to the extent practicable. The recipient will coordinate with CBPO's Data Center to ensure transferability and with Activity 3 to pursue ways to engage the public and local organizations in data collection activities.

Coordination and Communication
The activities described above support multiple outcomes of the *Chesapeake Bay Watershed Agreement* and will therefore require coordination and communication with a variety of CBP GITs, workgroups, and teams. In coordination with the CBPO PM and EPA PO, the selected recipient will provide progress briefings and report findings to the relevant CBP groups. Additionally, the successful applicant will host webinars and training sessions and post and promote materials online for users of the data developed under this cooperative agreement. Users will include state/local flood managers, hazard mitigation

planners, land use and urban planners, residential community leaders, state/local water agencies, emergency response agencies, etc.

C. EPA Strategic Plan Linkage, Anticipated Outputs and Outcomes

1. Strategic Plan Linkage
Pursuant to Section 6a of EPA Order 5700.7A1, "Environmental Results under EPA Assistance Agreements," EPA must link proposed assistance agreements to the Agency's Strategic Plan. The activities to be funded under this solicitation support the FY 2022-2026 EPA Strategic Plan. Awards made under this solicitation will support *Goal 5: Ensure Clean and Safe Water for All Communities*, *Objective 5.2 Protect and Restore Waterbodies and Watersheds* of the Strategic Plan.

2. Environmental Results: Outputs and Outcomes
EPA Order 5700.7A1 also requires that grant applicants adequately describe environmental outputs and outcomes to be achieved under assistance agreements. Applicants must include specific statements describing the environmental results of the proposed project in terms of well-defined outputs and, to the maximum extent practicable, well-defined outcomes that will demonstrate how the project will contribute to accomplishment of the Activities described above in Section I.B.

The term "output" means an environmental activity, effort, and/or associated work product related to an environmental goal and objective that will be produced or provided over a period or by a specified date. Outputs may be quantitative or qualitative but must be measurable during the assistance agreement funding period.

The term "outcome" means the result, effect, or consequence that will occur from carrying out an environmental program or activity that is related to an environmental or programmatic goal or objective. Outcomes may be environmental, behavioral, health-related, or programmatic in nature, but must be quantitative. They may not necessarily be achievable within the assistance agreement funding period.

The following questions may be useful to consider when developing output and outcome measures of quantitative and qualitative results:

- What measurable short- and longer-term results will the grant achieve?
- How will progress be measured in achieving the expected results (including outputs and outcomes), and how will the approach to measuring progress use resources effectively and efficiently?
- Are the projected outputs and outcomes specific and detailed? Are specific target measures included where possible? Are target measures reasonable and achievable within the project period and for the funding amount?

Semi-annual progress reports and a final report will also be required outputs for all activities, as specified in Section VI.C., Reporting, of this announcement.

Below are examples of potential outputs and outcomes for activities funded under this NOFO. Applicants are encouraged to identify additional outputs and outcomes as relevant to their specific project plan.

Example Outputs

Outputs may include but are not limited to the following:

Activity 1: High-Resolution Land Cover Characterization and Monitoring

- Develop nine-class, 1-meter spatial resolution land cover raster data in cloud-optimized format for the year 2025/26 coordinated with the CBPO Data Center.
- Develop land cover change from 2021/22 to 2025/26 with consistent bias compared to land cover changes mapped for 2013/14 to 2017/18 to 2021/22. Important Note: This may require remapping 2013/14 and 2017/18.
- Develop a state-stratified accuracy assessment of land cover change from 2021/22 to 2025/26 for all change class combinations composing up to 95% of observed change.

Activity 2: Hyper-Temporal Spectral Indices

- Generate cloud-optimized raster datasets representing computed monthly, bimonthly, seasonal, and annual spectral indices (e.g., NDVI, NDMI, and others) at 30-meter (Landsat) and 10-meter (Sentinel) resolution coordinated with the CBPO Land Data Team and Data Center.
- Prepare a complete computation of and algorithms for filtering noise and for assessing spatial temporal trends and detecting changes in spectral indices over time (e.g., code base, environment files, documentation).
- Utilize code and workflows to update the spectral indices (e.g., Python or R code for use with Google Earth Engine, environment files, documentation, etc.).

Activity 3: High-Resolution Land Use Characterization, Monitoring, and BMP verification

- Generate a sixty-two class, 1-meter spatial resolution LULC raster data in cloud-optimized format for the year 2025/26 coordinated with the CBPO Data Center. (Exact classification will be decided by the CBPO Land Use Workgroup and Land Data Team.)
- Assess and document LULC change from 2021/22 to 2025/26. If changes are recommended to the classification schema or improvements to the mapping rules and/or ancillary data are instituted, LULC may have to be remapped for the years 2013/14 and 2017/18 to ensure consistency.
- Generate a comparison of bias in land cover change detection between the data for 2013/14 to 2017/18 to 2021/22 with the 2021/22 to 2025/26 change data.

Activity 4: Stream Corridor Characterization

- Assign flow regime, channel, and floodplain attributes associated with each reach in the CBP Hyper-resolution Hydrography dataset.
- Integrate the hyper-resolution hydrography data into Phase 7 and stream health, brook trout, and watershed health outcomes.
- Prepare and deliver communication products for hydrography data (web-based data exploration and download tools) and the development of derivative data products to inform various CBP outcomes.

All Activities:

- Develop analysis tools, research, literature syntheses, and other materials to support Chesapeake protection and restoration efforts and address the needs and requirements of CBP decision-makers and managers for responding to climate change, growth, and other challenges in the Chesapeake watershed and tidal Bay.

Example Outcomes

Outcomes may include but are not limited to the following:

- Reduced nitrogen, phosphorus, sediment delivered to tidal Bay waters sufficient enough to respond to 2035 and future climate change to achieve Bay water quality standards.
- Increased ability by the CBP partnership to make collaborative decisions needed to implement the requirements to meet 20 of 31 outcomes of the 2014 Chesapeake Bay Watershed Agreement, particularly those related to stormwater runoff, urban tree canopy, riparian forest buffers, non-point source pollution, and toxics.
- Increased knowledge and strategies to improve local economies and human health and meet environmental goals through a restored Chesapeake Bay despite future challenges of climate.

D. Authorizing Statutes and Regulations

This grant is made pursuant to CWA Section 117(d), 33 U.S.C. Section 1267(d), which authorizes EPA to issue grants and cooperative agreements for the purposes of protecting and restoring the Chesapeake Bay's ecosystem. This project is subject to the Office of Management and Budget's (OMB) Uniform Grants Guidance (2 C.F.R. Part 200) and EPA-specific provisions of the Uniform Grants Guidance (2 C.F.R. Part 1500).

E. Minority Serving Institutions

EPA recognizes that it is important to engage all available minds to address the environmental challenges the nation faces. At the same time, EPA seeks to expand the environmental conversation by including members of communities which may have not previously participated in such dialogues to participate in EPA programs. For this reason, EPA strongly encourages all eligible applicants identified in Section III, including minority serving institutions (MSIs), to apply under this opportunity. For purposes of this solicitation, the following are considered MSIs:

1. Historically Black Colleges and Universities, as defined by the Higher Education Act (20 U.S.C. § 1061(2)). A list of these schools can be found at Historically Black Colleges and Universities;

2. Tribal Colleges and Universities (TCUs), as defined by the Higher Education Act (20 U.S.C. § 1059c(b)(3) and (d)(1)). A list of these schools can be found at Tribal Colleges and Universities;

3. Hispanic-Serving Institutions (HSIs), as defined by the Higher Education Act (20 U.S.C. § 1101a(a)(5)). A list of these schools can be found at Hispanic-Serving Institutions;

4. Asian American and Native American Pacific Islander-Serving Institutions; (AANAPISIs), as defined by the Higher Education Act (20 U.S.C. § 1059g(b)(2)). A list of these schools can be found at Asian American and Native American Pacific Islander-Serving Institutions; and

5. Predominately Black Institutions (PBIs), as defined by the Higher Education Act of 2008, 20 U.S.C. 1059e(b)(6). A list of these schools can be found at Predominately Black Institutions.

II. AWARD INFORMATION

A. Funding Amount, Number of Awards, and Project Period

The total estimated federal funding under this solicitation is approximately $6,500,000 for one cooperative agreement. Funding will be awarded incrementally in the amount of $1,300,000 per year for five years depending on funding availability, satisfactory performance, Agency priorities, and other applicable considerations. No commitment of funding can be made beyond the first year. The expected start date for the award resulting from this NOFO is **October 1, 2024**.

EPA reserves the right to reject all applications and make no award under this announcement or award less than the estimated funding amounts above. EPA makes no commitment of annual funding amounts for any fiscal year(s), as funds may be limited based on funding availability and the other factors listed above.

EPA reserves the right to make additional awards under this announcement, consistent with Agency policy and guidance, if additional funding becomes available after the original selection is made. Any additional selections for awards will be made no later than six months after the original selection decision.

In appropriate circumstances, EPA reserves the right to partially fund applications by funding discrete portions or phases of proposed projects. If EPA decides to partially fund a project, it will do so in a manner that does not prejudice the applicant or affect the basis upon which the application or portion thereof was evaluated and selected for award and therefore maintains the integrity of the competition and selection process.

B. Award Type and Substantial Involvement

EPA intends to award one cooperative agreement under this solicitation. Cooperative agreements provide for substantial involvement between EPA and the recipient in the performance of the work supported.

The work involved in this cooperative agreement will be performed by the recipient in consultation with the CBP partnership's GITs and workgroups, in which EPA also substantially participates as a CBP partner, to ensure that the efforts of all members are coordinated and there is consistency of recommendations and decisions for all CBP partners. While EPA will negotiate the precise terms and conditions relating to its substantial involvement as part of the award process, EPA anticipates that the substantial involvement will include:

- Regular GIT and/or workgroup meeting attendance and participation.
- Reviewing and commenting on the recipient's programmatic progress reports.
- Semi-annual meetings between the recipient and the EPA PO or their delegate.
- *Ad hoc* progress meetings, as requested by EPA.
- Reviewing and commenting on any documents, web content, or other materials developed under this agreement. (The recipient will make final decisions on these matters.)
- Consultation and/or coordination between EPA, the recipient, and monitoring and modeling stakeholders.
- Joint operational involvement, participation, and/or collaboration between EPA and the recipient.
- Consultation with EPA regarding the selection of key personnel. EPA's involvement is limited to reviewing the technical qualifications of key personnel. The recipient will make the final decisions on selection. EPA will not suggest, recommend, or direct the recipient to select any individual.

EPA does not have the authority to select or recommend for selection employees, contractors, or subrecipients of the recipient. Likewise, the final content of reports developed under this agreement is the decision of the recipient.

III. ELIGIBILITY INFORMATION

Note: Additional provisions that apply to this section can be found at EPA Solicitation Clauses.

A. Eligible Applicants

Consistent with Assistance Listing 66.466 and CWA Section 117(d), competition under this solicitation is available for technical and general assistance grants to nonprofit organizations, State, tribal (federally-recognized) and local governments, colleges, universities, and interstate agencies. For-profit organizations are not eligible to submit applications in response to this NOFO.

Consistent with the definition of Nonprofit organization at 2 CFR 200.1, the term nonprofit organization means any corporation, trust, association, cooperative, or other organization that is operated mainly for scientific, educational, service, charitable, or similar purpose in the public interest and is not organized primarily for profit; and uses net proceeds to maintain, improve, or expand the operation of the organization. The term includes tax-exempt nonprofit neighborhood and labor organizations. Note that 2 CFR 200.1 specifically excludes Institutions of Higher Education from the definition of non-profit organization because they are separately defined in the regulation. While not considered to be a non-profit organization(s) as defined by 2 CFR 200.1, public or nonprofit Institutions of Higher Education are, nevertheless, eligible to submit applications under this NOFO. Hospitals operated by state, tribal, or local governments or that meet the definition of nonprofit at 2 CFR 200.1 are also eligible to apply as nonprofits or as instrumentalities of the unit of government depending on the applicable law. For-profit colleges, universities, trade schools, and hospitals are ineligible.

Nonprofit organizations that are not exempt from taxation under section 501 of the Internal Revenue Code must submit other forms of documentation of nonprofit status such as certificates of incorporation as nonprofit under state or tribal law. Nonprofit organizations exempt from taxation

under section 501(c)(4) of the Internal Revenue Code that lobby are not eligible for EPA funding as provided in the Lobbying Disclosure Act, 2 U.S.C. 1611.

B. Cost Share or Matching Requirements

Pursuant to CWA Section 117(d)(2)(A), 33 USC Section 1267(d)(2)(A), the agency shall determine the cost share requirements for awards. Assistance Listing 66.466, states that assistance agreement applicants must commit to a cost share ranging from 5 percent to 50 percent of eligible project costs as determined at the sole discretion of EPA. For this NOFO, EPA has determined that an applicant must provide a minimum of 5 percent of the total cost of the project as the non-federal cost share.

Cost share may be in the form of cash or in-kind contributions. Involvement from foundations, watershed groups, private sector, eligible governmental, as well as non-conventional partners can help with the match. The match must be met by eligible and allowable costs and is subject to the match provisions in grant regulations. Applications that do not demonstrate how the minimum 5 percent match will be met will be rejected. Selected recipients must comply with 2 CFR 200.306 when meeting a cost share. For instructions on calculating the cost share/match requirement, please see Appendix B of this announcement.

C. Threshold Eligibility Criteria

All applications will be reviewed for eligibility and must meet the requirements described in Sections III.A., B., and C. to be considered eligible. Applicants deemed ineligible for funding will be notified within 15 calendar days of the determination.

1. Applications must substantially comply with the application submission instructions and requirements set forth in Section IV of this solicitation or else they will be rejected. However, where a page limit is expressed in Section IV with respect to the application, or parts thereof, pages in excess of the page limitation will not be reviewed. Applicants are advised that readability is of paramount importance and should take precedence in application format, including selecting a legible font type and size for use in the application.

2. In addition, initial applications must be submitted through Grants.gov as stated in Section IV of this solicitation (except in the limited circumstances where another mode of submission is specifically allowed as explained in Section IV) on or before the application submission deadline published in Section IV of this solicitation. Applicants are responsible for following the submission instructions in Section IV of this solicitation to ensure that their application is timely submitted. Please note that applicants experiencing technical issues with submission through Grants.gov should follow the instructions provided in Section IV, which include both the requirement to contact Grants.gov and email a full application to EPA prior to the deadline.

3. Applications submitted outside of Grants.gov will be deemed ineligible without further consideration unless the applicant can clearly demonstrate that it was due to EPA mishandling or technical problems associated with Grants.gov or SAM.gov. An applicant's failure to timely submit their application through Grants.gov because they did not timely or properly register in SAM.gov or Grants.gov will not be considered an acceptable reason to consider a submission outside of Grants.gov.

4. Applications must be for projects linked to the strategic goal outlined in Section I.C.1.

5. For an application to be considered eligible for funding, all project-related activities included in the application must directly support the Chesapeake Bay watershed, which includes portions of Delaware, Maryland, New York, Pennsylvania, Virginia, and West Virginia, and all of the District of Columbia. (Please note that applicants physically located outside the Chesapeake Bay region are eligible to apply provided all proposed activities directly support the Chesapeake Bay.)

6. Applications must show how they will meet the 5 percent cost share requirement of Section III.B. Applications that fail to meet the minimum 5 percent cost share requirement will be rejected. (Applicants should review Appendix B for instructions on calculating cost share.)

7. Applications requesting funding for more than the maximum available funding ($6,500,000) will be rejected.

8. If an application is submitted that includes any ineligible tasks or activities, that portion of the application will be ineligible for funding and may, depending on the extent to which it affects the application, render the entire application ineligible for funding.

9. Applications must address Activities 1-4 described in Section I.B. to be considered eligible. Applications that do not address each Activity will be considered ineligible.

IV. APPLICATION AND SUBMISSION INFORMATION

Note: Additional provisions that apply to this section can be found at EPA Solicitation Clauses.

A. Requirement to Submit Through Grants.gov and Limited Exception Procedures

Applicants must apply electronically through Grants.gov under this funding opportunity based on the Grants.gov instructions in this announcement. If your organization has no access to the internet or access is very limited, you may request an exception for the remainder of this calendar year by following the procedures outlined here. Please note that your request must be received at least 15 calendar days before the application due date to allow enough time to negotiate alternative submission methods. Issues with submissions with respect to this opportunity only are addressed in Appendix C. under Technical Issues with Submission.

B. Grants.gov Application Submission Instructions

Your organization's authorized official representative (AOR) must submit your complete application package electronically to EPA through Grants.gov no later than **July 19, 2024,** 11:59 PM ET. Please allow for enough time to successfully submit your application and allow for unexpected errors that may require you to resubmit.

See Appendix C for full Grants.gov submission instructions.

C. Application Materials

The following forms and documents are required under this announcement:

Mandatory Documents:

1) Application for Federal Assistance (SF-424)
2) Budget Information for Non-Construction Programs (SF-424A)
3) EPA Key Contacts Form 5700-54
4) EPA Preaward Compliance Review Report Form 4700-4 (see Tips for Completing EPA Form 4700-4 for guidance)
5) Project Narrative Attachment Form: The project narrative should be prepared as described in Appendix A of this NOFO.
6) Budget Narrative Attachment Form: The budget narrative should be prepared as described in Appendix B of this NOFO.

Optional Documents:

7) Other Attachment Form: Include the Indirect Cost Rate Agreement, if applicable. See RAIN-2018-G02-R, Indirect Cost Guidance for Recipients of EPA Assistance Agreements for additional information about indirect costs.

D. Informational Webinar and Application Assistance

EPA will host a webinar about this NOFO while it remains open for application submission. EPA will post information about the webinar, schedule for webinar, as well as additional information about this NOFO (e.g., frequently asked questions, technical assistance) on the EPA Region 3 Grant Opportunities page. A recording of the webinar will be posted at the link above along with presented materials, if any.

Please note that in accordance with EPA's Policy for Competition of Assistance Agreements, EPA Order 5700.5A1, EPA staff will not meet with individual applicants to discuss draft applications, provide informal comments on draft applications, or provide advice to applicants on how to respond to evaluation criteria. Applicants are responsible for the content of their applications.

Consistent with the provisions in this NOFO, EPA will respond to questions from individual applicants regarding threshold eligibility criteria, administrative issues related to the submission of the application, and requests for clarification about this NOFO, all of which responses will be available for public viewing at EPA Region 3 Grant Opportunities.

E. Other Application Information

1. Intergovernmental Review

Executive Order 12372, Intergovernmental Review of Federal Programs, may be applicable to awards resulting from this announcement. EPA implemented the Executive Order in 40 CFR Part 29. EPA may require applicants selected for funding to provide a copy of their application to their State Point of Contact (SPOC) for review as provided at 40 CFR 29.7 and 40 CFR 29.8. The SPOC list can be found on the Office of Federal Financial Management Resources webpage.

EPA may require successful applicants from states that do not have a SPOC to provide a copy of their application for review to directly affected state, area-wide, regional, and local government entities as provided at 40 CFR 29.7 and 40 CFR 29.8. These reviews are not required before applying. Only applicants that EPA selects for funding under this announcement are subject to the Intergovernmental Review requirement. Additional information regarding the Intergovernmental Review process can be found on the EPA Region 3 Intergovernmental Review and Single Points of Contact webpage.

2. Administrative Cost Cap Requirement

Recipients applying for CBP assistance agreements must adhere to the requirements for "Administrative Costs" under the CWA Section 117 (d)(4), 33 U.S.C. Section 1267 (d)(4), where they are defined as "the cost of salaries and fringe benefits incurred in administering" the grant, and which also states that administrative costs shall not exceed 10 percent of the annual grant award, which equals both the federal and recipient shares. *Appendix B: Budget Guidance and Requirements* is provided as an example of a method to calculate the 10-percent limitation. You are not required to submit Appendix B with your application.

3. Coalition Coverage

Groups of two or more eligible applicants may choose to form a coalition and submit a single application under this NOFO; however, one entity must be responsible for the grant. Coalitions must identify which eligible organization will be the recipient of the grant and which eligible organization(s) will be subrecipients of the recipient (the "pass-through entity"). Subawards must be consistent with the definition of that term in 2 CFR 200.1 and comply with EPA's Subaward Policy. The pass-through entity that administers the grant and subawards will be accountable to EPA for proper expenditure of the funds and reporting and will be the point of contact for the coalition. As provided in 2 CFR 200.332, subrecipients are accountable to the pass-through entity for proper use of EPA funding. For-profit organizations are not eligible for subawards under this grant program but may receive procurement contracts. Any contracts for services or products funded with EPA financial assistance must be awarded under the competitive procurement procedures of 2 CFR Part 200 and/or 2 CFR Part 1500, as applicable. The regulations at 2 CFR 1500.10 contain limitations on the extent to which EPA funds may be used to compensate individual consultants. Refer to the Best Practice Guide for Procuring Services, Supplies, and Equipment Under EPA Assistance Agreements for guidance on competitive procurement requirements and consultant compensation. Do not name a procurement contractor (including a consultant) as a "partner" or otherwise in your application unless the contractor has been selected in compliance with competitive procurement requirements.

V. APPLICATION REVIEW INFORMATION

Note: Additional provisions that apply to this section can be found at EPA Solicitation Clauses.

A. Evaluation Process

After EPA reviews applications for threshold eligibility as described in Section III, CBPO will conduct a merit evaluation of each eligible application. Reviews will be performed by a team of professionals from EPA and other CBP partner organizations with a working knowledge of the technical analysis and programmatic evaluation needs of the CBP partnership. All reviewers will sign a conflict-of-interest statement indicating they have no conflict.

B. Evaluation Criteria

The evaluation criteria below will be used to review eligible applications submitted under this NOFO. Applications will be evaluated based on a total of 100 possible points.

Criteria	Points
1. **Programmatic Capability and Approach:** Under this criterion, applications will be reviewed based on the quality and extent to which it demonstrates: a. The applicant's ability to: i. Develop a high spatial-resolution land cover dataset for the Chesapeake Bay region and land cover change that is consistent with existing land cover change data produced for the years specified in Section I.B. **(6 points)** ii. Develop a spatially and temporally referenced database of hyper-temporal spectral indices derived from imagery as specified in Section I.B. **(6 points)** iii. Map the Chesapeake Bay Program's land use/land cover classes at high resolution using ancillary spatial data, land cover, and spectral indices as described in Section I.B. **(6 points)** iv. Characterize stream features with attributes on streamflow permanence/periodicity, channel dimensions, culverts, and floodplain/valley characteristics as described in Section I.B. **(6 points)** b. How the applicant will implement, manage, and oversee the project Activities, including the applicant's plan for coordinating and engaging with the WQGIT and LUWG throughout the life of the award. **(10 points)** Note: Prior to naming a contractor (including consultants) or subrecipient in your application as a "partner", please carefully review Section IV.d, "Contracts and Subawards", of EPA's Solicitation Clauses. In evaluating this criterion, EPA will only consider the experience of any contractor(s), including consultants, if the applicant demonstrates they were selected in compliance with the competitive procurement requirements in 2 CFR 200.319 and 2 CFR 200.320. EPA does not accept justifications for sole-source contracts for services or products available in the commercial marketplace based on a contractor's role in preparing an application.	**34**
2. **Past Performance:** Under this criterion, applicants will be evaluated based on their ability to successfully complete and manage the proposed project considering their: a. Past performance in successfully completing and managing assistance agreements. **(3 points)** b. History of meeting the reporting requirements under assistance agreements including whether the applicant submitted acceptable final technical reports under those agreements and the extent to which the applicant adequately and timely reported on their progress towards achieving the expected outputs and outcomes under those agreements and if such progress was not being made whether the applicant adequately reported why not. **(3 points)**	**6**

Note: In evaluating applicants under items a. and b. of this criterion, the Agency will consider the information provided by the applicant and may also consider relevant information from other sources, including agency files and prior/current grantors (e.g., to verify and/or supplement the information supplied by the applicant). If you do not have any relevant or available past performance or past reporting information, please indicate this in the application and you will receive a neutral score for these subfactors (items a. and b. above--a neutral score is half of the total points available in a subset of possible points). If you do not provide any response for these items, you may receive a score of 0 for these factors.	
3. **Feasibility:** Applications will be evaluated based on whether it is demonstrated that all the Activities can be successfully and effectively performed within the five-year grant period of performance, and the degree of risk that they cannot be. Reviewers will consider the extent to which the approach is adequately developed, integrated, and appropriate to the goals of the project and whether there are potential problem areas. **(15 points)**	**15**
4. **Transferability of Results and Dissemination to the Public:** Under this criterion, reviewers will evaluate the application based on the degree to which it includes an adequate plan to gather information and lessons learned from the project and transfer that documentation, information, data, results, and recommendations to CBP partners and stakeholders across the Chesapeake Bay watershed in a timely manner. **(5 points)**	**5**
5. **Innovation:** Under this criterion, reviewers will evaluate the extent and quality to which the application includes concepts, approaches, methods, or combinations of them that demonstrate an innovative and efficient way to deliver results. **(10 points)**	**10**
6. **Environmental Results Tracking:** Under this criterion, applicants will be evaluated based on: a. The quality and specificity of the application's proposed outputs and outcomes and how they will lead to accomplishment of the proposed project. **(5 points)** b. The effectiveness of the plan for tracking and measuring progress toward achieving the expected outputs and outcomes, with associated timeframes. **(5 points)** c. How well the application demonstrates that the project can ensure sustainability of outcomes beyond the five-year project period and how the applicant will leverage resources, partnership support, etc., to facilitate this. **(5 points)**	**15**
7. **Project Budget:** Under this criterion, applicants will be evaluated based on: a. The overall reasonableness, cost-effectiveness, and adequacy of the proposed budget to accomplish the proposed project considering the following factors: budget breakdown across activities and cost categories, organizational overhead (including indirect costs), and ability of the applicant to control costs. **(10 points)** b. The approach, procedures, and controls for ensuring that awarded grant funds will be expended in a timely and efficient manner. **(5 points)**	**15**
TOTAL	**100**

C. Review and Selection Process

Eligible applications will be evaluated and ranked using the criteria stated in Section V.B. above by a panel of reviewers from EPA and other CBP partner organizations with a working knowledge of the technical analysis and programmatic evaluation needs of the CBP partnership. The review team will then forward the highest-ranked applications to the CBPO director or deputy director for final selection. In making the final funding decision, the selection official may also consider programmatic goals and priorities, including those described in the 2014 *Chesapeake Bay Watershed Agreement*.

VI. AWARD ADMINISTRATION INFORMATION

Note: Additional provisions that apply to this section can be found at EPA Solicitation Clauses.

A. Award Notices and Instructions for Submission of Final Application

It is expected that the applicant will be notified in writing of funding decisions on or around **August 19, 2024,** either via electronic or postal mail. The notification will be sent to the original signer of the application or the project contact listed in the application. This notification, which informs the applicant that its application has been selected and is being recommended for award, is not an authorization to begin work. The official notification of an award will be made by the EPA Region 3 Grants Management Office. Applicants are cautioned that only a grant award official is authorized to bind the government to the expenditure of funds; selection does not guarantee an award will be made. For example, statutory authorization, funding, or other issues discovered during the award process may affect the ability of EPA to make an award to an applicant. The award notice, signed by an EPA grant award official, is the authorizing document and will be provided either via email or U.S. Postal Service.

Notification of selection does not indicate that the applicant can start work on the project. The selected applicant will be asked to submit a full federal assistance agreement application package. A federal project officer assists in the application process and negotiates a workplan, budget, and starting date. Processing for this cooperative agreement award is expected to take 60 days.

B. Administrative and National Policy Requirements

If your application is selected for funding, the following information will be helpful in preparing to manage an EPA assistance agreement. A listing and description of general EPA regulations applicable to the award of assistance agreements may be viewed at: https://www.epa.gov/grants/introduction-regulations-policies-and-guidance-epa-grants

C. Reporting

Progress Report/Final Report Requirements
The successful applicant will be required to submit semi-annual progress reports (every six months) throughout the duration of the agreement to keep the EPA PO apprised of progress. Semi-annual progress reports are due within 30 days after the end of each reporting period, as will be detailed in the award terms and conditions. The recipient will also be required to participate in semi-annual calls/meetings with the EPA PO to discuss progress. A final report is due to the EPA PO within 120 of the end of the performance period. The recipient may also be requested to provide progress and informational presentations to the CBP technical and management decision-making groups.

EPA Requirements for Quality Management Plans and Quality Assurance Plans
In accordance with 2 C.F.R. Section 1500.12, projects that include the generation or use of environmental data are required to submit a Quality Management Plan (QMP) and Quality Assurance Project Plan (QAPP).

The QMP must document quality assurance policies and practices that are sufficient to produce data of adequate quality to meet program objectives. The QMP should be prepared in accordance with EPA's Quality Management Plan (QMP) Standard. The recipient's QMP should be reviewed and updated annually as needed. The QMP must be submitted to the EPA project officer at least 45 days prior to the initiation of data collection or data compilation.

The recipient must develop and implement quality assurance and quality control procedures, specifications and documentation that are sufficient to produce data of adequate quality to meet project objectives. The QAPP is the document that provides comprehensive details about the quality assurance/quality control requirements and technical activities that must be implemented to ensure that project objectives are met. The QAPP should be prepared in accordance with the current version of EPA's Quality Assurance Project Plan (QAPP) Standard and EPA QA/G-5: Guidance for Quality Assurance Project Plans. The QAPP must be submitted to the EPA project officer at least 30 days prior to the initiation of data collection or data compilation. A model template and guidance for developing QAPPs can be found at https://www.epa.gov/quality/epa-region-3-quality-assurance-project-plans.

VII. AGENCY CONTACTS

For administrative and technical issues regarding this NOFO, please email R3_CBPO_GRANTS@epa.gov. All questions must be received in writing via with the reference line referring to this NOFO (Re: NOFO EPA-R3-CBP-24-01). Questions and answers will be posted to https://www.epa.gov/grants/grants-your-region-information-specific-epa-region-3.

APPENDIX A. PROJECT NARRATIVE INSTRUCTIONS, FORMAT, AND CONTENT

The following information must be provided, or the application may be considered incomplete and may not be evaluated. Each application will be reviewed against the eligibility criteria detailed in Section III. Each eligible application will be evaluated using the criteria in Section V.

Project Narrative Format:
The project narrative must not exceed 15 single-spaced pages and be on letter size pages (8 ½ X 11 inches) with margins of no less than 1-inch. Font size may be no smaller than 10. Applicants are advised that readability is of paramount importance and should take precedence in selection of an appropriate font for use in the application. Excess pages will not be reviewed. Applicants are encouraged to be concise and do not need to use all the pages within the page limit.

The 15-page limit *includes* the project narrative (Sections A and B below), resumes and curriculum vitae, and any other supporting materials not identified as excluded. The 15-page limit *excludes* the SF-424, SF-424A, Budget Narrative, Key Contacts Form 5700-54, Preaward Compliance Review Report Form 4700-4, documentation of non-profit status, cost share letters of commitment, and letters of support.

Section A. Executive Summary
The Executive Summary should include the below elements:

1. Lead applicant organization name and address
2. Contact information: Provide the name, title, email, and phone number for the primary contact for the application.
3. Project title
4. Amount of EPA funding requested: See Section II for available funding limits.
5. Proposed cost share amount and funding sources: Identify the total proposed cost share and briefly explain to the extent possible what funding sources will be used to meet the project cost share requirements. See Section III.B for cost share requirements and Appendix B for information regarding the calculation of cost share.
6. Organization description: Briefly describe your organization and how your organization meets the eligibility requirements detailed in Section III.
7. Biographies of project leads: Identify the project leads, including name and title, and provide a brief biography for each lead. Applicants may submit resumes and/or curriculum vitae as an appendix to the project narrative but should note that these enclosures will be counted toward the 15-page limit.

Section B. Project Plan
The Project Plan should include the below elements:

1. Project Overview:
   Provide a clear and concise discussion of how your organization will meet the objectives and requirements of each Activity, as described in Section I.B of the announcement.

2. Review Criteria**:**
   Address in narrative form each of the review criteria identified in Section V.B of the NOFO. Identify your responses by the review criteria number and title followed by your narrative.

With specific respect to the Programmatic Capability Past Performance factor in V.B:
Submit a list of federally and/or non-federally funded assistance agreements (assistance agreements include federal grants and cooperative agreements but not federal contracts) that your organization performed within the last five years (no more than five agreements and preferably EPA agreements) and describe (i) whether, and how, you were able to successfully complete and manage those agreements and (ii) your history of meeting the reporting requirements under those agreements, including whether you adequately and timely reported on your progress towards achieving the expected outputs and outcomes of those agreements (and if not, explain why not) and whether you submitted acceptable final technical reports under the agreements.

In evaluating applicants under these factors in Section V, EPA will consider the information provided by the applicant and may also consider relevant information from other sources, including information from EPA files and from current/prior grantors (e.g., to verify and/or supplement the information provided by the applicant). If you do not have any relevant or available past performance or past reporting information, please indicate this in the application and you will receive a neutral score for these factors (a neutral score is half of the total points available in a subset of possible points). If you do not provide any response for these items, you may receive a score of 0 for these factors.

APPENDIX B. BUDGET GUIDANCE AND REQUIREMENTS

Applicants are required to provide a budget narrative detailing costs for the proposed project. The budget narrative is in addition to the SF-424A and provides greater context for the budget information provided in the SF-424A. Applicants have discretion in determining the format of the budget narrative provided it includes the required elements detailed below. Applications that fail to include the required budget narrative may be considered incomplete and may not be evaluated. The budget narrative is not part of the page limit and will not count against the 15-page page limit for the project narrative.

As a resource, an optional multi-year budget template and additional budget guidance is available within the attachments to the Chesapeake Bay Program Grant Guidance. Additional budget development guidance for applicants is available at RAIN-2019-G02 and indirect cost guidance is available at RAIN-2018-G02-R.

Budget Narrative Requirements
For each year of the project, provide a budget breakdown by detailing proposed costs for each of the major budget categories including personnel, fringe benefits, travel, equipment, supplies, contractual costs, construction, other costs, and indirect costs. The budget narrative must address the total estimated project funding, including both the federal share and cost share. All budget information should be presented in whole dollar format (no cents). Supplemental information may be provided within the budget narrative to explain how the proposed costs are reasonable, cost-effective, and necessary to accomplish the project.

Cost Share Requirements and Calculation Formula
The application budget, as reflected in the SF-424, SF-424A, and budget narrative, must clearly identify the proposed cost share amount and demonstrate how minimum 5 percent cost share requirement will be met. For any third-party contributions included in the proposed cost share, the applicant may provide letters of commitment as additional support.

Applicants must use the formula below to calculate the minimum cost share amount. Failure to follow the instructions below may result in a match shortfall and the application being deemed ineligible.

To calculate the minimum cost share amount, follow these steps:

1. Amount of EPA funding requested (including EPA in-kind, if applicable) ÷ 95% = 100% of Total Grant Amount
2. 100% of Total Grant Amount × 5% = Applicant's Minimum Cost Share Amount (must be rounded upward to the next whole dollar)

The following example is provided to assist applicants of this NOFO:

1. $6,500,000 (EPA funding request) ÷ 95% = $6,842,105.26
2. $6,842,105.26 x 5% = $342,105.26, which rounds upward to **$342,106 (minimum cost share)**

Administrative Cost Cap
Recipients of CBP assistance agreements must adhere to the requirement for "Administrative Costs" under CWA Section 117 (d)(4), 33 U.S.C. Section 1267 (d)(4), which states that administrative costs shall not exceed 10 percent of the annual grant award. Administrative costs are distinct from and should not

be confused with indirect costs. Under CWA Section 117(a)(1), the term "administrative cost" means the cost of salaries and fringe benefits incurred in administering a grant under this section.

Salaries and fringe benefits charged against the project or program element for the sole purpose of administering the grant/cooperative agreements shall not exceed 10% of the annual grant award (federal and cost share). 100% of the salaries and fringe benefits related to these functions are considered administrative costs. Examples of administrative costs include, but are not limited to, preparation and submission of grant applications, fiscal tracking of grants funds, maintaining project files, and collection and submission of deliverables.

Salaries and fringe benefits related to the implementation of the project or program element of the grant/cooperative agreement are not considered administrative costs. None of the salaries and fringe benefit costs related to these functions shall be considered administrative costs. As an example, the salaries and fringe benefits for technical staff to conduct work to accomplish specific Bay Program goals as outlined in the program or project elements are not administrative costs.

To ensure compliance with this requirement, the sample worksheet below may be used. Please note that applicants are not required to submit this worksheet, but the application should reflect how the applicant will comply with the cap.

Sample Administrative Cost Cap Worksheet

Total Award (including federal and cost share)	$ _____
Cap %	X .10
Limit on Administrative Costs	$ (a) _____
List Administrative Costs: (Budgeted costs for application)	
_____	$ _____
_____	_____
_____	_____
_____	_____
Total	$ (b) _____

Line (b) cannot exceed Line (a).

APPENDIX C. APPLICATION SUBMISSION INSTRUCTIONS

Applicants must apply electronically through Grants.gov under this funding opportunity based on the Grants.gov instructions in this announcement. If your organization has no access to the internet or access is very limited, you may request an exception for the remainder of this calendar year by following the procedures outlined here. Please note that your request must be received at least 15 calendar days before the application due date to allow enough time to negotiate alternative submission methods. Issues with submissions with respect to this opportunity only are addressed below under Technical Issues with Submission.

1. SAM.gov (System for Award Management) Registration Instructions

Organizations applying to this funding opportunity must have an active SAM.gov registration. If you have never done business with the Federal Government, you will need to register your organization in SAM.gov. If you do not have a SAM.gov account, then you will create an account using login.gov to complete your SAM.gov registration. SAM.gov registration is FREE. The process for entity registrations includes obtaining Unique Entity ID (UEI), a 12-character alphanumeric ID assigned an entity by SAM.gov, and requires assertions, representations and certifications, and other information about your organization. Please review the Entity Registration Checklist for details on this process.

If you have done business with the Federal Government previously, you can check your entity status using your government issued UEI to determine if your registration is active. SAM.gov requires you renew your registration every 365 days to keep it active.

Please note that SAM.gov registration is different than obtaining a UEI only. Obtaining an UEI only validates your organization's legal business name and address. Please review the Frequently Asked Question on the difference for additional details.

Organizations should ensure that their SAM.gov registration includes a current e-Business (EBiz) point of contact name and email address. The EBiz point of contact is critical for Grants.gov Registration and system functionality.

Contact the Federal Service Desk for help with your SAM.gov account, to resolve technical issues or chat with a help desk agent: (866) 606-8220. The Federal Service desk hours of operation are Monday - Friday 8am - 8pm ET.

2. Grants.gov Registration Instructions

Once your SAM.gov account is active, you must register in Grants.gov. Grants.gov will electronically receive your organization information, such as e-Business (EBiz) point of contact email address and UEI. Organizations applying to this funding opportunity must have an active Grants.gov registration. Grants.gov registration is FREE. If you have never applied for a federal grant before, please review the Grants.gov Applicant Registration instructions. As part of the Grants.gov registration process, the EBiz point of contact is the only person that can affiliate and assign applicant roles to members of an organization. In addition, at least one person must be assigned as an Authorized Organization Representative (AOR). Only person(s) with the AOR role can submit applications in Grants.gov. Please review the Intro to Grants.gov-Understanding User Roles and Learning Workspace - User Roles and Workspace Actions for details on this important process.

Please note that this process can take a month or more for new registrants. Applicants must ensure that all registration requirements are met in order to apply for this opportunity through Grants.gov and should ensure that all such requirements have been met well in advance of the application submission deadline.

Contact Grants.gov for assistance at 1-800-518-4726 or support@grants.gov to resolve technical issues with Grants.gov. Applicants who are outside the U.S. at the time of submittal and are not able to access the toll-free number may reach a Grants.gov representative by calling 606-545-5035. The Grants.gov Support Center is available 24 hours a day 7 days a week, excluding federal holidays.

3. Application Submission Process

To begin the application process under this grant announcement, go to Grants.gov and click the red "Apply" button at the top of the view grant opportunity page associated with this opportunity.

The electronic submission of your application to this funding opportunity must be made by an official representative of your organization who is registered with Grants.gov and is authorized to sign applications for Federal financial assistance. If the submit button is grayed out, it may be because you do not have the appropriate role to submit in your organization. Contact your organization's EBiz point of contact or contact Grants.gov for assistance at 1-800-518-4726 or support@grants.gov.

Applicants need to ensure that the Authorized Organization Representative (AOR) who submits the application through Grants.gov and whose UEI is listed on the application is an AOR for the applicant listed on the application. Additionally, the UEI listed on the application must be registered to the applicant organization's SAM.gov account. If not, the application may be deemed ineligible.

Applications submitted through Grants.gov will be time and date stamped electronically. Please note that successful submission of your application through Grants.gov does not necessarily mean your application is eligible for award. Any application submitted after the application deadline time and date deadline will be deemed ineligible and not be considered.

4. Technical Issues with Submission

If applicants experience technical issues during the submission of an application that they are unable to resolve, follow these procedures **before** the application deadline date:

1) Contact Grants.gov Support Center **before** the application deadline date.
2) Document the Grants.gov ticket/case number.
3) Send an email to R3_CBPO_GRANTS@epa.gov with the FON number EPA-R3-CBP-24-01 in the subject line to **before** the application deadline time and date and **must** include the following:
    a. Grants.gov ticket/case number(s)
    b. Description of the issue
    c. The entire application package in PDF format.

Without this information, EPA may not be able to consider applications submitted outside of Grants.gov. Any application submitted after the application deadline time and date deadline will be deemed ineligible and **not** be considered.

Please note that successful submission through Grants.gov or email does not necessarily mean your application is eligible for award.

EPA will make decisions concerning acceptance of each application submitted outside of Grants.gov on a case-by-case basis. EPA will only consider accepting applications that were unable to submit through Grants.gov due to Grants.gov or relevant SAM.gov system issues or for unforeseen exigent circumstances, such as extreme weather interfering with internet access. Failure of an applicant to submit prior to the application submission deadline date because they did not properly or timely register in SAM.gov or Grants.gov is not an acceptable reason to justify acceptance of an application outside of Grants.gov.

APPENDIX D. ADDITIONAL RELEVANT BACKGROUND INFORMATION

1. Recent and Relevant Scientific Reports and Findings

Comprehensive Evaluation of System Response

"The Bay of the future will be different from the Bay of the past because of permanent and ongoing changes in land use, climate change, population growth, and economic development", states the 2023 STAC report *Achieving Water Quality Goals in the Chesapeake Bay: A Comprehensive Evaluation of System Response*. Monitoring and forecasting changes in land use are critical to understanding how the Bay is changing and how it might change in the future. This report also calls for "finer spatial scale modeling and monitoring (to) further identify high nutrient loss areas and operations and be used to consider more effective treatment options." Finer scale analyses are likely to be particularly important in shallow water habitats where opportunities may be greatest to achieve living resource responses to nutrient reductions and other restoration efforts. High-resolution land use/land cover data are needed to support such analyses.

Rising Watershed and Bay Water Temperatures

"Land use has a significant impact on temperatures of stream flow and precipitation induced runoff from land surfaces. Trees and riparian forests play a central role in stream temperature moderation, through shading, evapotranspiration and facilitating infiltration. Conversely, more developed areas with impervious surfaces contribute heated runoff to streams. Other landscape factors, like groundwater inputs, may help identify places that are more resilient to climate change to target for conservation, including healthy watersheds," states the 2023 STAC report *Rising Watershed and Bay Water Temperatures: Ecological Implications and Management Responses*. This finding is particularly significant for restoring and maintaining cold-water aquatic habitats for Brook Trout and other species. Improving our understanding land use, hydrography, and hydrology is especially needed in these vulnerable habitat areas to inform restoration and conservation actions. Knowing where streams are unbuffered by forests and wetlands and the locations of small impoundments that may contribute to rising water temperatures is vitally important. This report also calls for "supporting research and enhancing knowledge on how best to implement land use strategies that maximize climate resilience, water quality, habitat, and living resources benefits will allow for better overall adaptation to future climate conditions." Land use decisions across the watershed are mostly made by local governments which require fine-scale land use and hydrography information that is transparent and locally accurate.

Developing Hydromorphology Indicators with GIS Data

In 2023, Tetra Tech and Ecological Planning and Restoration delivered their final recommendations to the CBP's Stream Health Workgroup for developing hydromorphological indicators of stream condition. Such indicators would complement the Chesapeake Basin-wide Indicator of Biological Integrity (Chessie BIBI) to reflect hydraulic, geomorphological, and physicochemical qualities which are also components of stream health. These additional metrics will help the CBP Partners better understand the trajectory of stream health (e.g., improving or declining) by expanding the current stream health assessment approach to include factors beyond the biological stream community.

Enhancing the Chesapeake Bay Program Monitoring Networks

In 2022, the report *Enhancing the Chesapeake Bay Program Monitoring Networks* was delivered to the PSC. For the first time in the history of the CBP, tracking land use change with high-resolution data was highlighted as a critical monitoring need over the next five years. This report noted that "a better understanding of how the land changes through time is critical to assess progress towards the TMDL and

other goals in addition to serving as the foundation for future watershed and land change model calibration and parameterization. A longer monitoring period is needed to better capture the breadth of phenomena that impacts water quality, watersheds, and communities. Continued technological advancements hold promise to reduce the costs and improve the quality of land change monitoring."

EPA Office of Inspector General Report No. 23-E-0023
The 2023 Office of Inspector General (OIG) report called for EPA to "lead the Chesapeake Bay Program in developing a new approach to specifically address nonpoint source pollution." Key to any such approach is an accurate characterization of nonpoint source pollutant sources such as cropland, pasture, turf grass, and impervious surfaces. These pollutant sources are explicit classes in the CBP's high-resolution land use/land cover (LULC) dataset. In addition, the CBP's hyper-resolution hydrography demonstrate where runoff from these nonpoint sources of pollution collects and flows directly into streams and rivers. The maintenance, curation, and continued enhancement of these data are needed to support any new approach to address nonpoint source pollution.

2. Chesapeake Bay Program's Environmental Models

Models of the Chesapeake Bay's airshed, watershed, estuary, land use, and living resources have been developed by the partners and linked together over the past 40 years. The CBP partnership's suite of models assists in understanding the important processes affecting the health of the watershed and the Chesapeake Bay ecosystem. These modeling tools provide the Chesapeake Bay watershed state and local jurisdictions with an understanding of the effect of various control strategies on pollutant levels and the level of nutrient and sediment load reductions needed to restore the Chesapeake Bay and achieve the states' water quality standards for dissolved oxygen, chlorophyll *a*, underwater bay grasses and water clarity. By quantifying the management actions necessary to restore Chesapeake Bay habitats and the living resources dependent on those habitats, these integrated CBP partnership models provide guidance to environmental managers and citizens on where the most cost-effective reductions can be made so that controls are equitable and broadly supported.

Development and application of the next generation of Chesapeake Bay models will require an unprecedented level of direct involvement of a wide array of non-federal CBP partners and stakeholders in each step of the planning, development, calibration, verification, management application, and continued refinement/enhancement. Given that Bay restoration decision-making occurs at a very local scale as a result of the Chesapeake Bay TMDL, the jurisdictions' WIPs, and the greatly expanded level of accountability, the next generation of the partnership's Chesapeake Bay models must reflect these shifts in scale and accountability. These models must be developed for direct application by state and local jurisdictional partners, academic partners, and stakeholders alike, feeding directly into their respective and unique decision-making processes and supporting adaptive management at all scales.

Through the application of airshed, watershed, estuarine, and living resource modeling activities, the Bay Program's state and local jurisdictional partners gain access to information that is used directly in decision making for Chesapeake Bay environmental restoration efforts. Chesapeake Bay environmental models are developed, calibrated, verified, and applied through an expanding cooperative network of state, federal, regional and local agencies, non-governmental organizations, and academic institutional partners. These partnership models help set the pace and direction of Chesapeake Bay restoration by

providing information on water quality and biological resource responses to different management actions.

3. Chesapeake Bay Program's Monitoring Networks

Undergoing adaptive changes as the CBP partnership's management needs and requests have significantly evolved over time, the Chesapeake Bay tidal monitoring network now includes: tidal water quality monitoring for 26 parameters at over 150 stations distributed over the 92 Chesapeake Bay tidal segments across Delaware, the District of Columbia, Maryland, and Virginia; shallow-water monitoring addressing a select set of segments on a rotational basis; benthic infaunal community monitoring at fixed and random stations across the tidal waters; annual aerial and ground surveys of underwater Bay grasses; decadal records of phytoplankton and zooplankton monitoring; and fisheries independent population monitoring programs and surveys.

Each component of the tidal monitoring network has been designed to support the decision making of the four Bay jurisdictions' tidal water Clean Water Act Section 303(d) listing determinations, -- addressing dissolved oxygen, water clarity, underwater bay grasses, and chlorophyll *a* criteria attainment assessments and benthic infaunal community-based impairment decisions. The Chesapeake Bay tidal monitoring network is funded, operated, and maintained through a longstanding state-federal-university partnership that produced the fundamental monitoring data supporting Bay TMDL development. The data is also utilized in public reporting on the health of Chesapeake Bay, its tidal tributaries and embayments, and supporting ecosystem; assessment of achieving the Chesapeake Bay jurisdictions' Chesapeake Bay water quality standards regulations; evaluation of the effectiveness of actions to reduce nitrogen, phosphorus, and sediment pollution loadings from the surrounding watershed; developing, calibrating, verifying and applying models; and generating and reporting water quality and living resource indicators.

The Chesapeake Bay watershed nontidal monitoring network (NTN) is a network of 123 streamflow gauges and water-quality sampling sites operated across the Chesapeake Bay watershed. The NTN is an essential component to reporting, tracking, and modeling stream flow as well as nitrogen, phosphorus, and sediment concentrations and loads across the Chesapeake Bay watershed as it provides the only consistent, coordinated monitoring effort across all seven Chesapeake Bay watershed jurisdictions. The NTN is designed to measure the discharge of nitrogen, phosphorus, and sediment loads with routine samples collected monthly with additional storm-event samples to obtain a range of discharges and loadings. The seven jurisdictions, the Susquehanna River Basin Commission, and USGS all use the same set of standardized CBP protocols that are based on USGS sampling methods and EPA-approved analytical methods.

APPENDIX E. CHESAPEAKE BAY LULC MAPPING AREA

